REGION 4
ATLANTA, GA 30303

December 14, 2023

ELECTRONIC MAIL
CONFIRMATION OF EMAIL RECEIPT REQUESTED

David Denard
Director, Environmental Services Division
Jefferson County
716 Richard Arrington Jr. Blvd. North
Birmingham, Alabama 35203
EMAIL: denardd@jccal.org

Dear David Denard:

The U.S. Environmental Protection Agency, Region 4 conducted a Compliance Evaluation Inspection (CEI) on Jefferson County's Valley Creek Wastewater Treatment Plant (WWTP) and Wastewater Collection and Transmission System (WCTS) on October 24, 2023. The objective of the inspection was to assess Jefferson County's (the County) compliance with the Clean Water Act and the National Pollutant Discharge Elimination System (NPDES) permit, and to evaluate the general condition of the WWTP. The inspection results have been summarized in the enclosed CEI Report.

The EPA appreciates Jefferson County's cooperation and courtesy. If you have specific questions about the inspection report, please contact Mr. Brad Ammons at ammons.brad@epa.gov. Please verify receipt of this letter and report by emailing Mr. Ammons at the email address provided.

Sincerely,

JAIRO CASTILLO
Digitally signed by JAIRO CASTILLO
Date: 2023.12.14 13:08:50 -05'00'

Jairo Castillo, P.E., Chief
Wastewater Enforcement Section
Water Enforcement Branch

ENCLOSURE
1. Jefferson County AL CEI Oct 2023

cc: Daphne Lutz
Alabama Department of Environmental Management
dlutz@adem.alabama.gov

Karl Fingerhood
United States Department of
karl.fingerhood@usdoj.gov

Lourdes Bufill
United States Environmental Protection Agency
Bufill.Lourdes@epa.gov

United States Environmental Protection Agency Region 4
Enforcement and Compliance Assurance Division
Water Enforcement Branch
61 Forsyth Street, SW
Atlanta, Georgia 30303

Compliance Evaluation Inspection Report

Project No. CV-AL023655-10242023

Jefferson County Valley Creek
Wastewater Collection and Transmission System (WCTS) and
Wastewater Treatment Plant (WWTP)
3923 Clearwater Drive
Bessemer, Alabama 35023
NPDES Permit Number: AL0023655
Date of Inspection: October 24-25, 2023

Title and Approval Sheet

Title: Jefferson County Valley Creek AL POTW CV-AL0023655-10242023.docx

Approving Official:

JAIRO CASTILLO

Digitally signed by JAIRO CASTILLO
Date: 2023.12.14 13:08:15 -05'00'

Jairo Castillo, P.E., Chief
Wastewater Enforcement Section
Water Enforcement Branch

Inspector:

MICHAEL AMMONS

Digitally signed by MICHAEL AMMONS
Date: 2023.12.14 13:31:11 -05'00'

Brad Ammons, Environmental Engineer
Wastewater Enforcement Section
Water Enforcement Branch

Table of Contents

1. Introduction

On October 24-25, 2023, representatives of the United States Environmental Protection Agency, Region 4 conducted a Compliance Evaluation Inspection (CEI) on the Valley Creek Wastewater Treatment Plant (WWTP) and sanitary sewer system, owned and operated by Jefferson County Alabama (Jefferson County/The County). The inspection was conducted under the authority of Section 308 of the Clean Water Act (CWA), as amended. This report provides a summary of the inspection findings.

2. Participants

Name	Organization	Contact Information
Brad Ammons	EPA Region 4 (Lead Inspector)	Ammons.Brad@epa.gov
John Goodwin	EPA Region 4	Goodwin.John@epa.gov
Tristan Odekirk	EPA Region 4	Odekirk.Tristan@epa.gov
David Denard	Jefferson County	denardd@jccal.org
Daniel White	Jefferson County	whited@jccal.org
Brian Rohling	Jefferson County	rohlingb@jccal.org
Margaret Tanner	Jefferson County	tannerma@jccal.org
French McMillan	Jefferson County	mcmillanf@jccal.org
Scott Gordon	Jefferson County consultant	jsg@jsgenvironmental.com

3. Facility Description

The Valley Creek Complete Waste Treatment System, as defined in the Consent Decree (Civil Action #93-G-2492-S), consists of the Valley Creek sewer system, the Shades Creek sewer system, and the Valley Creek wastewater treatment plant (WWTP). The Shades Creek sewer system would naturally flow by gravity to the County's Cahaba River WWTP but flows from the Shades Creek sewer system are transferred into the Valley Creek sewer system via the Bluff Park tunnel. The Valley Creek sewer system consists of 903 miles of gravity pipe and 28 miles of force main from pump stations. The Shades Creek sewer system consists of 507 miles of gravity sewer and 32 miles of force main from pump stations. Thus, the total footage of the entire service area is 1,410 miles of gravity sewer and 60 miles of force main.

The Valley Creek WWTP can treat flows up to 170 million gallons per day (MGD) through full secondary treatment. Flows up to 85 MGD are routed through the headworks (fine screens, aerated grit/grease removal and a pre-aeration chamber), then through 10 primary clarifiers, 10 first stage aeration basins, 16 intermediate clarifiers, 10 second stage aeration basins and then 10 final clarifiers before being routed through deep bed sand filters and ultraviolet (UV) disinfection before being discharged into Valley Creek. Flows between 85 and 170 MGD are routed through the headworks (fine screens, aerated grit/grease removal and a pre-aeration chamber), then through the aeration basins and clarifiers in parallel, then to the deep bed sand filters and UV disinfection. Flows between 170 MGD and 600 MGD are routed to the peak flow influent pump

station and then through bar screens and into the 110-million-gallon peak flow aeration and sedimentation basin before going through UV disinfection.

4. Inspection Procedures.

The overall objective of this CEI was to evaluate the condition and operational performance of the Valley Creek wastewater collection and transmission system (WCTS) and WWTP and to offer compliance assistance as needed. In addition, the inspection was part of the EPA review of the County's request to terminate the existing consent decree. Specific tasks included conducting an opening conference, interviewing County staff, conducting a site visit throughout the existing Valley Creek WCTS and WWTP, and a closing conference.

5. Findings & Conclusions

A. Capacity, Management, Operations and Maintenance (CMOM) Programs

Discussion was held about the County's numerous CMOM Programs. For dry weather sanitary sewer overflows (SSOs), the County has an aggressive Fats, Oils and Grease (FOG) Control Program, a Gravity Line Preventive Maintenance Program (GLPMP) and Pump Station Operations and Preventive Maintenance Program (PSOPMP).

The County uses CityWorks™ within its GIS for its work order system and to track all CMOM Programs, and implement a robust asset management program. The County also uses the GIS of its WCTS to implement a dynamic hydraulic computer model of the entire WCTS (not just Valley Creek WCTS) to set up its assessment and rehabilitation program to reduce wet weather SSOs.

Under the FOG Control Program, the County routinely inspects all Food Service Establishments (FSEs) and other sources of FOG. If violations are found (or SSOs are caused by a known FSE), there is a re-inspection process established. In addition, for domestic sources of FOG, there are numerous drop-off locations around the County where homeowners/renters can pick up an empty FOG container, fill it up and drop it back off to prevent the FOG from entering the WCTS (see Photo 6 in Appendix A).

Under the GLPMP and to prevent dry weather SSOs, the County has all smaller pipes in the entire WCTS (18 inches and smaller) on at least a 24-month cleaning cycle (see Photo 1 in Appendix A). While cleaning the sewers, County employees note how much (small, medium, or large amounts) and what type of debris is found in the sewer and the CityWorks™ system calculates how often that pipe must be cleaned. Larger pipes are cleaned less frequent, but still on a scheduled basis.

Under the PSOPMP, the County inspects all pump stations on a routine basis. Any deficiencies are noted and entered into the CityWorks™ system, which creates a work order and tracks it until completion. The County experiences very few SSOs related to pump stations.

For wet weather SSOs, the County uses the dynamic hydraulic model of the entire WCTS to predict where SSOs would occur during a certain sized storm event. Mr. Denard stated that even with spending over $3 billion in rehabilitation under the Consent Decree, the County has budgeted for an ongoing assessment and rehabilitation program in the amount of $100 million per year for the next 10 years ($1 billion total) and has implemented the needed sewer rate increases to fund most of this work.

B. Records and Reports

The EPA's Enforcement Compliance History Online (ECHO) shows that the Valley Creek WWTP has not violated the effluent limitations outlined in the NPDES permit for the last 13 quarters.

C. Flow Measurement

The County has contracted to have 175 long-term flow meters in the WCTS to calibrate its dynamic hydraulic model, as well as 70 depth alarms. The County also has 55 rain gauges across the County. Influent flow at the Valley Creek WWTP comes in through 4 different influent pipes (one 120", one 84", one 60" and one 30"). It was not discussed, but it is assumed that flows below 170 MGD are metered in the 102" gravity line that feeds the main WWTP. Effluent flows are metered at the parshall flume after UV disinfection.

D. Sampling/Laboratory

Jefferson County owns and operates a centralized laboratory for all 9 WWTPs it owns and operates, located at the Shades-Valley complex. The FOG Program is also run out of the Shades-Valley complex. The laboratory was not reviewed during this inspection.

E. Site Visits (Operation and Maintenance)

Below are the site visits that the EPA and the County conducted at the Valley Creek and Shades Creek WCTSs and at the Valley Creek WWTP itself.

<u>201 Durban Street, Birmingham, AL 35211</u>

This location was in the County's routine cleaning program for smaller sewers. The subdivision is not completely developed, so low flows likely lead to a need for more routine cleaning (see Photo 1 for a view of the County's jet/vac truck).

<u>Tin Mill Road Project</u>

Tin Mill Road has been the location of numerous, repeat SSOs. The County implemented a capital improvement project to reduce and/or eliminate SSOs from the Tin Mill Road area. Specifically, the current project consists of upsizing the sanitary sewer main in the area of the Tin Mill Road

and Allison-Bonnett Memorial Drive (near Bethlehem Methodist Church). The sewer in this area crosses under the railroad track to the southeast and that crossing had already been completed prior to this inspection (see Photo 2 for completed work south of Allison-Bonnett Memorial Drive – note bypass pump on-site to prevent SSOs). Current work is ongoing along Tin Mill Road just north of its intersection with Allison-Bonnett Memorial Drive.

Chapel #2 Pump Station

This pump station had numerous failures and has been upgraded with an on-site generator, as well as a "quick connect" to the downstream force main for the County to use a portable bypass pump to discharge into (see Photo 3 for a view of the pump station).

Red Farmer Way Pump Station

This pump station has been upgraded with a new on-site standby pump (see Photo 4 for a view of the pump station).

Walker Avenue Pump Station

This pump station is to be redesigned from a can station to a submersible pump station (see Photo 5 for a view of the existing pump station).

910 Pinehaven Drive (Hueytown, AL 35023)

The County had an active cured-in-place pipe (CIPP) lining project going on at this location.

Valley Creek WWTP

EPA conducted a quick site visit of the Valley Creek WWTP, visiting the influent pump station, driving through the Secondary Treatment processes, and then visiting the effluent, which appeared clear and void of solids.

135 Snow Drive (Homewood, AL)

The County has placed a grease pickup spot in this location, outside the fire station. Citizens can come get a new, empty grease container, fill it up and drop it back off full for the County to dispose of (see Photo 6 in Appendix A).

25 Memory Lane

This recurring SSO location, near the Birmingham Country Club, consists of an approximately $13.8 million capital improvement project to reduce and/or eliminate SSOs in the Memory Lane area of Mountain Brook. The construction occurring at the time of inspection was right near the public library (see Photos 7 and 8).

6. Discussion

The County has done significant work under the Consent Decree and additional work not even covered by the Consent Decree to assess and rehabilitate its WCTSs and WWTPs. In addition, the County has implemented numerous aggressive CMOM Programs to reduce and/or eliminate SSOs and bypasses at the WWTPs. Finally, the County has plans to continue its assessment/rehabilitation program, including any necessary sewer rate increases to help fund future capital improvements.

END OF REPORT

Appendix A: Photographic Log

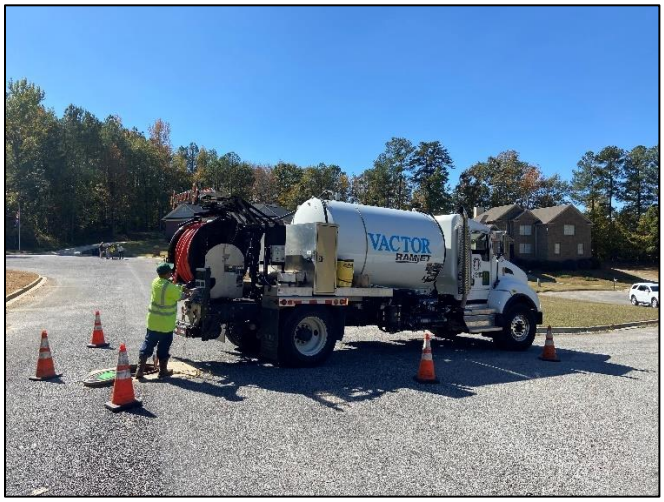

Photo 1. County jet/vac truck.

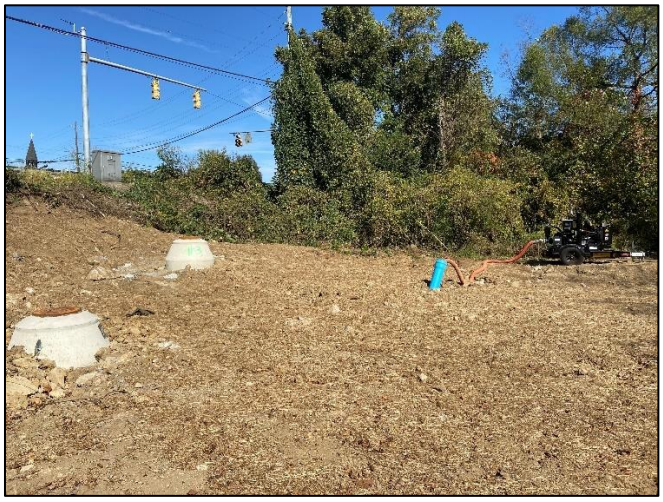
Photo 2: Tin Mill Road project.

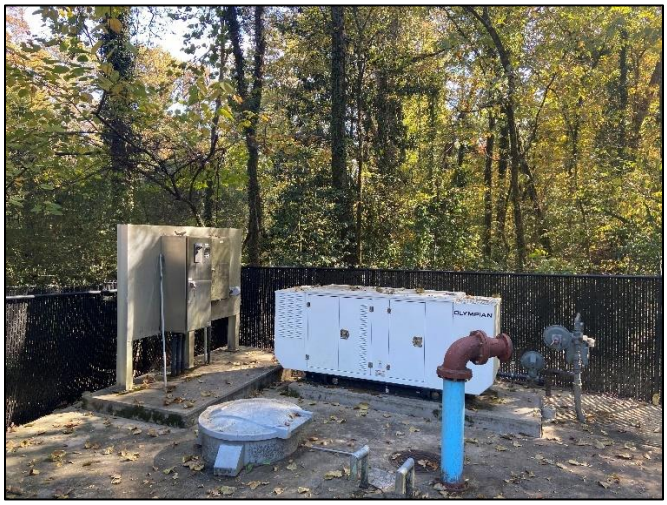

Photo 3: Chapel #2 pump station.

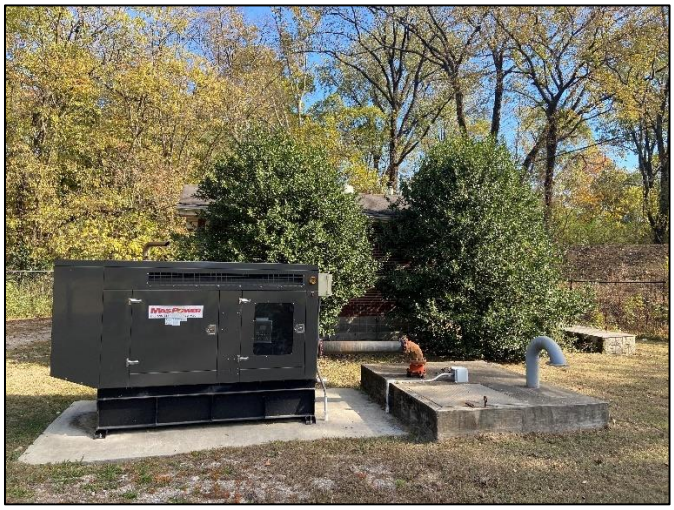
Photo 4: Red Farmer Way pump station.

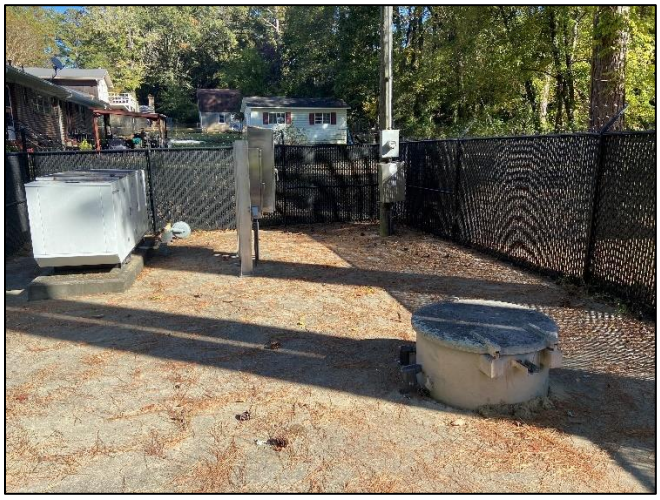

Photo 5: Walker Avenue pump station.

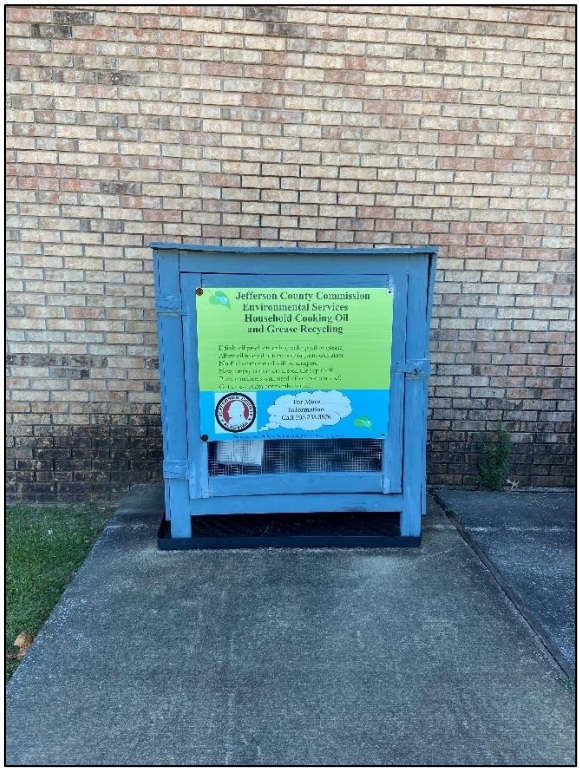

Photo 6: 135 Snow Drive (grease collection).

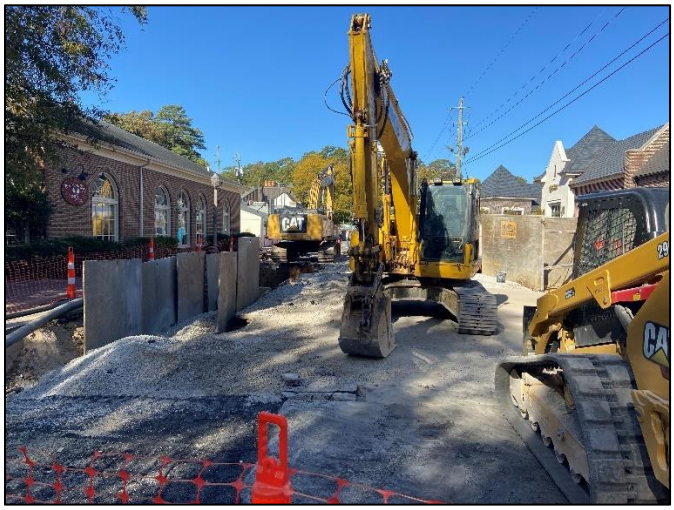

Photo 7: Memory Lane capital improvements.

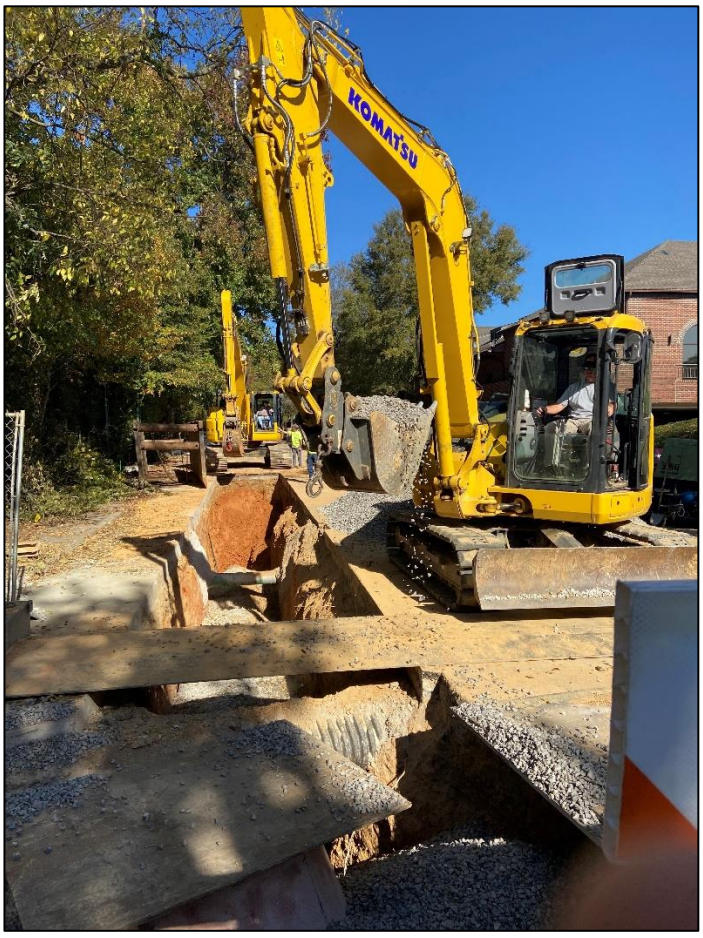

Photo 8: Memory Lane capital improvements.