

Via Email: [gavin.gray@adeq.state.ar.us](mailto:gavin.gray@adeq.state.ar.us)

August 8, 2018

Mr. Gavin Gray  
Enforcement Analyst  
Enforcement Branch  
Office of Water Quality  
Arkansas Department of Environmental Quality  
5301 Northshore Drive  
North Little Rock, AR 72118-5317

RE: Corrective Action Plan – Permit Exceedances for Two Wastewater Parameters  
City of Cave City – Cave City, Arkansas  
NPDES Permit No. AR0022110 – AFIN: 68-00015

Dear Mr. Gray:

Harbor Environmental and Safety is submitting the enclosed Corrective Action Plan on behalf of the City of Cave City (NPDES Permit No. AR0022110) in accordance with your enforcement letter dated July 10, 2018.

Thank you for your consideration of the Corrective Action Plan. Please contact me by telephone at (501) 663-8800 or by email at [arike@harborenv.com](mailto:arike@harborenv.com) if you have any questions or need further information.

Sincerely,

HARBOR ENVIRONMENTAL AND SAFETY



Andrew Rike, P.E.  
Vice President, Engineering

Encl.

cc: Mayor Jonas Anderson, City of Cave City  
Jim Smith, City of Cave City

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**Introduction**

The City of Cave City (“Cave City”) operates a municipal wastewater treatment system located at 200 Foley Drive in Cave City, Sharp County, Arkansas (ADEQ Facility Identification No. (AFIN) 68-00015). The treatment system consists of the following: a bar screen; an oxidation ditch; a facultative pond; intermittent sand filters; an aerobic digester; a chlorine disinfection unit; and, a post-aeration chamber. The system has a design flow of 0.45 million gallons per day. The treated wastewater effluent is discharged to an unnamed tributary of Curia Creek, thence to Curia Creek, thence to the Black River, thence to the White River in Segment 4G of the White River Basin. Operation of Cave City’s wastewater system is authorized by National Pollutant Discharge Elimination System (NPDES) Permit No. AR0022110 dated December 4, 2013. The five-year term of the permit coverage runs from January 1, 2014 through December 31, 2018. The wastewater permit is currently undergoing renewal. An administratively-complete permit application was filed on June 6, 2018.

**Alleged Wastewater Violations**

In June and July 2018, the Office of Water Quality of the Arkansas Department of Environmental Quality (ADEQ) conducted a review of the monthly Discharge Monitoring Reports filed by Cave City. The review covered the 37-month period from May 2015 through May 2018.

In a letter dated July 10, 2018, Mr. Gavin Gray, Enforcement Analyst with the Office of Water Quality, notified Cave City of seven (7) alleged violations of the permitted effluent limits for Ammonia Nitrogen and Dissolved Oxygen (DO). ADEQ requested that Cave City submit a Corrective Action Plan (CAP or “the Plan”). The alleged violations are listed below by parameter. The CAP is described in the following section of this document.

*Table 1 – Alleged Ammonia Violations*

Monitoring Period End Date	Type of Limit	Permit Limit (mg/L)	Reported Value (mg/L)
5/31/2018	Monthly Average Concentration (mg/L)	3	6.65
5/31/2018	7-Day Average Concentration (mg/L)	4.5	9.6

mg/L = Milligrams per Liter

*Table 2– Alleged DO Violations*

Monitoring Period End Date	Type of Limit	Permit Limit (mg/L)	Reported Value (mg/L)
12/31/2015	Instantaneous Minimum Concentration (mg/L)	≥8	6

Monitoring Period End Date	Type of Limit	Permit Limit (mg/L)	Reported Value (mg/L)
8/31/2016	Inst. Minimum Concentration (mg/L)	≥6	3.2
8/31/2017	Inst. Minimum Concentration (mg/L)	≥6	5.1
3/31/2018	Inst. Minimum Concentration (mg/L)	≥7	6.83
4/30/2018	Inst. Minimum Concentration (mg/L)	≥7	5.85

### Requirements of Corrective Action Plan

In its enforcement letter, ADEQ requested that Cave City submit a CAP to address the alleged wastewater permit violations. At a minimum, the Plan should contain the following information:

- The cause(s) of the alleged effluent violation(s).
- Evaluation of the current permitted treatment system for compliance within the requirements of the facility's permit.
- The actions to be taken to correct, and prevent, the recurrence of the alleged effluent violations.
- A milestone schedule for compliance with the permit effluent limits, with a final date of compliance.

The CAP must be submitted to ADEQ within thirty (30) calendar days after receipt of the enforcement letter (i.e., no later than August 10, 2018).

The Plan must be certified by an Arkansas-registered Professional Engineer.

The enclosed CAP fulfills the cited requirements. The Plan has been submitted to ADEQ on or before the specified deadline.

In addition, per the enforcement letter, Cave City must submit Quarterly Progress Reports to ADEQ. These reports shall describe the progress made and the remaining items to be completed. Submission of the Quarterly Reports shall be due on the 15<sup>th</sup> day of the third month. The first report must be submitted to ADEQ within sixty (60) calendar days after receipt of the enforcement letter (i.e., no later than September 10, 2018).

Finally, per the enforcement letter, Cave City must submit a Final Report to ADEQ, certifying compliance with the permit effluent limits, upon completion of the actions taken to correct, and prevent, the recurrence of the effluent violations.

### Components of CAP

Cave City has contracted with Harbor Environmental and Safety (Harbor) of Little Rock, Arkansas to provide regulatory and technical support for the wastewater treatment system.

The required components of the CAP are reiterated and addressed in the following paragraphs:

(1). *The cause(s) of the alleged effluent violation(s).*

Cave City and Harbor have reviewed the operating data for the wastewater treatment system that covers the 42-month period from January 2015 through June 2018. Our conclusions regarding the causes of the alleged effluent violations for ammonia nitrogen and DO are discussed below:

- Ammonia Nitrogen: Two exceedances of the permitted effluent concentration limits for this parameter occurred during the cited 42-month period. Both exceedances took place in May 2018.

Cave City's wastewater treatment plant includes an oxidation ditch. It is equipped with two aerators. Typically, only one unit is operated at any given time; the second aerator serves as a backup unit.

We believe that the two exceedances of the concentration limits for ammonia nitrogen were caused by an unidentified short-term operating issue with the oxidation ditch. Cave City took immediate action upon receipt of the lab report which indicated a high concentration of ammonia in the effluent. The second aerator in the oxidation ditch was turned on, which raised the DO level in the treatment unit and thereby improved removal of the ammonia concentration in the wastewater. Both aerators were operated until the treatment issue was resolved. The effluent ammonia concentrations returned to normal levels during the following month (June 2018).

Only two exceedances of the effluent limits for ammonia nitrogen occurred during the cited 3.5-year period. Otherwise, Cave City consistently complied with its concentration and mass limits for this parameter.

Dissolved Oxygen: A total of five exceedances of the permitted instantaneous minimum effluent concentration limits for this parameter occurred during the cited

42-month period. They took place in December 2015, August 2016, August 2017, March 2018 and April 2018.

All of the exceedances of the effluent concentration limits for DO were caused by power outages which affected operation of the aerator in the post-aeration chamber. These occurrences are summarized below:

*Table 3– Summary of Power Interruptions that Affected DO Levels*

Monitoring Period	Cause	Duration	Remedy
12/31/2015	Breaker tripped, possible power “blip” (12/23)	8 hours	Reset breaker to restart aerator
08/31/2016	Lightning storm tripped breaker (≈08/24)	6 hours	Reset breaker to restart aerator
08/31/2017	Tree limb fell across power line (08/08)	<24 hours	Repaired power line
03/31/2018	Lightning storm knocked out power to treatment plant (03/27)	8 hours	Power service restored
04/30/2018	Bird shorted-out power to transformer unit (≈04/15)	<8 hours	Replaced fuse for transformer

On all five occasions, the power to the aerator was restored within 24 hours. The effluent DO concentrations returned to the permitted levels as soon as aeration was resumed.

Only five exceedances of the effluent limits for DO occurred during the cited 42-month period. Otherwise, Cave City consistently complied with its concentration limits for this parameter.

*(2). Evaluation of the current permitted treatment system for compliance within the requirements of the facility’s permit.*

Cave City and Harbor have evaluated the design, operation and maintenance of the wastewater treatment system. We believe that the system is adequately designed and operated to meet the influent hydraulic and mass loading rates. The treatment system consistently meets the effluent permit limits for other wastewater parameters (5-Day Carbonaceous Biochemical Oxygen Demand, Total Suspended Solids, Fecal Coliform Bacteria and pH).

*(3). The actions to be taken to correct, and prevent, the recurrence of the alleged effluent violations.*

Cave City and Harbor do not believe that any corrective actions are required to correct and prevent the recurrence of the alleged effluent exceedances for ammonia nitrogen. As discussed, the two exceedances of the effluent concentration limits which occurred in May 2018 were caused by an unidentified short-term operating issue with the oxidation ditch. The problem was remedied immediately upon discovery by running both aerators for a period of time. No other operating issues occurred during the cited 42-month period.

Similarly, Cave City and Harbor do not believe that any corrective actions are required to correct and prevent the recurrence of the alleged effluent exceedances for DO. All five exceedances were related to short-term, intermittent power outages. All these outages were addressed within 24 hours. Resumption of operation of the aerator in the post-aeration chamber returned the effluent DO concentrations to the required levels.

*(4). A milestone schedule for compliance with the permit effluent limits, with a final date of compliance.*

A compliance schedule is not necessary for Cave City. All of the alleged exceedances of the effluent permit limits for ammonia nitrogen and DO were addressed when they occurred.

Therefore, the submission of Quarterly Progress Reports or a Final Report to ADEQ is not required.

For the purposes of this CAP, the effective date of compliance is August 10, 2018.

Certification statements signed by the Responsible Official for Cave City and an Arkansas-registered Professional Engineer are provided on the following pages.

In conclusion, Cave City is currently in compliance with the requirements of NPDES Permit No. AR0022110 and will continue to comply with its permit.

Cave City operates and maintains its wastewater treatment plant in a proper manner to ensure permit compliance. The City will continue to do so.

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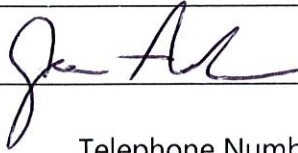


CERTIFICATION BY RESPONSIBLE OFFICIAL

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name of Responsible Official: Jonas Anderson

Title: Mayor, City of Cave City

Signature of Responsible Official: 

Date: 8/7/2018 Telephone Number: (870) 283-5103

E-mail: cityhall@cavecity.us Fax Number: (870) 283-5988

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CERTIFICATION BY PROFESSIONAL ENGINEER

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name of Arkansas-registered Professional Engineer: Andrew Rike

Registration License Number: 10452

Signature of Professional Engineer: *Andrew Rike*

Date: *8/7/2018* Telephone Number: (501) 663-8800

E-mail: arike@harborenv.com Fax Number: (501) 588-0123

Stamp of Professional Engineer:



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