

JUL 01 2014

Ms. Jamie Richardson, EIT
Missouri American Water
727 Craig Road
St. Louis, MO 63141-7175

RE: Missouri American Water Company; Blissfield Manufacturing Company Pilot Study Test Protocol Ammonia Removal for Lagoon Systems for Missouri American Water, Cedar Valley Wastewater Treatment System – Cedar Valley Wastewater Treatment Facility (WWTF), MO-0098477, Pilot Project Approval

Dear Ms. Richardson:

The Missouri Department of Natural Resources' Water Protection Program has reviewed and approved the Blissfield Manufacturing Company Pilot Study Test Protocol Ammonia Removal for Lagoon Systems for Missouri American Water, Cedar Valley Wastewater Treatment System dated May 5, 2014. This approval grants operation of the proposed domestic wastewater pilot project through July 31, 2015.

PILOT PROJECT DESCRIPTION:

The Blissfield's PRO₂ Accelerator is an aeration unit that utilizes pure oxygen to deliver oxygen bubbles to the system in the 0.001 – 0.0001 millimeter (mm) size range. This system provides a high stable supersaturated dissolved oxygen (200 – 400 mg/l) carrier fluid that is injected into the lagoons. The primary objective of the pilot study is to determine the ability of the system to achieve future ammonia discharge limits of <0.6 mg/l during the summer and 2.2 mg/l during the winter. The proposed sampling and analysis will provide data on the test unit, which will in turn provide additional design information including unit sizing, optimization of location and cycles, etc.

The existing Cedar Valley WWTF consists of a three – cell lagoon system with an aerated primary cell. The unit will be placed along the side of the lagoons in a trailer. Water from the third cell will be pumped to the unit where the pure oxygen will be added. Initially, a 15 gallons per minute (gpm) unit will be utilized to jump start the process and remediate the sludge layer in

the lagoon. In approximately two months, the 15 gpm unit will be replaced by a smaller 5 gpm unit for normal operation. The PRO₂ Accelerator unit for this facility will have four discharge zones that will be controlled by a timer. Discharge zones one and two, each with three discharge points, will be located in the primary cell, zone three, with two discharge points, will be located in the secondary cell, and zone four, with one discharge point, will be located in the third cell. In addition, provisions will be made for insulation of the unit and the discharge zone hoses during the winter.

The Cedar Valley WWTF is permitted for 15,762 gallons per day (gpd). Actual flow averages approximately 11,000 gpd as determined by monthly grab measurements of the discharge. This project is proposed as full scale.

CONDITIONS:

1. Since this pilot will be operated as a full scale project, please submit a “Summary of Design”.
2. The pilot system shall be operated until July 31, 2015. If a time extension for the pilot project is necessary, submit a request and justification in writing to the Department at least 30 days prior to the completion date.
3. Any changes to the scope of work to the approved pilot project will require a subsequent review and approval by the Department.
4. While the pilot project is ongoing, the facility shall – obtain samples from these locations:
Effluent.
 - A. Sample the following parameters on a weekly basis:
 1. Flow;
 2. Biochemical Oxygen Demand₅ (BOD₅);
 3. Total Suspended Solids (TSS);
 4. Ammonia as N (NH₃-N);
 5. Nitrate (NO₃⁻) (Monthly Only);
 6. Temperature of wastewater;
 7. pH;
 8. Dissolved Oxygen (DO);
 9. Total Phosphorus (P) (Suggestion only).
 - B. Continue sampling the facility discharge per the conditions of the Missouri State Operating Permit.

5. After July 31, 2015, if the facility intends to continue operation of the Blissfield's PRO₂ Accelerator as a full scale demonstration project, at least 30 days prior to end of the pilot project period submit the following to the Department:
 - A. One facility plan;
 - B. One set of the construction plans and specifications;
 - C. One summary of design;
 - D. An electronic copy of the facility plan, plans and specifications, summary of design, and other pertinent documents in an Adobe[®] PDF searchable format. If the plans are scanned, set the resolution to a minimum of 200 dpi at 17 by 22 inches.
 - E. *An Application for an Operating Permit for Domestic or Municipal Wastewater (≤100,000 gallons per day)* Form B available online at dnr.mo.gov/forms/780-1512-f.pdf; and
 - F. A permit modification fee.
6. If, as a result of the pilot project, additional hydraulic and/or pollutant loading is expected for discharge beyond what is currently permitted in the Cedar Valley WWTF Missouri State Operating Permit, an Antidegradation Review shall be submitted to the Department for review and approval prior to the submittal of the construction permit application.
7. Construction, installation, expansion or modification of any collection system or wastewater treatment facility outside of this approval is prohibited until a construction permit is issued by the Department, per 10 CSR 20-6.010(4)(A).
8. Within 45 days of the conclusion of operations of the pilot project, the Missouri American Water Company shall submit to the Department a report signed, sealed, and dated by a professional engineer licensed in Missouri. This report shall summarize the data collected, sampling results, observations, and provide an overall assessment of the pilot project as outlined in the approved Blissfield Manufacturing Company Pilot Study Test Protocol Ammonia Removal for Lagoon Systems for Missouri American Water, Cedar Valley Waste Water Treatment System.
9. Nothing in this approval removes any obligations to comply with county or other local ordinances or restrictions.
10. This approval does not relieve the Cedar Valley WWTF of their obligations to meet the requirements in the Missouri State Operating Permit including effluent limitations. In the event of violations, such as exceeding effluent limitations, the Missouri American Water Company may be subject to enforcement action.

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If you have any questions concerning this matter, please contact Byron F. Shaw, Jr., Water Protection Program, at 573-751-1402 or Missouri Department of Natural Resources, P.O. Box 176, Jefferson City, MO 65102-0176.

Thank you for your efforts to help ensure clean water in Missouri.

Sincerely,

WATER PROTECTION PROGRAM



John Madras
Director

JM:ebj

Enclosure

c: Mr. Refaat Mefrakis, P.E., Water Protection Program, Engineering Section
Mr. Byron Shaw, Jr., P.E., Water Protection Program, Financial Assistance Center
Mr. Chris Wieberg, Water Protection Program, Permits Section
Ms. Angela Falls, Water Protection Program, Permits Section
Northeast Regional Office