

Office of the Mayor JAMES W. SANDERS

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October 6,2017

Ms. Jacqueline Trotta, Water Division, Enforcement Branch ADEQ 5301 Northshore Drive North Little Rock, AR 72118-5317

Dear Ms. Jacqueline Trotta, Water Division, Enforcement Branch,

The City of Blytheville are in agreement with the Correction Action Plan prepared by PMI Engineering Firm. These are the plans that were discussed and agreed on by the Director of Blytheville Wastewater Division.

Sincerely,

CORRECTIVE ACTION PLAN

OCTOBER 2, 2017

WEST WASTEWATER TREATMENT PLANT

BLYTHEVILLE, ARKANSAS

ISSUED FOR REVIEW

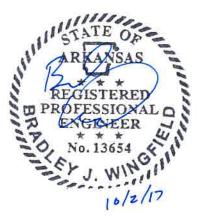
PREPARED FOR:

Blytheville Wastewater Department

PREPARED BY:

Brad Wingfield, P.E. PMI 3512 South Shackleford Rd. Little Rock, AR 72205





Corrective Action Plan West Wastewater Treatment Plant Blytheville Wastewater Department

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Figure 1: Site Location Map

Corrective Action Plan West Wastewater Treatment Plant Blytheville Wastewater Department

Introduction

This Corrective Action Plan (CAP) was prepared by PMI on behalf of the Blytheville Wastewater Department (Blytheville). The CAP was prepared at the request of the Water Division Enforcement Branch of the Arkansas Department of Environmental Quality (ADEQ), and presents a proposal for compliance with effluent limitations.

<u>Purpose</u>

Blytheville was presented with an outline of 34 effluent limit violations listed in Part 1, Section A of the NPDES Permit No. AR0022560. Effluent violations include 9 for Fecal Coliform, 3 for Mercury, and 22 for ammonia nitrogen. Blytheville is determined to achieve full compliance with the effluent limits of the aforementioned Permit with necessary operational changes and plant upgrades.

<u>Scope</u>

The project consists of a scope of work consisting of:

- Submit a Corrective Action Plan with a milestone schedule to the Arkansas Department of Environmental Quality (ADEQ).
 - Develop operation procedures to enable nitrification of ammonia.
 - o Continue with improved mercury sampling methods.
 - Evaluation of existing UV disinfection system performance.

Existing Facility

History

The Blytheville West Plant provides sewer service to an average of 6,000 customers representing a population of approximately 14,375 people. The current facility was constructed in 1988. The wastewater system is a combination of gravity sewer and pump stations that collect and convey water to the treatment facility.

Location

The Wastewater Treatment Plant (WWTP) is generally located along N Co Road 635 west of Blytheville. See the attached Site Location Map for the exact project location.

Conditions of Existing Facility

The existing WWTF has a permitted capacity of 1.6 million gallons per day (MGD). Flows over the past year (2016-2017) indicated an annual average flow of approximately 0.517 MGD average and 3.807 MGD peak. The plant experiences problems with complete nitrification of ammonia due to insufficient alkalinity and/or toxicity issues. The plant also experiences difficulty with Fecal Coliform potentially due to transmissivity during high flows.

Environmental Resources

Pending results of the UV disinfection study, an ADEQ construction permit might be required.

Growth Area and Population

The Blytheville customers reside in the Blytheville, AR area. According to available data, Blytheville had a population of 15,620 in 2010 and had a population of approximately 14,375 in 2016. The 2010 population represents a -8.0% growth rate over the 2000 population.

Industrial facilities are present in Blytheville, those that contribute to the West Plant are:

N/A

System Operation & Maintenance

Blytheville is operating the WWTP with the current staff. Additional personnel will not be required for the updated facility. Some changes to operational procedures will be required.

Case Background

The existing plant is adequately sized to handle the flowrate and loadings that are received from the sewer system. The ammonia violations were caused by insufficient alkalinity present in the water. The West plant receives discharges from the Blytheville dog kennel causing spikes in ammonia levels. Fecal coliform violations were likely caused by turbidity during high flow events resulting in transmissivity issues and loss of UV disinfection. Mercury violations were caused by improper sampling techniques and no violations have occurred since April 30, 2016.

Proposed Goals of the Plan

The goal of the proposed Corrective Action Plan is to eliminate effluent violations from Blytheville's West Plant.

Alternative #1 – Continued Operation of Existing Plant

As discussed, the treatment plant is adequately sized for the current flows and loading received. An alkalinity test kit is being purchased to track alkalinity levels ensuring adequate alkalinity is present for nitrification. Below are sample calculations for the West plant, the spreadsheet has been provided to Blytheville to calculate sodium bicarbonate doses.

20= Influent Ammonia (mg/l)142.8= Alkalinity Required to Nitrify (mg/l)79= Background Alkalinity (mg/l)63.8= Total Required Alkalinity (mg/l)

0.6 = Plant Flow Rate (MGD)

319 = Daily Alkalinity Dose (lbs/day) of Sodium Bicarbonate

To properly disinfect the effluent, an evaluation of the existing UV system will be performed. During peak flows caused by infiltration and inflow, turbidity is potentially affecting the treatment ability of the UV system. Samples will be collected during peak flow events and sent to the UV manufacturer to determine effectiveness of treatment. In the event changes to the UV system are necessary, Blytheville will plan and fund changes.

Mercury has been controlled by proper sampling techniques. No violations for mercury have occurred since April 30, 2016, and additional violations are not anticipated with proper techniques being followed.

Selected Alternative

Alternative #1 is the selected alternative.

Project Funding

Project funding will be potentially required and will be provided by the Blytheville Wastewater Department.

Sewer Rates

A sewer rate increase to fund the project is not anticipated at this time.

Milestone Schedule

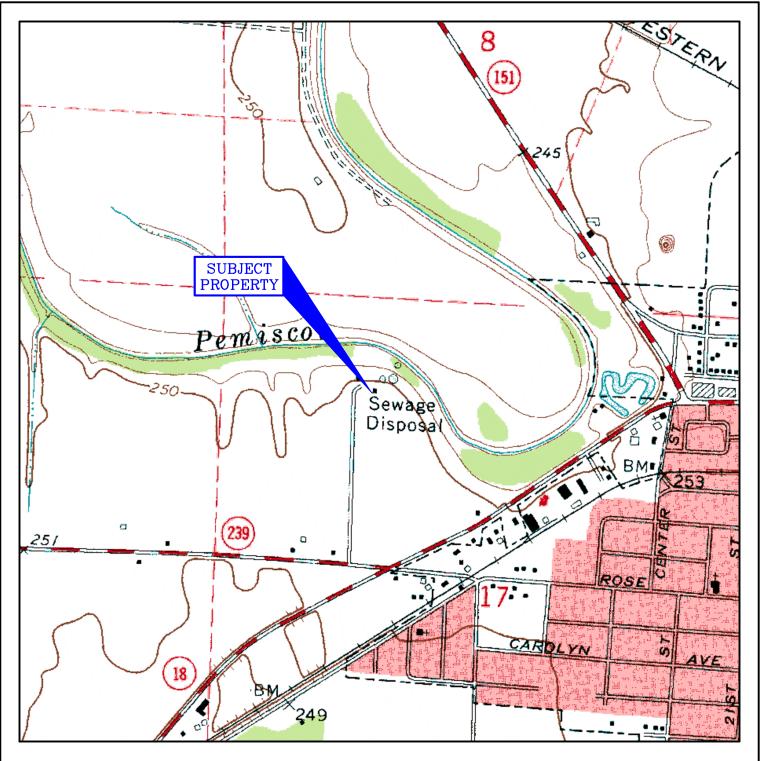
The dates below are contingent on approval of the Corrective Action Plan by ADEQ no later than October 20, 2017. If additional time is required by ADEQ review, the milestone schedule will be revised as necessary.

•	ADEQ Plan Review Completed	October 20, 2017
•	Alkalinity Requirement Evaluation	January 31, 2018

= User Inputs 7.14 mg/l alkalinity required for 1.0 mg/l ammonia

- UV Sampling and Evaluation
- UV Modifications (if necessary)
- Compliance with Effluent Limits

February 28, 2018 June 30, 2018 June 30, 2018



DRAWING NO. 1 TOPOGRAPHIC MAP TAKEN FROM BLYTHEVILLE QUADRANGLE MAP

> WEST TREATMENT FACILITY BLYTHEVILLE, ARKANSAS



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SUBMITTED:	B. WINGFIELD	SCALE:	JOB NUMBER:	
DRAWN:	B. WINGFIELD	NTS	n NTS	BLYW -10356
CHECKED:	B. WINGFIELD		DET. 10000	
DATE:	OCTOBER 2, 2017	FILE: BLYW-10356.DWG		