

April 10, 2017

Mr. Kyle Barber
Enforcement Analyst
Water Division, Enforcement Branch
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

FY152150

RE: Corrective Action Plan
NPDES Permit Number AR0022292, AFIN 04-00052
City of Decatur, CAO LIS 16-094

Dear Mr. Barber:

This letter serves as the Corrective Action Plan (CAP) as required by the referenced CAO for the Decatur Wastewater Treatment Plant (WWTP).

Capital Improvements

The City of Decatur has entered into a design-build contract with Crossland Heavy Construction (CHC) to construct the proposed capital improvements at the WWTP, which are outlined in the attached design narrative. In addition, the attached Sheet C-01 provides the general location of the proposed improvements referenced in the design narrative. Once constructed, the proposed improvements will correct the violations listed in the CAO and prevent future violations.

The application for modification and construction of the current NPDES permit was submitted to the ADEQ Permitting Branch on April 7, 2017. The submittal includes detailed plans, technical specifications, calculations and equipment submittal information.

Milestone Schedule

A milestone schedule of the proposed WWTP improvements is provided on the next page.

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Activity	Anticipated Date
Submit Permit Application to ADEQ ¹	April 7, 2017
Submit Plans/Specifications to Arkansas Dept of Health (ADH) ¹	April 7, 2017
Begin Construction/Demolition on Maintenance-Only Related Improvements and Order Long-Lead Equipment Items	July 1, 2017
ADEQ/ADH Review Complete ²	August 1, 2017
Public Notice and Comment Period	September 16, 2017
Begin Construction on Proposed Improvements	September 16, 2017
Construction Substantially Complete	October 31, 2018
WWTP Fully Operational on New MBR System	December 31, 2018

Notes

¹ Submittals to ADEQ and ADH were made on April 7, 2017 as planned

² Approximate 4 month review time assumed for ADEQ and ADH to approve plans and specifications and issue NDPES permit

Please don't hesitate to let me know if you have any questions or need additional information.

Very Truly Yours,



Nicholas R. Batker, PE, CFM



Encl: Design Narrative
Sheet C-01 – Overall Site Plan

Cc: Mayor Robert Tharp
Mr. James Boston, Director of Public Works
Ryan Adler – Crossland Heavy Construction

**Decatur WWTP Expansion
Design Narrative
MCE Project No. FY152150
4/7/17**

General Description

The City of Decatur's Wastewater Treatment Plant (WWTP) currently consists of three (3) parallel sequencing batch reactors (SBRs) with a design flow of 2.2 million gallons per day (MGD). The City intends to construct improvements to the WWTP to increase the design flow to 3.8 MGD and convert to 3 parallel membrane bioreactors (MBRs). The WWTP will be able to handle up to 4.6 MGD hydraulically, with equipment installed to process up to 3.8 MGD with the ability to expand to 4.6 MGD in the future if required. Following is a summary of the proposed improvements, starting upstream and working downstream.

HEADWORKS AREA (SHEET HW-01)

1. Influent Diversion Structure
 - a. Install actuators on both influent slide gate (20" W x 18" H) and diversion weir gate to equalization pond (48" w x 24" H).
 - b. Actuators will be tied to SCADA to allow for automation in case of lift station fault (in which case slide gate would close and all flow would be diverted to equalization pond).
 - c. Per Spec Section 15007, minimum opening/closing rate for actuators shall be 12" per minute. Therefore, opening/closing time for the influent slide gate and diversion weir gate will be 90 seconds and 120 seconds, respectively.
 - d. Under normal operating conditions, influent slide gate will remain wide open, with diversion weir gate set such that flows in excess of 3.8 MGD will be diverted to the equalization pond.
2. Equalization Pond and Pump Station
 - a. Install pressure transducer in equalization pond in a stilling well. Level reading will be tied to SCADA system. New walkway will be constructed to provide access to pressure transducer.
 - b. Modify the 6" pump station discharge piping such that flowmeter remains flooded and provides an accurate flow measurement.
3. Chemical Feed Building
 - a. Replace existing peristaltic pumps with diaphragm pumps. See Spec Section 11213.
 - b. Place chemical feed system on flow pacing from SCADA.

LIFT STATION AREA (SHEETS WW-01, FS-01, and FS-02)

1. Wet Well Expansion (Sheet WW-01)
 - a. Based on survey, the existing 16" DIP influent line has a minimum slope of 0.72%, which is adequate to convey up to 4.6 MGD without surcharging.
 - b. Existing lift station wet well has limited capacity: approximately 71 seconds of retention time before overflow at 3.8 MGD and approximately 1 minute of retention time at 4.6 MGD. See Appendix B for calculations.

- c. An expansion to the wet well is proposed which will add storage capacity and allow ample time for influent diversion gate to close in case of lift station fault.
 - i. Adds approx. 5.7 minutes of retention time at 3.8 MGD (total retention time of 6.9 minutes) and approx. 4.7 minutes of retention time at 4.6 MGD (total retention time of 5.7 minutes). See Appendix B for calculations.
 - ii. Ties into existing 16" influent line upstream of MH #7.
 - iii. Bottom of vault is above the normal operating level for the lift station.
2. New Rotary Drum Screens (Sheet FS-01)
- a. Two (2) new rotary drum screens will be installed on top of the existing anaerobic tanks. Each screen will have a capacity of 4.6 MGD. See Spec Section 11353.
 - b. Conveyor to be provided for each screen, with discharge to a common dumpster.
 - c. New 16" DIP feed line for the screens will be tied into the existing 14" DIP pump station discharge line as shown on Sheet FS-01. The WWTP can remain in operation while the modifications are being constructed.
 - d. 16" DIP discharge line from screens to splitter box, which can handle up to 4.6 MGD without backing up into bottom of screens. See Appendix B for calculations.
3. Splitter Box (Sheet FS-02)
- a. Splitter box to be installed downstream of screens to allow control of flow to each of the 3 treatment trains.
 - b. Actuated weir gates to be provided. See Spec Sections 11611 and 15007.
 - c. Weir openings sized to allow up to 4.6 MGD of flow to a single treatment train with adequate freeboard. See Appendix B for calculations.
 - d. 16" DIP discharge piping from each splitter box outlet to be added, which tie into the respective existing wall pipes into the anaerobic tanks. Minimum slope of each discharge line to be 0.67% which allows for up to 4.6 MGD hydraulic capacity.
 - e. Under normal flow conditions, weir gate heights will be set to divide flow equally amongst the 3 treatment trains.
3. Lift Station Modifications (Sheet WW-01)
- a. Based on new head condition created by screens and new piping, existing Flygt pumps will have a firm capacity (2 pumps running, 1 in standby) of 1,900 gpm (2.7 MGD). Thus the existing pumps must be replaced to meet the 3.8 MGD design flow and 4.6 MGD future flow. See Appendix B for pump and system curves.
 - b. The existing pumps will be replaced with KSB pumps – the City has 2 of these pumps on hand, and third KSB pump will be ordered and installed. The firm capacity with 2 KSB pumps is 3,050 gpm (4.4 MGD), which meets the current capacity requirements. See Appendix B for pump and system curves. See Appendix D for pump performance data.

PROCESS IMPROVEMENTS (SHEETS TP-01 THROUGH TP-08)

1. Jet aeration (Sheet TP-08)
- a. Three (3) new jet motive pumps to be installed (1 in each treatment train). See Appendix C for pump submittal information.
 - b. Three (3) new jet aeration headers to be installed (1 in each treatment train). See Appendix C for jet aeration header submittal information.

2. MBRs (Sheets TP-02 through TP-07)
 - a. Three (3) total MBRs to be installed on top of existing post equalization basins. Each MBR will be fed by two (2) membrane feed pumps installed in aeration basin. Membranes to be installed for 3.8 MGD treatment capacity with space to expand to 4.6 MGD. See Appendix C for membrane tank, membrane, and feed pump submittal information.
 - b. 24" DIP RAS return line from each MBR will be installed top of existing walls/walkways. Pipe designed to remain flooded at all times.
 - c. Process Blowers
 - i. Four (4) existing 100 hp blowers for SBR process. 1 blower functions as backup/spare.
 - ii. Currently evaluating options for additional process air requirements to convert to MBRs.
 - iii. Option #1 – replace 3 existing 100 hp blowers with 3 new blowers (up to 250 hp each required). See Spec Section 11373.
 - iv. Option #2 – provide 3 new 75 HP blowers to supplement existing blowers.
 - d. Membrane Blowers
 - i. Three (3) new 100 hp blowers to be installed to supply air to each MBR tank for air scouring purposes. See Appendix C for blower submittal information.

FILTER BUILDING AREA (SHEETS FB-01 THROUGH FB-04)

1. Demolition Required (Sheet FB-01)
 - a. Existing disk filter currently not in operation and will be removed from building.
 - b. Install blind flanges on influent and effluent lines from disk filter.
2. Permeate Pumps and Tank
 - a. Three (3) 50 hp permeate pumps to be installed.
 - b. 8,700 gal permeate tank to be installed.
 - c. Anti-siphon valves to be provided on piping between MBRs and pumps to allow flow between MBRs and permeate tank to occur based on head; therefore, pumps will not be required to operate during majority of the time.
3. UV System
 - a. Existing Aquonics UV system has insufficient capacity to handle design flows.
 - b. Install new UV system with 4.6 MGD capacity. Can be installed while existing UV system remains in operation. See Spec Section 11352.
 - c. Adequate space to provide temporary connection to new UV system prior to permeate pumps and tank being placed on-line.
 - d. Existing UV system to be removed once system is fully operational.

SLUDGE BUILDING AREA (SHEETS SP-01 AND SP-02)

1. Remove existing sludge press and replace with new screw press. See Spec Section 11356.
2. Repair and close up existing wall penetration, and create a new wall penetration for new shaftless screw conveyor, so that trailers can be loaded properly. See Spec Section 14100 for conveyor spec.
3. New building to be constructed over existing sludge loading area.

MAP(S)/PLAN(S) SCANNED IN
SEPARATE FILE

MCE McCLELLAND
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