

INTERIM REPORT
Alma Arkansas Wastewater Treatment Facility
Corrective Action Plan

NPDES Permit No. AR0021466
AFIN 17-00059

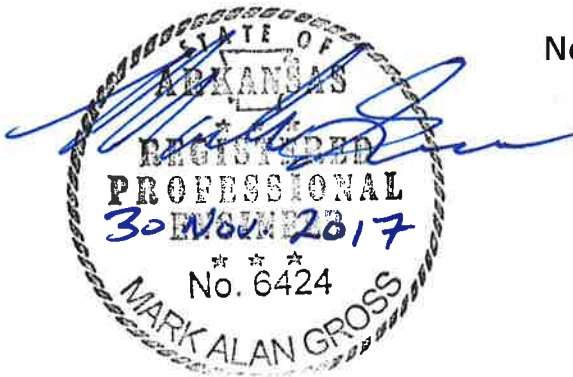
Prepared for:

City of Alma, Arkansas

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Introduction

A Corrective Action Plan (CAP) was developed for the City of Alma and comments were received from ADEQ, Office of Water Quality, Enforcement Branch on July 19, 2017. In the CAP and with the comments, the first interim report is scheduled for November 30, 2017.

Since July, 2017, the corrective actions proposed in the CAP timeline have been completed. While the corrective actions have been implemented, cost estimates were collected for lagoon covering using commercially-available products. An alternative to lagoon covering, using process modifications has been examined. Also some research into the efficacy of ultrasonic algae control has been conducted. The Public Works Director, Mark Yardley, and the Wastewater Treatment Manager, Tony Maxwell, have been conducting some research and testing regarding using recycled materials for covering the lagoon.

Corrective Actions Implemented

1. Examine changes from 2012 through 2017 – COMPLETED
Mr. Maxwell provided years of sample analysis for the treatment system over the period 2012 – 2017. A chelated copper sulfate algae control product (EarthTec) was used for algae control and was quite effective for the entire year of 2016. In 2017, there were some BOD₅ and TSS excursions.
During the period from 2012 through 2017, aeration was reduced. Allen Canning, a major wastewater contributor closed and no longer contributed to the wastewater load. Reducing the aeration seemed to be reasonable for the reduced load.
2. Stop using EarthTec and collect algae samples for analysis to determine if the algae species are susceptible to ultrasonic disruption – COMPLETED
The EarthTec addition was stopped to allow the algae to proliferate so that a healthy and representative population would be available to analyze for the quantitative and qualitative tests. When the EarthTec was stopped, an excursion (7-day average for September 2017) for TSS occurred. The samples were taken over a one-month period and analyzed. The Ultrasonic technology representative reported that the species will be susceptible to ultrasonic wave disruption.
3. Restore aeration in Lagoons 1 and 2 and measure the effect.
All aeration for lagoon 1 was restored by October 4. Prior to repairing and replacing aeration equipment and bringing it back online, 3 blowers were operating in Lagoon 1 with a total of 34.5 Hp. After restoring and repairing all the aeration in Lagoon 1, 12 blowers were operating supplying a total of 138 Hp to the lagoon
All of the aerators were repaired and replaced in Lagoon 2 by November 27. Some of the aerators required a rebuild, so their repair and replacement was delayed. The other aerators were brought online as they were restored to operable condition.

These are the corrective actions proposed for completion by the end of November, 2017. All were completed, and the CAP is on schedule.

Additional Actions

1. Meeting at ADEQ Offices to discuss a proposed Consent Administrative Order (CAO) and progress toward bringing the Alma Wastewater Treatment Facility into compliance. Representatives for the City of Alma met on October 16 at the ADEQ offices in North Little Rock to discuss the proposed CAO and to update each other on progress and plans for the corrective action. Following that meeting, Alma and the consultant submitted letters to ADEQ Enforcement Branch requesting amendments to the proposed CAO as well as a timeline amendment to the CAP.
2. Follow up to the effectiveness of the ultrasonic technology was conducted. Four of the references (“testimonials”) listed on the website for one of the ultrasonic representative’s website were contacted. Alma’s consultant was able to speak with 3 of the references. One of the references did not return repeated emails and phone calls. Two of the references had ultrasonic algae control technology in wastewater treatment lagoons. One of the references was unaware of the effectiveness of the technology and was not sure where they had the technology installed. One of the references, in Georgia, opened the conversation with “Don’t waste your money” and went on to describe their disappointment with the ultrasonic and their actions to bring the wastewater treatment system into compliance. Another reference having used the ultrasonic system in two out of three water treatment clarifiers said that the first 2 years, there was no observable difference between the clarifiers with the ultrasonic and the clarifier without the ultrasonic. The third year, he thought he “may have” seen some difference, but it was not clear. No measurements or analyses were available to measure effectiveness.

For lack of evidence of the effectiveness of ultrasonic technology to improve algae removal, Alma has decided to spend the time, effort and money on building a cover for a portion of the second lagoon and the third lagoon to block sunlight and allow the algae to die. This corrective action is in addition to continuing to effectively aerate lagoons 2 and 3.

As discussed with ADEQ staff in the October 16 meeting at ADEQ headquarters, recycled vinyl from billboards is being tested for methods to float on the lagoon surface as a cover. The material is near neutrally buoyant, but will sink over the course of approximately a week. Using some floatation sandwiched between sheets of vinyl, the material is made to float and has been floating for some time in a test pond. Research is being conducted into methods of effectively welding the material to encapsulate the

floatation material. Research into the lightest, most durable (ultraviolet resistant, water resistant, and rot resistant) rope is being conducted. In addition, investigation into potential patent violation is being conducted.

Proposal to Amend CAP

Alma proposes to amend the previously-submitted CAP to pursue covering the lagoon instead of using ultrasonic wave to disrupt the algae. Preliminary investigation indicates that the lagoon cover can be built using recycled material and local manpower for nearly the same cost as the ultrasonic solution. Alma proposes to begin fabricating the cover during the Winter of 2017-2018 and deploy the cover over the lagoon in Summer of 2018.

We will submit this proposal to the Permits Branch to determine if a construction permit is required in order to test the cover over the downstream half of lagoon number 2.

We will also submit an amended CAP for review before the end of December, 2017.