08/23/2023

David Green, Utilities Manager
Arkadelphia Water Utilities
P.O. Box 495
Arkadelphia, AR 71923

RE: Arkadelphia Water Utilities Laboratory Audit
AFIN: 10-00463 Permit No.: AR0020605

Dear Mr. Green,

Division of Environmental Quality (DEQ) performed a laboratory data audit of the Arkadelphia Water Utilities facility located at 700 Clay Street, Arkadelphia, Arkansas in accordance with the provisions of the Federal Clean Water Act, the Arkansas Water and Air Pollution Control Act, and the rules promulgated thereunder. The Laboratory Audit Report details twenty-nine (29) findings that need to be addressed and eight (8) recommendations for your consideration to help the laboratory function more efficiently and improve recordkeeping.

Please provide a written response to each finding that includes, but is not limited to,

- the corrective action to be taken,
- the estimated time to complete the corrective action,
- and a demonstration, if necessary, that the corrective action was sufficient to resolve the deficiency.

The corrective action response is due by September 30, 2023, and may be emailed to WaterLab@adeq.state.ar.us.

If you have any questions, please contact Lessie Redican at 501.682.0937 or by email at lessie.redican@adeq.state.ar.us or Stacie Wassell by email at stacie.wassell@adeq.state.ar.us.

Sincerely,

Digitally signed by Stacie R. Wassell
DN: cn=Stacie R. Wassell, o=ADEQ, ou=Law and Policy, email=wassell@adeq.state.ar.us, c=US
Date: 2023.08.24 07:33:17 -05'00'

Stacie Wassell
Deputy Associate Director, Office of Water Quality
Division of Environmental Quality

cc: Richard Healey, Enforcement Branch Manager, Office of Water Quality
Lessie Redican, Laboratory Branch Manager, Office of Water Quality
Jason Bolenbaugh, Compliance Branch Manager, Office of Water Quality

DIVISION OF
ENVIRONMENTAL QUALITY

LABORATORY DATA AUDIT REPORT

City of Arkadelphia
Arkadelphia Water Utilities
Permit Number: AR0020605

Introduction

The Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ), Office of Water Quality Laboratory conducted a data audit of the City of Arkadelphia in-house laboratory (Permittee) pursuant to Part III, Section B, Condition 1 and Part III, Section C, Condition 3 of Permit AR0020605 and 40 C.F.R. § 136. The purpose of the audit was to verify that Permittee is complying with Part III, Section B, Condition 1 and Part III, Section C, Condition 3 of the Permit AR0020605 and 40 C.F.R. § 136, and correctly implementing approved analytical methods, including acceptable quality control, and maintaining adequate laboratory documentation.

DEQ performed a data document audit and reviewed documents submitted by Permittee. The findings and recommendations are set forth below.

This Laboratory Audit Report reports only on the documents submitted to DEQ for review. This report may not include all deficiencies in the provided documents. No representation is made as to any documents not specifically commented upon.

Summary of Findings and Recommendations

	Findings	Recommendations
General Recordkeeping	7	3
pH	8	0
Total Suspended Solids	3	3
Biochemical Oxygen Demand	5	1
Fecal Coliform Bacteria	4	1
Dissolved Oxygen	1	0
Total Residual Chlorine	1	0

I. General Recordkeeping

During the laboratory data audit, DEQ noted seven (7) findings and three (3) recommendations.

#		Description	Correction Date	Completion Date
1.	Finding	Standard Operating Procedures (SOP) need to be updated. Reference methods should be current to 40 C.F.R. § 136.		
2.	Finding	Temperature Logs: Daily temperature readings from NIST[1] traceable thermometer should be recorded for incubators, ovens, refrigerators, and freezers.		
3.	Finding	Training records must be kept for each analyst for each analysis. Formal records that document the required steps for learning and demonstrate the ability of the analyst to perform the test with acceptable results, along with annual continued proficiency as demonstrated through proficiency testing for each analyst, need to be established. Wastewater license certificates do not constitute training for the laboratory.		
4.	Finding	Balance Calibration: Annual calibration certification is current, but daily calibration checks are needed each day the balance is used.		
5.	Finding	Chain of Custody (COC) record does not include sample relinquishment to laboratory, any field analysis performed, and any laboratory analyses needed.		
6.	Finding	Flow Form is not initialed by the person measuring and recording the data.		
7.	Finding	Records do not indicate that the laboratory has a system for identifying when corrective actions are needed and recording the corrective actions taken.		

[1] National Institute of Standards and Technology: https://www.nist.gov/

#		Description	Correction Date	Completion Date
8.	Recommendation	Annual training and documentation for all laboratory technicians and managers should include Ethics and Data Integrity. Laboratory Safety could also be included.		
9.	Recommendation	Newer methods (40 C.F.R. Part 136) may require necessary changes to your current SOPs. Careful review should be taken.		
10.	Recommendation	Annual recertification of thermometers using a NIST traceable thermometer is acceptable for the daily reading temperature checks.		

II. pH

During the laboratory audit, DEQ noted eight (8) findings and zero (0) recommendation.

#		Description	Correction Date	Completion Date
11.	Finding	No SOP was provided for pH.		
12.	Finding	Laboratory records do not indicate a second source pH as a quality control sample.		
13.	Finding	2020: pH results not acceptable. Upon receipt of proficiency test results of "not acceptable," the parameter must be retested and such analysis should not be performed until the analyst has demonstrated proficiency by receipt of "acceptable" for a proficiency sample.		
14.	Finding	2020 pH proficiency test failure: No documentation of corrective actions.		
15.	Finding	2021: pH results not acceptable. Upon receipt of proficiency test results of "not acceptable," the parameter must be retested and such analysis should not be performed until the analyst has demonstrated proficiency by receipt of "acceptable" for a proficiency sample.		

#		Description	Correction Date	Completion Date
16.	Finding	2021 pH proficiency test failure: No documentation of corrective actions.		
17.	Finding	Grab Sample Log does not have sample collection time for each sample.		
18.	Finding	Samples are collected and analyzed for pH on days with no calibration record for the pH meter.		

III. Total Suspended Solids (TSS)

During the laboratory audit, DEQ noted three (3) findings and three (3) recommendations.

#		Description	Correction Date	Completion Date
19.	Finding	SOP should include daily balance calibration checks, maintenance of a temperature log for the oven, and lab control spike of microcellulose.		
20.	Finding	Standard should be used for each batch of samples.		
21.	Finding	Bench sheet needs an identifier for the balance/scale if two or more are available.		
22.	Recommendation	Time in and out of the drying oven should be included on bench sheet for each weighing.		
23.	Recommendation	Forceps should be included in Apparatus and Equipment in the TSS SOP.		
24.	Recommendation	The procedure calls for a stirred sample. More detail is needed regarding sample preparation before analysis. The new method reference allows for vigorous shaking to homogenize, rather than stirring and pipetting.		

IV. Biochemical Oxygen Demand, 5-day (BOD)

During the laboratory audit, DEQ noted five (5) findings and one (1) recommendation.

#		Description	Correction Date	Completion Date
25.	Finding	Seed, Buffers, and GGA lot numbers should be on the bench sheet.		
26.	Finding	Bench sheet does not indicate incubation end date and time.		
27.	Finding	Temperature log doesn't indicate how the temperature is measured. There should be a calibrated and certified thermometer inside the BOD incubator, rather than only reading the dial thermometer on the front of the incubator.		
28.	Finding	BOD SOP: Sample Preparation or Procedure should include amount of seed added to sample and source of seed material. Method performance criteria needs to be updated with method reference. Acid and base solutions for pH adjustment of samples is recommended to be 1N. All samples that are pH adjusted or de-chlorinated must be seeded and must be clearly indicated on the bench sheet. Precision and Bias section isn't correct concerning the acceptable range for GGA recovery. The acceptable range of recovery of the GGA checks must be 198 ± 30.5 mg/L.		
29.	Finding	The May calculations indicate depletions are out of range, but there are some that are 2 mg/L or greater before seed correction. While GGA recovery is low, it still met the criteria of 198 ± 30.5 mg/L.		

#		Description	Correction Date	Completion Date
30.	Recommendation	BOD SOP: Apparatus and Equipment should include bottle stoppers and sealing caps. Dilution Water Preparation should include water type and source. How far in advance is dilution water prepared? How long and in what condition is it stored? Procedure should include washing procedure of BOD bottles, as bottle cleanliness is crucial to successful analysis.		

V. Fecal Coliform Bacteria (FCB)

During the laboratory audit, DEQ noted four (4) findings and one (1) recommendation.

#		Description	Correction Date	Completion Date
31.	Finding	FCB COC needs analyst initials and must indicate that the sample is a GRAB.		
32.	Finding	A blank and duplicate should be analyzed for each batch. No indication of the quality control used for this method. No indication of positive and negative checks, or monthly conformation of typical blue colonies.		
33.	Finding	FCB SOP: Preparation of Water Check should specify "at the beginning and end of each filtration series" (Method 0222 D). No record of water bath temperature, which should be recorded twice during analysis, at least eight (8) hours apart. Incubation is at 44.5℃ ± 0.2, not "2" as stated several times in the SOP.		
34.	Finding	Data sheet does not include information and lot numbers for filters, reagents, etc.		

#		Description	Correction Date	Completion Date
35.	Recommendation	FCB SOP: Sterilization method of forceps and filtration units should be included. Example; Sterile Disposable, UV radiation, alcohol, or heat. Forceps; "Sterilize before use by dipping in 95% ethyl or absolute methyl alcohol and flaming" (Method 9222B 1.i). Include information on how to measure sample volumes and make dilutions, when necessary.		

VI. Dissolved Oxygen (DO)

During the laboratory audit, DEQ noted one (1) finding and zero (0) recommendations.

#		Description	Correction Date	Completion Date
36.	Finding	Calibration Form should include barometric pressure and temperature.		

VII. Total Residual Chlorine (TRC)

During the laboratory audit, DEQ noted one (1) finding and zero (0) recommendations.

#		Description	Correction Date	Completion Date
37.	Finding	No SOP was provided for TRC.		