MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

WATER RESOURCES DIVISION

PERMIT FOR CONSTRUCTION OF WASTEWATER SYSTEMS

SITE NAME:	Tuscarora Twp WWTF
CONTACT NAME:	Aaron Nordman, Engineer Tammi Gall, Operator in Charge
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PROJECT COUNTY:	Cheboygan

PERMIT NUMBER:	P41004623 v. 1
ISSUED DATE:	February 6, 2024
ISSUED TO:	Tuscarora Township WWTF
PROJECT NAME:	WWTF Expansion
PROJECT LOCATION:	Tuscarora Township, Indian River

APPLICATION SUBMISSION ID: HPW-RV7Y-5JPG3

REQUIRED NOTIFICATIONS: The permittee shall submit a Construction Startup Notification (just prior to excavation) and a Construction Completion Notification (upon project completion) using the permit schedules in MiEnviro Portal.

☒ If this box is checked, please see the SPECIAL CONDITIONS on page 2.

ISSUED UNDER THE AUTHORITY OF THE DIRECTOR OF THE DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE)

Issued By:	Reviewed By:
Barry J Christian	Barry J Christian
Name: Barry J. Christian, P.E. Title: District Engineer	Name: Barry J. Christian, P.E. Title: District Engineer

cc: Robert Kramer, Tuscarora Township Supervisor
Aaron Nordman, Performance Engineers, Inc.
Kevin Prevost, R.S. EH Director, District Health Department #4

GENERAL CONDITIONS

a. This PERMIT only authorizes the construction, alteration, addition, or improvement of the wastewater system as described herein and is issued solely under the authority of Part 41, Sewerage Systems, of Act 451.
b. This PERMIT expires two (2) years after the above date of issuance unless construction starts prior to the expiration date in accordance with R 299.2939(2) of the Part 41 Administrative Rules.
c. Any portion of the herein-described proposed wastewater project constructed prior to the date of issuance is not authorized by this PERMIT and is a violation of Part 41 of Act 451.
d. No sewer shall be placed into service unless and until the outlet sewer has been constructed, tested, and placed into service.
e. Failure to meet any condition of this PERMIT or any requirement of Act 451 constitutes a violation of Act 451.
f. Issuance of this PERMIT does not authorize any violation of federal, state, or local laws or regulations, nor does it obviate the need to obtain other permits or approvals from EGLE or other units of government as required by law.
g. The applicant must provide notice of impending construction to public utilities and comply with the requirements of the Underground Facility Damage Prevention and Safety Act, PA 174 of 2013, as amended (MISS DIG).
h. All earth-changing activities must be conducted in accordance with Part 91, Soil Erosion and Sedimentation Control, of Act 451.
i. All construction activity, including groundwater dewatering, impacting wetlands shall be conducted in accordance with Part 303, Wetlands Protection, of Act 451.
j. If water withdrawal, via dewatering activities, is associated with this project, authorization under Part 327, Great Lakes Preservation, of Act 451, is required for new or increased large quantity withdrawals over 100,000 gallons per day (70 gallons per minute). A Part 327 permit is required for new or increased large quantity withdrawals over 2,000,000 gallons per day.

SPECIAL CONDITIONS

1. The project owner (permittee) shall provide a copy of this permit to the general contractor and all applicable subcontractors before the start of construction. The permittee/owner shall review the conditions below that are applicable to contractors with all applicable contractors and subcontractors. The owner's engineering representative may perform this distribution and review in lieu of the owner at the owner's direction.

2. A water tightness test or hydrostatic test will be performed on the Aero-Mod Tanks and Equalization, Surge tank prior to being placed into service to ensure there is no leakage out of the tanks. The testing will be completed in accordance with applicable leak testing standards. The permittee shall provide copies to EGLE/WRD of the tightness test results for the tanks.

3. EGLE requires an O&M Manual to be provided that contains the information previously requested in technical review comments (see Comments #14, 26, 39, 78 and 99 – 102) and including manuals from the manufacturers of the individual pieces of equipment (in particular, the Aero-Mod supplied equipment including mixers and pumps as well as blowers, mechanical screen and air dryer. EGLE will review the O&M Manual once construction is completed. EGLE's review will be to determine compliance with Rules 299.2951 through 299.2960

promulgated under Part 41 of Natural Resources and Environmental Protection Act of 1994, PA 451, as amended, as well as the Part 22 rules and the Groundwater Discharge Permit, GW1810271. Based on this review, EGLE may request and require revisions and resubmittal of this manual.

4. The discharge permit issued in October 2023 and the attached Part 41 construction permit issued for the construction of a second Aero-Mod system to double the treatment capacity of the existing WWTF, do not permit the construction of a third Aero-Mod system. Should TT plan to construct a third Aero-Mod system or something similar in the footprint of the proposed equalization, surge tank, as described in the Comment-Response document for Comment #53, new groundwater discharge and Part 41 construction permits from EGLE will be required.

   Also, please note that TT cannot use the equalization, surge tank to increase the capacity of the WWTF or as a substitute for treatment capacity. The U.S. EPA reliability criteria do not allow equalization tanks to be a substitute for backup of WWTF components. Therefore, any increase in the size of the collection system beyond the proposed Phases 1 and 2, currently being reviewed by EGLE for Part 41 permits, must also be accompanied by another Part 41 permit application to expand the size and capacity of the WWTF.

5. The following permit condition was included in the Part 41 permit for the first Aero-Mod system (circa 2013) and this condition still applies to that system as well as the proposed new Aero-Mod system. The submersible mixer located in the anaerobic tank shall meet Class I, Division 2 requirements of the National Electric Code unless the local electrical authority indicates a different classification other than Class I, Division 2 is applicable. The permittee is responsible for providing a mixer that meets Class I, Division 2 or another classification as determined by the local electrical authority. Also, the electrical conduit from the submersible mixer shall have a gas tight seal.

PROPOSED WASTEWATER PROJECT DESCRIPTION

The purpose of the project is to expand the existing Tuscarora Township 95,000 gpd WWTP, located at 4649 Brudy Rd by an additional 95,000 gpd for a total treatment capacity of 190,000 gpd. The work associated with this project generally consists of the following:

A headworks building renovation that includes replacing a mechanical fine screen rated for 400 gpm peak flow, a new chemical storage room and relocation of chemical storage drums (keeping existing chemical injection point), and a general storage area. The existing blower room will also be modified to replace the two existing blowers with three new blowers, controls, and a new larger desiccant dryer. The screened influent is discharged to a proposed flow control structure that equally splits the flow between the existing and new treatment units. This structure also allows operational control to take either of these units out-of-service for maintenance.

The existing treatment plant will be approximately doubled with a new AeroMod SEQUOX treatment facility, rectangular in shape, with overall dimensions of 54.5 feet by 60.33 feet by 16.0 feet deep. Within the boundary of the dual-train facility, the tankage (common wall) is as follows: One 5,825 gal. fermentation tank, one 5,825 gal. anaerobic selector tank, two 22,236 gal.first stage aeration tanks, two 25,273 gal. second stage aeration tanks, two 20,106 gal. ClarAtor clarifiers, two 30,423 aerobic digesters, one 82,041 gal. sludge storage tank. The treated effluent is discharged to the existing rapid infiltration beds. The new AeroMod facility will be separated from the existing AeroMod facility by a proposed 150,000 gal. surge tank measuring 54.5 feet by 32.5 feet x 16.0 feet deep, common wall to the existing and proposed AeroMod facilities.

Process Flow:
The influent enters the fermentation tank where the raw wastewater, which has been chemically treated, is periodically aerated. Following a 60-100 minute residence time, the flow continues to the anaerobic selector tank and is combined with RAS from the clarifiers. The wastewater is mechanically mixed and is detained approximately 30 to 50 minutes. The wastewater is then divided and flows to the first stage aeration basins and then on to the second stage aeration basins. Following the aeration, the flow enters the ClarAtor clarifiers via inlet screens. The flow is evenly divided across the bottom of the clarifier and drawn off the clarifier near the top, using submerged effluent collection pipes and a three weir flow regulation system. Excessive flow is diverted to the surge tank where it is manually pumped back to the second stage aeration tank when the flow has subsided. Suction hoods and air lifts are used to send RAS back to the anaerobic selector tank. Solids are wasted from the first stage aeration tank to the aerobic sludge digesters. The sludge digesters are decanted to the second stage aeration tank with the stabilized solids being pumped to the sludge storage tank. The sludge storage tank includes a pump and valves for manual selection of decant level, pumping the decant back to the fermenter tank. The stored sludge is land applied to agricultural land for agronomic reuse by a third-party hauler. The final effluent being discharged to the RIBs is measured by an ultrasonic sensor and flow measurement totalizer. The five (5) rapid infiltration beds are sized based on an application rate of 1.70 inches per hour and are rotated on a weekly basis, allowing for 28 days of rest between cycles.

Plant Controls:
The existing plant controls will be modified to integrate the new AeroMod facility, providing the following four main timer functions:
1. RAS timer to activate the on and off operation of the clarifier RAS airlift pump.
2. WAS timer to activate the sludge wasting.
3. SESQUOX timer to sequence the aeration between the aeration basin stages.
4. The digester air timer sequences the air on and off between the digester tanks.