



August 31, 2016

Arkansas Department of Environmental Quality  
Water Division-Enforcement Branch  
5301 North Shore Drive  
North Little Rock, AR 72118-5317

**RE: AFIN# 72-00781, NPDES Permit# AR0020010  
Progress Report - Effluent Mineral Limits Compliance  
Reporting Period of 02/29/2016 to 08/31/2016**

Part II Condition 10 in the NPDES permit for the Paul R. Noland Wastewater Treatment Plant (WWTP) requires progress report every 6 months on the compliance with the minerals limits. This report details the progress made in the period of 02/29/2016 to 08/31/2016.

1. *Compliance with the Interim Mineral Limits:*

The effluent discharge is meeting the interim limitations for Chloride, Sulfate, and Total Dissolved Solids (TDS) for this reporting period. Results were reported on the monthly Discharge Monitoring Reports.

2. *Complete the tasks in accordance with the approved White River Use Attainability Study Plan:*

The White River Use Attainability Study is complete.

The City submitted the White River Use Attainability Analysis (UAA) report to ADEQ on May 21, 2013. On June 10, 2013, ADEQ sent a letter to the City requesting assessment of the UAA in consideration of Act 954 compliance. On July 24, 2013, the City submitted a Technical Memorandum summarizes the quantitative assessment in compliance with Act 954. The assessment found that no modifications to the UAA or the proposed site-specific minerals water quality criteria are necessary to be in compliance with Act 954.

3. *Administrative Rulemaking Processes/Permit Modifications:*

- On September 11, 2013, the UAA team met with ADEQ to be sure that there are no other issues before we proceed with the third-party rulemaking.
- On October 11, 2013, the Mitchell Williams Law firm filed a petition on behalf of the City of Fayetteville to initiate Third-Party Rulemaking to amend Regulation No. 2, Water Quality Standards. The petition was reviewed by the Arkansas Pollution Control and Ecology Commission's Regulations Committee on October 25, 2013. The Regulations Committee recommended the Commission consider adopting the proposed revision and proposed that the first public hearing be held during the week of February 10, 2014.
- In December 2013, ADEQ published a legal notice for the public hearing of the proposed third-party rulemaking to change the Arkansas Pollution Control & Ecology Commission (APC&EC) Regulation 2, the Arkansas Water Quality Standards for minerals for the White River from the discharge of the Noland Wastewater Treatment Plant to immediately downstream of the confluence of Richland Creek.
- The public hearing was held at the Fayetteville Public Library on February 13, 2014.

4. *Activities since the February 13, 2014 public hearing*

- Pursuant to the public hearing, written public comments were submitted on February 27, 2014, by

the Arkansas Department of Health (ADH), ADEQ, and Mr. Robert Cross.

- o ADH requested that any effluent from the WWTP should include concentration limits on chloride, sulfate, and TDS that meet the Secondary Maximum Contaminant Levels of 250 mg/L, 250 mg/L, and 500 mg/L, respectively.
  - o ADEQ determined the study indicated the aquatic life is not impacted by minerals and the aquatic life designated use is currently being maintained; however, the proposed criteria need to be re-evaluated to insure they reflect instream concentrations based on either the submitted data or the minerals concentrations measured over the past 23 years in monitoring data.
  - o Mr. Cross believes the proposed criteria are "much higher than are necessary and reasonable" and recommended "the new specifications should only be set as high as necessary to accommodate the existing situation."
- Sampling and analysis of minerals concentrations in the White River and WWTP outfall-001 has continued since the UAA was submitted. Sampling results through December 1, 2014, from the UAA and WWTP sampling programs, in addition to data collected by the USGS, ADEQ, and Arkansas Water Resources Center (AWRC), have been compiled in a database. For a summary of the database updates through December 1, 2014, refer to the attachment submitted with the Progress Report dated February 27, 2015.
  - The data set, updated beyond the date of the UAA report submittal, was evaluated in detail in light of the public comments received after the public hearing, including statistical analyses of flow-concentration relationships and percentile rankings of minerals concentrations at different locations within the study area.
  - The results of the updated data characterization were presented to ADEQ in a meeting in North Little Rock on June 19, 2014.
  - On July 31, 2014, ADEQ submitted a letter to the City listing the maximum minerals concentrations the Department can support in the White River, along with the basis of the derivation (i.e., 95th percentile of available data from WR-02 and WR-03 [WHI0052]):
    - o WWTP-001 to 0.4 mi downstream: 47 mg/L, 51 mg/L, and 331 mg/L for chloride, sulfate, and TDS, respectively.
    - o 0.4 mi downstream of WWTP-001 to the confluence with Richland Creek: 30 mg/L, 40 mg/L, and 237 mg/L for chloride, sulfate, and TDS, respectively.
  - On August 8, 2014, at the request of Steve Miller/CH2M HILL on behalf of the City, Mo Shafii and Sarah Clem of ADEQ held a conference call to discuss how the NPDES effluent limits for minerals would be developed for the Noland WWTP considering the proposed site-specific criteria.
  - The City evaluated the information obtained from the communications with ADEQ (July 31 and August 8) to determine if the Noland WWTP can meet the anticipated NPDES permit effluent limits that would result from the instream minerals criteria outlined in ADEQ's letter of July 31, 2014.
  - Based on the evaluation and updated data noted above, the City has strong concerns regarding the potential for effluent limits to be imposed upon the Noland facility that could be exceeded more often than would be acceptable to either the City or ADEQ. This conclusion caused the City to direct CH2M HILL to evaluate and characterize the available data beyond that which had been done to date. This included extensive statistical analyses of the "same-day" minerals concentrations along the mainstem White River to capitalize on the long-term minerals database at WR-03. The City also modeled the impact of potential future phosphorus reductions at the WWTP, should it be required for Beaver Lake, on the effluent concentrations of minerals. The City presented the findings of these analyses to ADEQ in a meeting held March 19, 2015.

- The City's presentation to ADEQ on March 19, 2015, included:
  - background information;
  - an evaluation of minerals site-specific criteria (SSC) and associated minerals permit limits at the Noland WWTP;
  - an evaluation of total phosphorus treatment to 0.1 mg/L on the resultant effluent minerals concentrations at the Noland WWTP; and,
  - a derivation of revised SSC that are protective of the designated uses and result in attainable permit limits.
- ADEQ agreed to review and take into consideration the material presented on March 19, 2015, and respond to the City with any questions, comments, or opinions. The City communicated that minerals sampling within the UAA study area would continue, in addition to the routine sampling at WWTP-001.
- As a follow-up to the March 19 presentation, ADEQ Director Keogh and Don Marr, Fayetteville Chief of Staff, discussed the White River UAA on July 15, 2015. Director Keogh informed Don that the agency is not comfortable using extrapolated data based on WR-03 data (as detailed in the presentation) for deriving SSC; and, that ADEQ has computed draft permit limits for minerals that are slightly lower than those presented by the City in March. Later that day, Steve Miller/CH2M HILL, on behalf of the City, e-mailed Sarah Clem and Mo Shafii requesting ADEQ share the data calculation ADEQ used to compute the permit numbers. This was done in recognition of the need for the City and ADEQ to be in sync with each other on the data and derivation of permit limits.
- On July 20, 2015, Steve Miller/CH2M HILL, on behalf of the City, e-mailed Sarah Clem and Mo Shafii a copy of the spreadsheet containing the data and calculations the City used to derive projected minerals permit limits presented to ADEQ in March.
- On August 25, 2015, Mo Shafii forwarded ADEQ's calculations of draft effluent limits for minerals to Steve Miller and Billy Ammons of CH2M HILL. The difference between the effluent limits computed by ADEQ and those presented by the City in March 2015 stem from a 0.2 cfs difference in the background White River flow harmonic mean. The City used 11.6 cfs, ADEQ used 11.4 cfs. The City will attempt to identify the source of this difference and correct as appropriate.
- As a next step, the City plans to analyze and summarize the minerals data collected since those included in the March 2015 presentation. This information will help determine the next steps in the context of the projected draft permit limits.

5. *Activities since the August 2015 Progress Report:*

- On November 16, 2015, the City met with ADEQ at the Fayetteville West Side WWTP to discuss updates to the analysis of water quality data for the purpose of evaluating the proposed site-specific criteria, as well as the corresponding projected draft permit limits. The City presented a time-series chart of a rolling, 5-year, 95<sup>th</sup> percentile concentration at the various UAA monitoring stations. This was presented to facilitate the decision making process. This meeting also served the purpose of bringing new ADEQ staff up to date on the project.
- As requested by ADEQ during the meeting of November 16, the City forwarded the compiled monthly average minerals data from the Noland WWTP effluent for March 2013 through October 2015 (sent via e-mail on November 20), and the rolling, 5-year, 95<sup>th</sup> percentile concentration plots and supporting data (sent via e-mail on November 18).
- The City has evaluated a number of different scenarios with varied points of aluminum sulfate (alum) addition and varied dosing rates under different process conditions at the Noland WWTP to determine if a theoretical 0.1 effluent phosphorus limit could be met; and, if so, what the cost would be, as well as the effect on the sulfate concentration in the effluent.
- The City continues to collect monthly minerals data at the UAA monitoring stations, and continues to

collaborate with ADEQ to develop the most scientifically defensible site-specific minerals criteria that are protective of the designated uses and will not result in permit limit exceedances.

6. *Activities since the February 2016 Progress Report:*

- Water quality sampling continued at the nine (9) UAA monitoring stations. Samples were collected on: March 6; April 7; May 23; June 9; July 14; and, August 22.
- Additional data analysis was presented by the City to ADEQ on July 1, 2016. The City's objective was to gain consensus on appropriate site-specific minerals values to present for approval by the Arkansas Pollution Control and Ecology Commission. The topics addressed included: a review of the whole effluent toxicity test and biological study results; permit limits required to maintain reliable permit compliance; instream minerals criteria and the permit limits they would yield; variability of the 95<sup>th</sup> percentile minerals concentrations as it relates to period of record; flow characteristics of the White River and Noland WWTP effluent; historical effluent minerals data; and, chemical treatment for phosphorus control at the Noland WWTP.
- The City met with Beaver Water District on July 14, 2016, to provide an update of the current status and activities related to the UAA.
- The City and ADEQ teleconferenced on July 19, 2016, as a follow-up to the presentation of July 1, 2016.
- ADEQ requested UAA data from the City on July 20, 2016, and August 15, 2016. The July request was for White River minerals data collected to date; and, the August request was for specific conductivity data collect to date. The requested data was provided to ADEQ in a MicroSoft Excel spreadsheet the following day in both instances. The datasets span the period of May 19, 2011, through May 23, 2016. Communication between the City and ADEQ related to the analysis of this data is ongoing as of the writing of this progress report.
- As of the writing of this progress report, the City is awaiting feedback from ADEQ on their position related to the City's proposal outlined in the presentation of July 1, 2016.

Please do not hesitate to contact Duyen Tran at 479-530-6034, or [duyen.tran@ch2m.com](mailto:duyen.tran@ch2m.com), if you have any questions regarding this report. I can also be reached at 479-466-7589, [tnyander@fayetteville-ar.gov](mailto:tnyander@fayetteville-ar.gov).

*I, Tim Nyander, 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.*

Sincerely,



**City of Fayetteville**  
Tim Nyander  
Utilities Director