Lawrence, Myrl

Subject: FW: City of Melbourne Circuit Rider Assistance Program Compliance Plan
Attachments: Circuit Rider Compliance Plan_Melbourne_Draft to City_4-21-2020.pdf

From: Loston, Anthony [mailto:Loston.Anthony@epa.gov]
Sent: Wednesday, April 22, 2020 7:20 AM
To: cbdale49@gmail.com
Cc: cityofmelbourne@centurytel.net; Healey, Richard; Saunders, Jerry; Seager, Cheryl; Peters, Carol; Loston, Anthony; Walker, Brent; Bolenbaugh, Jason; McCabe, Kerri; Johnson, Miles; Blanz, Bob; Savitske, Greg; Danny O'Connell; Stephen Clark; Heminway, Seth; VanTil, Barbara; Sarah Hays
Subject: City of Melbourne Circuit Rider Assistance Program Compliance Plan

Mr. Dale,

Attached is the initial draft of the City's Compliance Plan developed under U.S. EPA's Circuit Rider Assistance Program. This document is a draft in progress and is based on discussions with City representatives and observations made during the initial site visit conducted in February 2020; it may be updated as necessary based on remote advising calls and/or additional site visits.

Danny O'Connell and Stephen Clark with PG Environmental will be coordinating with you directly to continue the technical assistance process. They intend to discuss the content of the Compliance Plan, answer any questions you may have, and clarify how the Circuit Rider Assistance Program will support the City in implementing improvement actions.

Sincerely,

Anthony M. Loston, Environmental Engineer
Arkansas State Enforcement Coordinator, EPA Region VI
EPA Region VI Vessel General Permit Enforcement Coordinator
Phone: (214) 665-3109
1201 Elm Street, Suite 500
Dallas, TX 75270-2102

City of Melbourne, Arkansas
Wastewater Treatment Plant (WWTP)

CIRCUIT RIDER ASSISTANCE PROGRAM
COMPLIANCE PLAN

Revision No. 0
April 21, 2020

Technical assistance provided under contract from:
U.S. Environmental Protection Agency
Office of Compliance
1200 Pennsylvania Avenue
Washington, DC 20460

(This page intentionally left blank.)

TABLE OF CONTENTS

Appendices

I. INTRODUCTION

The United States Environmental Protection Agency (EPA) has developed and implemented two National Compliance Initiatives (NCIs) that focus on long standing non-compliance challenges at wastewater and drinking water facilities in small communities, including those in Indian Country. The "Reducing Significant Non-Compliance (SNC) with National Pollutant Discharge Elimination System (NPDES) Permits" NCI aims to reduce the number of NPDES-permitted facilities in SNC. Likewise, under the "Reducing Non-Compliance with Drinking Water Standards at Community Water Systems" NCI, EPA and state partners aim to help systems in small, often under-resourced, communities to achieve and maintain compliance.

To support these NCIs, EPA is providing compliance assistance via a circuit rider assistance program. Technical assistance providers will provide hands-on, face-to-face technical compliance assistance to operators of small wastewater and drinking water systems to help correct issues that may be causing or contributing to non-compliance. Technical assistance providers will develop a Compliance Plan for each system that includes a facility summary, list of site visit observations and areas of concern, and a prioritized list of activities to help achieve and/or maintain compliance.

On February 27, 2020, Danny O'Connell and Stephen Clark, EPA Contractors with PG Environmental (technical assistance providers) conducted an initial circuit rider site visit to understand the challenges that may be causing and contributing to non-compliance at the City of Melbourne's (City's) Wastewater Treatment Plant (WWTP). The EPA Contractors were joined by representatives from EPA Region 6 and Arkansas Department of Environmental Quality (ADEQ); refer to Appendix 1 for the site visit sign-in sheet. The site visit consisted of discussions with City representatives, document reviews, and a walk-through of the WWTP.

Note: *This initial Compliance Plan is a draft in progress and is based on discussions with facility representatives and observations made during the initial site visit; it may be updated as necessary based on remote advising calls and/or WWTP revisits.*

II. FACILITY SUMMARY

Facility Summary	
Facility	City of Melbourne WWTP
Permittee Name	City of Melbourne, Arkansas
NPDES Permit No.	AR0020036
Permit Expiration Date	October 31, 2020
Location (Latitude, Longitude)	36.059232, -91.926130
Receiving Waterbody	Mill Creek
Design Flow	0.41 million gallons per day (MGD)
Treatment Type	Bar screen, oxidation ditch, dual secondary clarifiers, chlorination, dechlorination, cascade post-aeration
Service Area and Population Served	Primarily residential with limited commercial and industrial. Approximately 2,000 people.

Facility Summary	
Compliance Overview	At the time of the site visit, the facility was in SNC due to effluent violations of monthly average and weekly average ammonia-nitrogen and total residual chlorine limits.

III. INITIAL SITE VISIT OBSERVATIONS AND AREAS OF CONCERN

This section summarizes the initial site visit observations and associated areas of concern, which are presented in Table 1. The technical assistance providers recognize that some areas of concern will require a capital improvement expenditure. Such improvement actions are beyond the scope of the circuit rider program. However, the technical assistance providers have identified "programmatic" improvements the City could undertake that will promote compliance; these actions fall within the scope of the circuit rider program. For each area of concern, Table 1 identifies the likely capital expenditures as well as the programmatic measures. Where a programmatic measure has been identified, Table 1 refers to the associated "Recommended Improvement Action" table presented in Section 4 of this compliance plan.

Refer to Appendix 2 for photographs that document the site visit and areas of concern, where applicable; some photographs are provided for general context only. Therefore, not all photographs highlight an area of concern.

Table 1. Areas of Concern, Observations, and Improvement Actions

Area of Concern	Observations	Improvement Actions
Lack of a Process Control Approach to WWTP Operations	1. The City had not developed and implemented a formal process control plan. The City was performing little to no process control sampling at the time of the site visit. Therefore, operational changes were being made based on operator intuition and institutional knowledge.	• Programmatic improvement. See Recommended Improvement Action No. 1 – Develop and Implement a Process Control Plan.
Lack of Operation and Maintenance (O&M) Documentation for the WWTP and Collection System	1. In addition to the lack of formalized protocols for process control, the City lacked documentation and tracking mechanisms for the O&M activities that were being performed at the WWTP and in the collection system. For example, the City was not maintaining a daily operations log and had not implemented a work order system. Scheduling and performing WWTP O&M relies primarily on the institutional knowledge of the operators and most maintenance is corrective, not preventive.	• Programmatic improvement. See Recommended Improvement Action No. 2 – Develop and Implement O&M Tools.
Inflow and Infiltration (I/I) in the Collection System	1. The City's collection system suffers from I/I that causes spikes in influent flow to the WWTP during wet weather. In response, the City's contract engineering firm recently completed a sanitary sewer evaluation study (SSES) and the City is seeking funding through a combination of grants and loans to implement the recommended corrective measures. The City has filed an application with Water/Wastewater Advisory Committee (WWAC) for funding but had not received a response at the time of the site visit. Once approved, the City will be ready to complete the final design and proceed with the associated construction work, which is estimated to take approximately 9 months (excluding the design and approval process). 2. As part of the SSES improvement project, the City will also be making some upgrades to the WWTP (e.g., a supervisory control and data acquisition (SCADA) system and various equipment upgrades).	• The City should continue to pursue the projects recommended in the SSES through its established Capital Improvement Program. • The technical assistance providers intend to review the SSES to determine what programmatic or operational actions, if any, the City can perform to further reduce I/I in addition to the SSES-recommended capital improvement projects. Any potential improvements will be communicated as part of future technical assistance activities.
Toxic Influent Loads Interfering with Biological	1. City representatives stated that the WWTP had experienced multiple occurrences of toxic influent loads interfering with the biomass in the secondary treatment train.	• Programmatic improvement. See Recommended Improvement

Area of Concern	Observations	Improvement Actions
Treatment Processes at the WWTP	These toxic influent characteristics are typically indicative of industrial discharges to the collection system. 2. The City has identified, but has not confirmed, two potential industrial users as the source of the interference: o Mohawk: A hardwood and laminate flooring manufacturer. The facility has changed names/ownership multiple times over the past few years. The previous name/owner was Beasley Flooring Products, Inc. o Air Ready MRO Services, Inc.: An airplane repair station specializing in aircraft maintenance, repair, and overhaul. The previous name/owner was Broad Wing Repair. 3. After the site visit, the technical assistance providers also identified Micro Plastics, Inc. (plastics manufacturer) as a potential industrial user of concern based on a cursory review of the City's water and sewer account information provided during the site visit.	Action No. 3 – Impose Pretreatment Requirements on Industrial Users
Elevated Total Chlorine Residuals	1. The City has experienced continued failures with the sulfur dioxide feed system. As a result, the City started using dechlorination tablets (sodium sulfite). However, the tablets were not being applied in a formal gravity tablet feeder or similar mechanism; there is not a location where one can be installed. The tablets were placed in a PVC pipe with drilled holes into the v-notch weir box at the effluent end of the chlorine contact chamber (CCC). It is unclear if this dosing system is providing consistent and appropriate contact time to ensure dechlorination. 2. After the site visit, the technical assistance providers observed that the City was adjusting the chlorine gas dosing rate and could be overdosing, contributing to elevated residuals. According to the wastewater operator logs, 3 pounds of chlorine are added per day, regardless of flow rate. It is unclear how the City determined the dosing rate and whether the current protocol would result in overdosing during periods of relatively lower flow.	• The City plans to upgrade the disinfection system as one of the projects resulting from the SSES. The City should continue to pursue this through its established Capital Improvement Program (CIP). • Programmatic measures should be taken in the meantime to evaluate the proper dosing rates for disinfection and dechlorination prior to the upgrades. See Recommended Improvement Action No. 1 – Develop and Implement a Process Control Plan

Area of Concern	Observations	Improvement Actions
Solids Recirculation Pump Failures	1. The solids recirculation pumps are outdated which creates various challenges for the City. a. The pumps frequently fail which diverts operator resources from other O&M activities. b. The City has difficulty obtaining replacement parts (sometimes it takes weeks). c. A past failure caused an overflow from a manhole in the plant yard. The City applied lime to the area and excavated the affected soil, which was placed in the sludge staging bed. 2. During the site visit, a drive belt for one of the pump motors had fallen off.	• The City plans to install new solids recirculation pumps as one of the projects resulting from the SSES. The City should continue to pursue this through its established CIP. • Programmatic measures should be taken to ensure staff are properly trained and preventive O&M frequencies are followed once the new pumps are installed. See Recommended Improvement Action No. 2 – Develop and Implement O&M Tools.
Inadequate Capacity for Solids Processing and Storage	1. The WWTP is only able to waste and process solids by storing them in two drying beds and one staging bed. Due to this limitation the City was not able to adequately waste solids during certain periods of prolonged wet-weather. The operational approach in these cases has been to warehouse solids in the WWTP oxidation ditch. 2. The City used to be able waste solids to a tanker truck when weather conditions prohibited use of the beds, but issues with the valves and associated piping infrastructure led to operators abandoning this approach. 3. The City plans to purchase a belt press as part of the WWTP upgrades.	• The City plans to install new solids processing equipment as one of the projects resulting from the SSES. The City should continue to pursue this through its established CIP. • Programmatic measures should be taken to ensure staff are properly trained and preventive O&M frequencies and solids wasting procedures are followed once the new belt press is purchased and operational. See Recommended Improvement Action No. 1 – Develop and Implement a Process Control Plan and Recommended Improvement

Area of Concern	Observations	Improvement Actions
		Action No. 2 – Develop and Implement O&M Tools.
Chlorine Gas Room Safety	1. The WWTP's gaseous chlorination room does not have a chlorine gas sensor and/or alarm system. 2. The City had a small sprayer with ammonia to test for chlorine gas leaks; however, there did not appear to be any written standard operating procedures (SOPs). 3. The WWTP's self-contained breathing apparatus (SCBA) was stored in the chlorine room, blocking half of the room's exhaust vent. a. One of the operators removed the SCBA from the chlorine room and placed it in the WWTP lab area at the time of the visit after the technical assistance providers informed the City of the issue. 4. While on site, the technical assistance providers worked with the City to confirm the operation of the exhaust fan. At first, the fan did not open the exhaust shutter as the entrance door was open. The exhaust fan did open the exhaust shutter when the chlorine entrance door was shut.	• Programmatic measures need to be taken to develop and implement safety protocols associated with chlorine gas at the WWTP. To protect their health, and even to prevent death, operators need to be aware of proper safety protocols for handling and working with gaseous chlorine, including proper ventilation and personal protective equipment (PPE) protocols.

IV. RECOMMENDED IMPROVEMENT ACTIONS

This section identifies possible improvement actions intended to help the City achieve and/or maintain compliance. Each improvement action has been identified in its own table on the following pages. Each table contains the following information:

- Recommended Improvement Action – The primary action to correct the area of concern.
- Area of Concern Addressed – The overall concern in need of corrective action.
- Improvement Goal – The incentive or explanation for why the action is being implemented.
- Recommended Approach – The major actions or steps to implement the recommended improvement action.
- Points of Interest/Variables to Consider – The critical points of interest and variables to be evaluated during the implementation process.
- Document Format – The anticipated format(s) of the data and documents that are expected to be generated during the process.
- Performance Indicators – The mechanisms by which compliance improvement will be measured.
- Potential Barriers to Implementation – The anticipated significant challenges to implementing the recommended improvement action.

The actions described in this section of the compliance plan are recommendations. It is ultimately up to the City, in consultation with ADEQ as appropriate, to decide on the actions necessary to achieve compliance with its NPDES permit requirements. The technical assistance providers will refer the City to appropriate reference and training documents and provide technical assistance where applicable to aid in the implementation of each recommended improvement action.

Note: Many of the issues contributing to non-compliance at the WWTP will be addressed through projects already identified by the City's engineering contractor as part of the SSES and included in the City's CIP planning. The recommended improvement actions described in this section are mostly programmatic and operational measures that can be taken to improve the overall O&M, management, and health and safety approaches at the plant.

Recommended Improvement Action No. 1	**Develop and Implement a Process Control Plan**
Area of Concern Addressed	• Lack of a Process Control Approach to WWTP Operations • Elevated Total Chlorine Residuals • Inadequate Capacity for Solids Processing and Storage
Improvement Goal	To ensure that operational decision making is informed by operational data
Recommended Approach	• Develop written SOPs and support tools • Collect and trend data • Determine desired operational ranges based on effluent quality
Points of Interest/Variables to Consider	• Incorporate the procedures contained in the Ohio EPA's *Activated Sludge Process Control and Troubleshooting Chart Methodology* • Understand how to perform key tests and how process parameters relate to one another: o 30-minute Settleability o Dissolved Oxygen (DO) o pH o Centrifuge test o Mixed Liquor Suspended Solids (MLSS)/Mixed Liquor Volatile Suspended Solids (MLVSS) o Food to Microorganism Ratio (F:M) o Sludge Age (SA) / Mean Cell Residence Time (MCRT) o Sludge Volume Index (SVI) o Microscopic examination • Conduct hydraulic and organic loading analyses • Collect data on weekends during the summer • Implement proper chemical dosing rates and procedures to evaluate dosing rates when they are not known • Implement sludge wasting rates based on operational data • Consider additional operator training
Documentation Format	• Written SOPs (sample collection procedures and frequencies, troubleshooting methodology, etc.) • Operations sheet for data collection and review • Electronic spreadsheet to track and trend process control data
Performance Indicators	• Development and implementation of a Process Control Plan, SOPs, and support tools • Increased amount of data collected • Tracking and trending of process control data • Operational ranges have been determined based on desired effluent quality
Potential Barriers to Implementation	• Staffing (both time and technical expertise) required to collect and trend data and to perform diagnostic evaluations • Some monitoring equipment may need to be purchased to perform process control tests

Recommended Improvement Action No. 2	**Develop and Implement O&M Tools**
Area of Concern Addressed	• Lack of O&M Documentation for the WWTP and Collection System, • Solids Recirculation Pump Failures
Improvement Goal	To ensure the operator has the necessary information, tools, and training to: • Prioritize work and refine maintenance frequencies to optimize staffing resources • Support diagnostic evaluations aimed to prevent future equipment failures • Support future decision making in regard to capital expenditures
Recommended Approach	• Identify and inventory critical processes and equipment • Evaluate maintenance requirements and ensure preventative maintenance activities are scheduled at the appropriate frequencies • Develop and implement documentation formats, scheduling and tracking tools
Points of Interest/Variables to Consider	• Review current and past maintenance performed • Review repeat corrective maintenance activities to help diagnose root-cause issues to move toward a more proactive maintenance approach
Documentation Format	• Daily operations logbook • Daily operations round sheets • Work orders and associated scheduling and tracking mechanism
Performance Indicators	• Critical processes and equipment have been identified and inventoried • Creation of forms that are designed for operators (i.e., user-friendly while in the field)
Potential Barriers to Implementation	• Staffing resources to create forms and accomplish appropriate preventative maintenance schedules

Recommended Improvement Action No. 3	**Impose Pretreatment Requirements on Industrial Users**
Area of Concern Addressed	Toxic Influent Loads Interfering with Biological Treatment Processes at the WWTP
Recommended Approach	• Conduct inspections of the three suspected industrial facilities (Mohawk, Air Ready, and Micro Plastics) to determine the volumes and characteristics of each facility's discharge to the publicly owned treatment works (POTW) • Determine applicable pretreatment standards and requirements based on inspection findings • Notify industrial users (IUs) of findings and requirements • Conduct legal authority review to determine what types of requirements the City can apply and enforce (e.g., issue individual control mechanisms) • Control discharges via individual control mechanism such as a permit • Conduct targeted inspections of additional industrial users as needed
Points of Focus/Variables to Consider	• Based on their intermittent nature, the interference episodes may have been caused by slug discharges rather than routine discharges to the POTW. • Air Ready Services, MRO: The facility's paint booth operations may be subject to categorical pretreatment standards under the metal finishing point source category. Additionally, the facility has an autoclave for the manufacture of thermoplastic advanced composites; there may be concerns with epoxy resins and associated molding operations. • Mohawk: The facility may use solvents in the manufacturing of laminate flooring. • Micro Plastics, Inc: The facility is a plastics manufacturer and may be subject to categorial pretreatment standards under the plastics molding and forming point source category.
Documentation Format	• Comprehensive inventory of potential IUs in the City's service areas • Inspection and monitoring reports, including sampling results • Correspondence with IUs • Documentation of control mechanisms (e.g., issued permits)
Performance Indicators	• Inventory of potential IUs developed • Surveys of IUs completed • Issuance of control mechanisms
Potential Barriers to Implementation	• The City may not have adequate legal authority to apply and to enforce certain requirements (e.g., issue individual control mechanisms) • The industry may have to install pretreatment equipment or otherwise implement measures that cost money, thereby creating political tensions between the City and IU (the technical assistance providers recognizes this is a sensitive issue due to tax revenue)

	• There are limited resources available to implement a source control program (staff time, money required for sampling equipment and analyses)

Appendix 1
Initial Site Visit Sign-In Sheet

CIRCUIT RIDER SITE VISIT SIGN-IN SHEET

Facility: Melbourne

Site Visit Date(s): February 27, 2020

Location: 461 College Drive Melbourne, AR

Name	Affiliation	Phone	E-Mail
Stephen Clark	PG Environmental	720-789-8046	stephen.clark@pgenv.com
Devin Ramsey	Melbourne Waterworks	870-291-2192	dramsey2015@hotmail.com
Micah Walker	City of Melbourne	870-291-0004	
Blain Sanders	ADEQ	501-682-0657	blain.sanders@adeq.state.ar.us
Jason Bolenbaugh	ADEQ	501-682-0659	bolenbaugh@adeq.state.ar.us
Danny O'Donnell	Contractor to EPA PGEnv	720 789-8032	danny.odonnell@pgenv.com
Tony Loston	EPA	214-665-3109	Loston.Anthony@EPA.Gov
James Dreher	Landmark Engr	501-224-1000	JDREHER@LANDMARKENG.CO
Coy Oak	City of Melbourne	870-291-7773	cdbale49@gmail.com

Appendix 2
Photograph Log

Photograph 1. Headworks influent channel and bar screen.

Photograph 2. Oxidation ditch.

Photograph 3. Oxidation ditch.

Photograph 4. Secondary clarifiers. The one on the left-hand side was out of service at the time of the site visit. The City rotates operation of the clarifiers for maintenance purposes.

Photograph 5. Secondary clarifier (in service).

Photograph 6. Additional view of the secondary clarifier that was in service.

Photograph 7. The out of service secondary clarifier.

Photograph 8. Effluent end of the chlorine contact chamber. The hanging polyvinyl chloride pipe contains sodium sulfite tablets for dechlorination.

Photograph 9. Outfall and cascade post-aeration. A strong chlorine odor was present.

Photograph 10. Outfall and flow path to receiving waterbody. A strong chlorine odor was present.

Photograph 11. Solids recirculation pumps. The drive belt for the motor on the left-hand side had fallen off during the site visit.

Photograph 12. Sludge drying beds and staging bed.