STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Memphis Environmental Field Office
8383 Wolf Lake Drive
Bartlett, TN 38133
Phone 901-371-3000 Statewide 1-888-891-8332 Fax 901-371-3170

June 5, 2017

Mr. Rick McClanahan
Director of Utilities and Engineering
City of Bartlett
3585 Altruria Road
Bartlett, TN 38135

Re: Compliance Evaluation Inspection
Bartlett Sewage Treatment Plant (STP) #1
Bartlett STP Biosolids Operation and Management
NPDES Permit No. TN0066800 and TNB0066800
Shelby County

Dear Mr. McClanahan:

On Thursday, May 9, 2017, Mr. Eddy Bouzeid with the Division of Water Resources, Memphis Environmental Field Office (DWR/MEFO), conducted a Compliance Evaluation Inspection (CEI) of both the Bartlett Sewage Treatment Plant (STP) #1 and the Plant's Biosolids Operation and Management. Upon arrival at the facility, Mr. Bouzeid met with Mr. Larry Gamblin, the Bartlett STP Certified Operator, and stated that the purpose of the inspection was to evaluate the facility's compliance with its National Pollutant Discharge Elimination System (NPDES) and Biosolids State Operating Permit. This was accomplished by reviewing the facility's self-monitoring records and reports and subsequently conducting an inspection of the facility. Attached you will find the State Water Compliance Inspection Report for both permits, which summarize the findings of the CEI. The following are items to note regarding the inspection:

1. The facility reported nine exceedances of its permit limits for the period from April 2015 through April 2017. The exceedances were attributed to the plant's nutrient optimization management.
2. Effective July 1, 2016, Bartlett ceased the land application of its biosolids at the Add-Van Farms in Tipton County and began transporting its biosolids to Republic Service Landfill in north Shelby County. The biosolids permit TNB0066800 has since been inactivated.
3. The access road to the outfall at the Loosahatchie River was under water during the inspection which prohibited the inspection of the NPDES sign. Mr. Gamblin agreed to

provide Mr. Bouzeid with photos of the sign once the water in the River subsides and the road becomes accessible. Please remind Mr. Gamblin to provide the photos once they become available.

The Division appreciates the cooperation and assistance of Mr. Gamblin during the inspection and the City's continues efforts to comply with its NPDES requirements. If you have any questions or comments with regard to the inspection please contact Mr. Eddy Bouzeid at (901) 371-3023 or eddy.bouzeid@tn.gov.

Sincerely,

Eddy Bouzeid
Environmental Protection Specialist
Division of Water Resources

Enclosures: Compliance Inspection Reports, Photographs

cc: TDEC/DWR/NCO, Enforcement & Compliance,
TDEC/DWR/MEFO – File

TDEC - Division of Water Resources

ICIS NPDES Facilities Inspection Report

Facility Data

NPDES ID: TN0066800

Facility Site Name: Bartlett STP #1

Address: 5258 Shelter Run Lane, Bartlett, Shelby County, Tennessee

Permit Eff. Date: Aug 1, 2015

Permit Exp Date: Sep 30, 2017

SIC Code:

Compliance Monitoring Information

Compliance Monitoring Activity Name: Compliance Evaluation (non-sampling) (CEI)

* If Bio Monitoring is selected above, select the method used:

Compliance Monitoring Activity: Evaluation

Compliance Monitoring Dates/Times

Entry Date/Time (mm/dd/yyyy hh:mm): 5/9/2017 7:30

Exit Date/Time (mm/dd/yyyy hh:mm): 5/9/2017 11:00

Facility Representatives

On-Site Representative(s)Title, Phone Number: Larry Gamblin (901) 385-6451 / Certified Operator

Responsible Official(s), Title, Phone Number: Rick McClanahan (901) 385-6499 / Director of Engineering

Statute and Section Information

Federal Statute: CWA - Clean Water Act

State Statute: Tennessee Water Quality Control Act

Programs: NPDES- Base Program (Limits, Reporting, & Schedule)

Compliance Monitoring Reason: Core Program

Compliance Monitoring Agency Type: State

Agency Name: TDEC - DWR

Did EPA assist/ Inspection? No

Time Physically conducting activity: Days: 1 Hours:

Inspection Type: State

Compliance Monitoring Action Outcome:

Lead Agency: State

Compliance Monitoring Rating Code:

If Joint Inspection, what was the purpose of the other party?

Areas Evaluated During Inspection (*Check only those areas evaluated*)

☒ Permit	☒ Self - Compliance Program	☐ Pretreatment
☒ Records / Records	☒ Compliance Schedule	☐ Pollution Prevention
☒ Facility Site Review	☒ Laboratory	☐ Storm Water
☒ Effluent / Receiving Waters	☒ Operations & Maintenance	☐ Combined Sewer Overflow
☒ Flow Measurement	☒ Sludge Handling / Disposal	☐ Sanitary Sewer Overflow

Compliance Monitoring Summary

See attached inspection report and/or letter.

EPA and State Representatives

Inspector's Signature	TDEC/DWR/MEFO (901) 371-3023 Agency / Office / Phone	Jun 5, 2017 Date
Manager's Signature	TDEC/DWR/MEFO (901) 371-3025 Agency / Office / Phone	Jun 5, 2017 Date

(Note: This form can only be printed to an XPS document, then saved for later use.)

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Water Resources

Memphis Environmental Field Office, 8383 Wolf Lake Drive, Bartlett, TN 38133

1-888-891-8332 (TDEC)

Compliance Inspection for Individual NPDES Permit

Facility Name: Bartlett STP #1	**NPDES Tracking Number**: TN0066800 & TNB0066800
Permit Effective Date: August 1, 2015	**Permit Expiration Date:** September 30, 2017
Date and Time of Inspection: 5/9/2017	**Inspector Name:** Eddy Bouzeid

Official Contact Person Name: Rick McClanahan, Director of Utilities and Engineering	
Address: 3585 Altruria Road, Bartlett, TN 38135	**Phone Number:** (901) 385-6451
	Email: rmcclanahan@cityofbartlett.org

Summary of Findings and Comments

On Thursday, May 9, 2017, Eddy Bouzeid with the Division of Water Resources, Memphis Environmental Field Office (DWR/MEFO), conducted a Compliance Evaluation Inspection (CEI) at the Bartlett Sewage Treatment plant (STP) #1 located in Shelby county and the STP's biosolids management. This report will include the CEI findings for the STP #1 and the biosolids management.

Mr. Bouzeid met with Mr. Larry Gamblin, the certified wastewater treatment operator, and reviewed the treatment system's monitoring records and discussed its self-monitoring program. Afterwards, Mr. Bouzeid and Mr. Gamblin inspected the treatment system. The following is a summary of the findings and observations:

I. Permit

The NPDES permit for the Bartlett STP #1 with tracking number TN0066800 expires on September 30, 2017. The renewal application was received in the Nashville Central Office on March 13, 2017. A copy of the NPDES permit was in a binder at the plant's laboratory. The NPDES permit authorizes the discharge of treated wastewater effluent to the Loosahatchie River at mile 18.4.

The design capacity of the treatment system is 2.2 Million Gallons per Day (MGD). From April 2015 through April 30, 2017, the average effluent flow from the treatment system was 1 MGD and the maximum flow was 3.11 MGD, recorded in March 2016.

The NPDES permit for the Bartlett STP #1 Biosolids with tracking number TNB0066800 became effective on July 15, 2014, and was to expire on April 30, 2019. Bartlett ceased the land application of its biosolids on June 30, 2016, and began disposing of its biosolids at a local landfill. As a result, TNB0066800 was inactivated as of July 1, 2016.

The Bartlett STP #1 discharge effluent characteristic and monitoring requirements are as follows:

- CBOD – three per week composite
- Total Suspended Solids (TSS) – three per week composite
- Ammonia Nitrogen – three per week composite
- E. Coli – three per week grab
- Settleable Solids – three per week composite
- Dissolved Oxygen – five per week grab
- Total Phosphorous – weekly composite
- Total Nitrogen - Quarterly
- pH – five per week grab
- Flow – daily continuous
- IC25 – biomonitoring annually

II. Records/Reports

Site records and reports for the treatment system were observed and appeared to be maintained as required by the NPDES permit. Sampling and analytical data, including flow records, Discharge Monitoring Reports (DMRs) and Monthly Operation Reports (MORs) for the period from April 2015 through April 2017 were reviewed and appeared to be complete. As of the date of the inspection, Bartlett STP #1 was reporting their DMRs via NetDMR successfully.

III. Facility Site Review

The Bartlett STP consists of two main lift stations at the head of the plant, followed by a headwork building that houses the bar screen (photo 1). From the headwork, the wastewater is pumped to two oxidation ditches for intensive aeration (photo 2). From the oxidation ditches the treated wastewater is clarified via two secondary clarifiers (photo 3), then disinfected using ultraviolet (UV) lights (photo 4) before being discharged to the Loosahatchie River.

The overflow weirs from the clarifiers were clean at the time of the inspection (photo 5). According to Mr. Gamblin, the weirs are cleaned once a week to prevent algae and solids accumulation.

The Bartlett STP #1 had nine (9) exceedances of its permit limits for the period from April 2015 through April 2017. The nine exceedances that were reported during the evaluation period are broken down as follows (Table 1):

Table 1

Parameter	Limit	Date	Result
E. Coli	941 cfu (daily max)	July 1, 2015	2420 cfu
E. Coli	941 cfu (daily max)	November 15, 2015	2420 cfu
E. Coli	941 cfu (daily max)	February 24, 2016	1553 cfu
Ammonia Nitrogen	10 mg/l (daily max)	February 24, 2016	12.3 mg/l
Ammonia Nitrogen	10 mg/l (daily max)	February 25, 2016	13.8 mg/l
Ammonia Nitrogen	5mg/l (weekly average)	February 2016	12 mg/l
E. Coli	941 cfu (daily max	March 3, 2016	1300 cfu
Ammonia Nitrogen	10 mg/l (daily max)	May 24, 2016	13.1 mg/l
Ammonia Nitrogen	10 mg/l (daily max)	May 25, 2016	15.8 mg/l

Explanation of the above referenced exceedances was submitted with the MORs as required by the permit. The Bartlett STP #1 was undergoing plant optimization for nutrient removal (total nitrogen and total phosphorous) during the evaluation period. The causes of the exceedances were attributed to the plant's nutrient optimization management.

IV. Effluent/Receiving Waters

The effluent from the STP's concrete structure was clear (photo 6). The odor at the time of the inspection was minimal.

The access road to the outfall was under water during the inspection (Mississippi River was at flood stage, which causes water levels in tributaries such as the Loosahatchie to be elevated as well) which prohibited the inspection of the NPDES sign as well as the discharge pipe into the Loosahatchie River. Mr. Gamblin agreed to provide Mr. Bouzeid with photos of the sign once the water in the Loosahatchie River subsides.

V. Flow Measurement

The treatment system has a digital flow meter for the influent and the effluent (photos 7 & 8). The flow meters were operating during the time of the inspection. The devices are calibrated annually by LabTronX from Nashville, an independent contractor. The certifications by LabTronX were available at the plant. The devices were last calibrated on October 17, 2016.

VI. Self-Compliance Program

The Bartlett STP has automatic flow proportional samplers for the influent and effluent as required by the permit (photos 9 and 10). The automatic samplers are capable of providing adequate refrigeration during the sampling period. Each sampler is equipped

with a control bottle and a thermometer. The readings on the thermometers in the samplers were below 6 degrees Celsius as required by the permit.

According to Mr. Gamblin, the automatic samplers were set up to collect 200 ml per individual sample which is in accordance with EPA's Operating Procedure for Wastewater Flow Measurement. EPA's operating procedure mandates that the individual sample aliquot be at least 100 ml in volume. Verification of the set-up volume was observed during the inspection.

The plant's electrical outlets are used to operate the samplers for the time required to complete the sampling. The Bartlett STP has a back-up generator for use during power outages. According to Mr. Gamblin, the emergency generator is tested weekly.

According to Mr. Gamblin, Bartlett lab technician collects composite samples of the influent and the effluent for analysis. The analyses for CBOD, total suspended solids, ammonia nitrogen and E. Coli, total nitrogen and total phosphorous are conducted at Waypoint Analytical Laboratory (WAL) in Memphis.

Dissolved oxygen (DO), temperature and pH are effluent parameters routinely measured by the lab technician at the time of sample collection. Settleable solids are analyzed at the plant's laboratory.

A review of the chain-of custodies revealed that the samples shipped to WAL in a cooler were maintained below the 6 degrees Celsius as required by 40 CFR, Part 136.

Bartlett STP also conducts annual biomonitoring (IC 25 Static Renewal 7-Day Chronic Ceriodaphnia and Pimephales) of its effluent as required by the permit. Two biomonitoring tests were conducted for the evaluation period from April 2015 through April 2017. One biomonitoring test was conducted On August 3, 2015, and the second on April 11, 2016. Both biomonitoring tests met the value set forth in the NPDES permit.

VII. Compliance Schedule

The Bartlett STP #1 is required under its NPDES permit that became effective August 1, 2015, to develop a nutrient optimization plan within twelve months of the effective date of the permit. The nutrient optimization/management plan was submitted to the Division on August 15, 2016. According to the plan, on June 29, 2015, Bartlett entered into a contract with a consultant selected by TDEC to oversee various optimization programs across the State. As a reminder, an annual update should be submitted by August 31, 2017.

VIII. Laboratory

All analytical work is being conducted at the WAL in Memphis.

On November 16, 2016, DWR/MEFO personnel conducted a laboratory inspection of WAL to determine compliance with laboratory testing. The inspection revealed that the analytical practices including a quality assurance and quality control program, to be adequate and legally defensible.

A Standard Operating Procedure (SOP) for field parameter measurement was available for review at the STP. The SOP encompasses: sampling procedures; instructions on proper calibration of field equipment; and QC procedures for equipment calibration.

Calibration of the pH and DO meters was observed. The calibration logs were also inspected and the calibrations were properly documented. Three buffers (4, 7 and 10) were being utilized in the calibration of the pH meter. All buffer solutions expire in April 2018.

The DO meter was calibrated according to the instructions noted in the manufacturer's manual.

IX. Operations and Maintenance

The wastewater treatment system appeared to be operating properly at the time of the inspection. The Town reported a total of five (5) sanitary sewer overflows (SSOs) from its collection system for the period from April 1, 2015 through April 30, 2017. Additional information regarding the overflows is contained in the Sanitary Sewer Collection System inspection report.

X. Sludge Handling/Disposal

The Bartlett STP #1 biosolids permit TNB0066800 was terminated as of June 30, 2016. Effective July 1, 2016, Bartlett ceased land application of its biosolids at the Add-Van Farms in Tipton County and began hauling its biosolids to Republic Service Landfill in north Shelby County. The required analysis for the biosolids hauled to the landfill is regulated by the Division of Solid Waste. Copies of the manifests to haul the biosolids to the Republic landfill were available for review at the plant.

The annual biosolids report for the biosolids that was generated from January 1, 2016 through June 30, 2016, was submitted to EPA on January 30, 2017 as required by the 40 CFR 503 Regulations. A copy of the annual report was available for review at the plant.

At the time of the inspection, the wasted sludge from the STP was being pumped into in a storage lagoon for slow aerobic digestion (photo 11). The digested sludge from the aerobic lagoon is dewatered by the addition of polymers and the use of filter press (photo 12). The sludge cake is hauled to Republic Service Landfill in north Shelby County.

Photographic Log

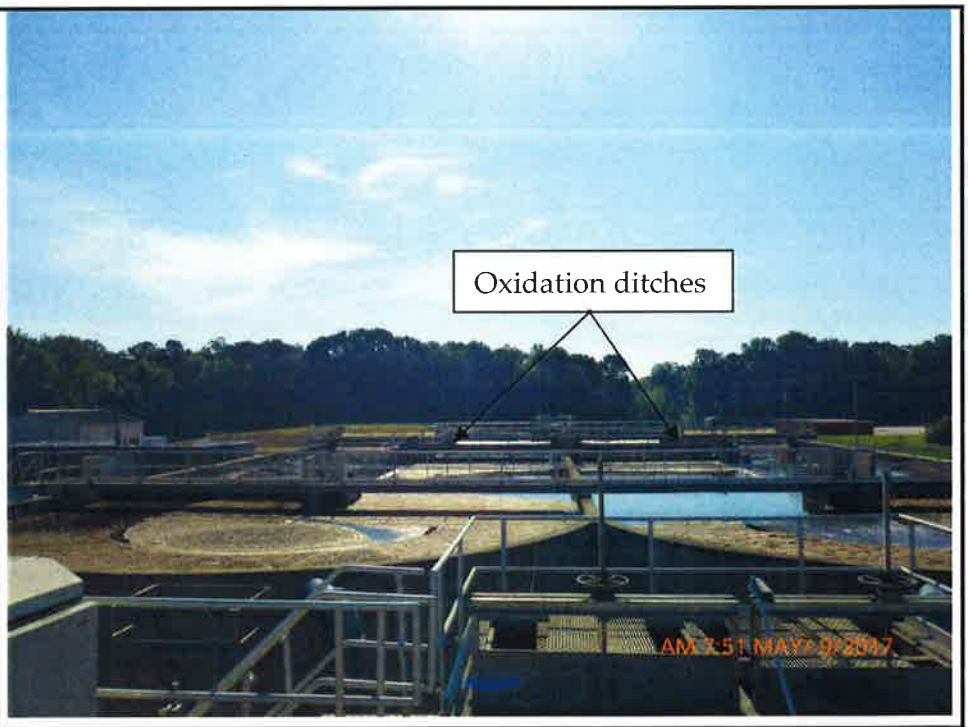
Facility Name:	Site Location:	Tracking No.:
Bartlett STP #1	Bartlett, Shelby County	TN0066800

Photo No.	Date
1	5-9-2017

Description
View of bar screen at headwork.

Photo No.	Date
2	5-9-2017

Description
View of oxidation ditches.



Photographic Log

Facility Name:	Site Location:	Tracking No.:
Bartlett STP #1	Bartlett, Shelby County	TN0066800

Photo No.	Date
3	5-9-2017

Description
View of one of the secondary clarifiers.

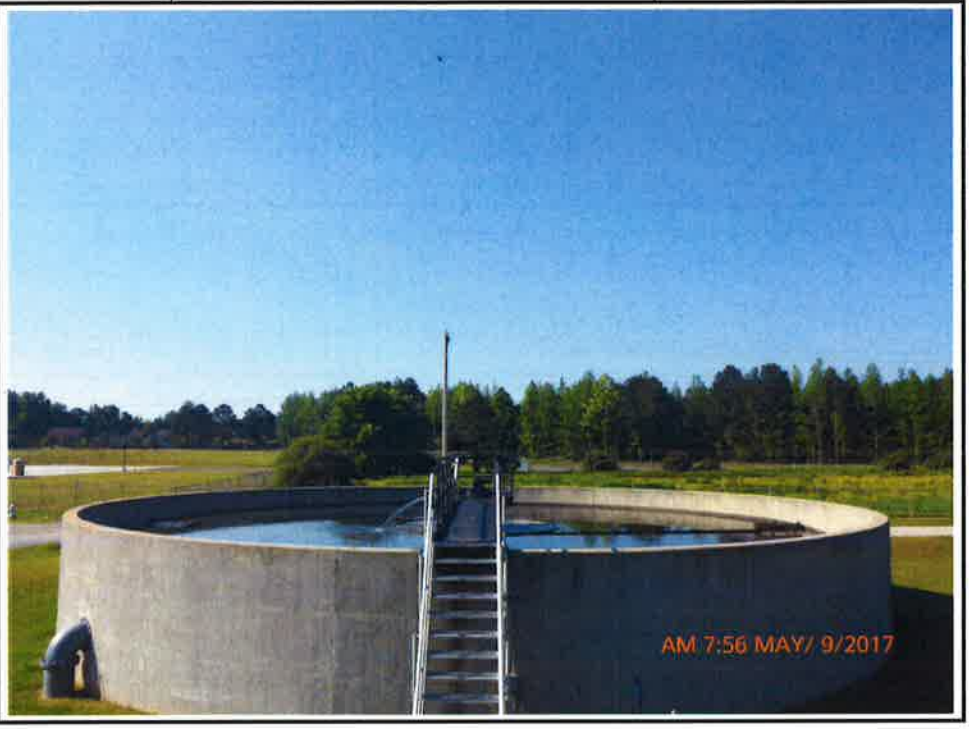


Photo No.	Date
4	5-9-2017

Description
View of the Ultraviolet lights.

Photographic Log

Facility Name:	Site Location:	Tracking No.:
Bartlett STP #1	Bartlett, Shelby County	TN0066800

Photo No.	Date
5	5-9-2017

Description
Close-up view of the clarifier (from photo 3) overflow weir

Photo No.	Date
6	5-9-2017

Description
View of effluent from the STP concrete structure. The effluent sample is taken from the flume prior to discharging to the Loosahatchie River.

Photographic Log

Facility Name:	Site Location:	Tracking No.:
Bartlett STP #1	Bartlett, Shelby County	TN0066800

Photo No.	Date
7	5-9-2017

Description
View of the influent digital flow device. At the time of the inspection, this device was functioning properly.

Photo No.	Date
8	5-9-2017

Description
View of the effluent digital flow device. At the time of the inspection, this device was functioning properly.

Photographic Log

Facility Name:	Site Location:	Tracking No.:
Bartlett STP #1	Bartlett, Shelby County	TN0066800

Photo No.	Date
9	5-9-2017

Description
View of the influent composite sampler. The temperature in the control bottle was below 6 degrees Celsius.

Photo No.	Date
10	5-9-2017

Description
View of the effluent composite sampler. The temperature in the control bottle was below 6 degrees Celsius.

Photographic Log

Facility Name:	Site Location:	Tracking No.:
Bartlett STP #1	Bartlett, Shelby County	TN0066800

Photo No.	Date
11	5-9-2017

Description
The wasted sludge from the plant is pumped into a storage lagoon for slow aerobic digestion.

Photo No.	Date
12	5-9-2017

Description
View of the filter press building. The digested sludge from the aerobic lagoon is dewatered by the addition of polymers and the use of filter press. The sludge cake is hauled to Republic Service Landfill in north Shelby County.