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April 15, 2024

Ms. Leslie Allen-Daniel
Enforcement Coordinator
Division of Environmental Quality, Office of Water Quality
Arkansas Department of Energy & Environment
5301 Northshore Drive
North Little Rock, AR 72118

Re: NPDES Permit Number: AR-0021750, AFIN: 66-06152
CAO LIS # 24-023 Massard WRF Effluent Violations

Dear Ms. Allen-Daniel

As part of the Consent Administrative Order (CAO) LIS #24-023 the City of Fort Smith entered into with the Division of Environmental Quality (DEQ) in February of 2024, the following is the first quarterly update. The Corrective Action Plan was submitted to DEQ on April 8th, 2024. Although not substantial items have changed since the submittal, the following is a summary of work to date and next steps.

The Massard Water Reclamation Facility (WRF) operates under an ammonia-nitrogen (ammonia-N) permit limit from May to October annually. In 2023, the plant faced nitrification challenges, leading to instances where the ammonia-N levels in the effluent exceeded the permit limits.

To immediately address the permit violations, City and Plant Staff undertook the following immediate actions to address the nitrification issue:

1. July to August 2023 –
 - a. Conducted a thorough review of plant operations and testing to pinpoint concerns.
 - b. Initiated the addition of microorganism supplements to enhance the mixed liquor biome and maintain nitrifying bacteria in the suspended-growth portion of the secondary treatment train.
 - c. Secondary clarifier number 3 was cleaned by Plant Staff.
 - d. Pretreatment Program surveyed the existing industries discharging to the Massard WRF for excess ammonia-N and found none.
2. November 2023 –
 - a. Drained aeration basins to remove buildup in the bottom of the existing tankage and repaired leaks in the stainless-steel air piping between the blower facility and the diffused aeration system. Several diffusers were found to be damaged, and a large air leak was repaired. The removal of sediment buildup freed up volume in the existing aeration basins and is anticipated to aid in nitrification rates.
3. December 2023 –
 - a. Cleaned the remaining secondary clarifiers.
4. February 2024 –
 - a. During review of existing facilities and alternatives, City Staff identified an immediate project that would allow for an increase in aeration volume and mixed liquor. This includes utilizing an older solids aeration tank for extending aeration volume and

converting the unused gravity thickener back to a secondary clarifier. This project required some modification to existing site piping and structures but is not a modification to the plant requiring a permit modification. All work has been completed on this project, and it is anticipated to be started the week of April 15th, 2024. Below is a summary of the project:

- i. Flow from the aeration tank will continue to the clarifier splitter box.
 - ii. A portion of the flow in the splitter box is being routed via an existing gate (to be removed) to the additional aeration tank adjacent to the splitter box. This side stream will allow for additional aeration time, giving nitrifying bacteria more time to remove ammonia.
 - iii. The flow will then be routed back into the splitter box and can be distributed to either Clarifier 3 or the converted gravity thickener which is now a new secondary clarifier.
 - iv. Although this is a short-term solution, it is viable that this extended aeration volume and additional mixed liquor will provide additional capacity to aid in reducing ammonia in the effluent.
5. March 2024 –
- a. Replaced all membranes of fine bubble diffusers in the existing aeration basins.
6. April 2024 –
- a. City staff will begin feeding plant pro bio health supplement suitable for cold temperature growth to start populating nitrifying bacteria before the ammonia-N permit cycle starts. This will help to boost the biological health of the microorganisms.
 - b. Plant staff will maintain an inventory of the pro bio supplement for the warmer months and continue enhancement of biomass by addition of pro bio health supplement as needed. It is planned that the warm month bio supplement will begin to be added to the aeration volume in later April and early May.

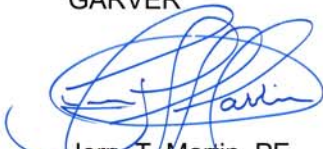
Garver has also screened several ammonia-N treatment alternatives and these are outlined in the Corrective Action Plan. All investigated alternatives focus on increasing the operational aerobic solids retention time to create a better environment for growth of nitrifying bacteria and consequently, provide more reliable nitrification. The alternatives submitted also take into account a long term viability for the City and the Massard WRF operations. The City is currently reviewing the alternatives and findings, and working to develop a plan for implementation of the most viable alternative.

Over the next quarter, the City will have the additional aeration system with re-fitted clarifier up and running, be switching to the warm weather bugs, and evaluating next steps to further address compliance with the ammonia-N effluent limits.

Please feel free to reach out if you have any questions or need any additional information.

Sincerely,

GARVER



Jerry T. Martin, PE
Water Team Leader
Project Manager

