

BEFORE THE ARKANSAS COMMISSION ON
POLLUTION CONTROL & ECOLOGY

IN RE: CITY OF HUNTSVILLE PETITION)
TO INITIATE RULEMAKING TO AMEND) DOCKET NO. 13-006-R
REGULATION NO. 2)

CITY OF HUNTSVILLE'S
RESPONSE TO COMMENTS

1. The City of Huntsville (“Huntsville”) for its Response to Comments, states:

On July 26, 2013, the Arkansas Pollution Control and Ecology Commission (“APCEC”) granted Huntsville’s Petition to Initiate Third-Party Rulemaking to Amend APCEC Regulation No. 2, Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas (“Initial Petition”). APCEC Minute Order 13-23. A public hearing was held on October 28, 2013 in Huntsville, Arkansas. The public comment period ended on November 12, 2013. This public comment period is hereinafter referred to as “the Initial Public Comment Period”.

2. Based on comments submitted in the Initial Public Comment Period, and an amendment to Regulation No. 2 that changed the criteria flow from 4 cfs to harmonic mean, Huntsville and ADEQ reached an agreement to recalculate the proposed site-specific criteria, which was reflected in a Response to Comments filed on August 15, 2017. Because the revised site specific criteria differed from the proposal contained in its Initial Petition the Commission directed Huntsville to file an Amended Petition and requested a second public hearing and public comment period (“Amended Petition”). Minute Order 17-19 (August 25, 2017) The Amended Petition was filed on October 10, 2017 (with a title of Third Amended Petition), and the second public hearing was held on November 13, 2017 in Huntsville, Arkansas. The second

public comment period ended on December 4, 2017. The public comment is hereinafter referred to as the “the Second Public Comment Period”.

3. The comments received during the Second Public Comment Period and Huntsville’s Response to each is as follows:

Comments of Jessie J. Green (White River Waterkeeper)

- 1) *EPA requested that the City of Huntsville demonstrate that the domestic water supply uses for Holman Creek and Town Branch are “not attainable.” While letters from Arkansas Department of Health and Arkansas Natural Resources Commission addressed the lack of current or planned domestic water supply use, it has yet to be demonstrated that these uses are not attainable for these stream reaches.*

Response - The data provided in the study report show that criteria for the domestic water supply use are not maintained in Town Branch and Holman Creeks. Existing uses are those that are actually attained in the water body on or after November 28, 1975 (See 40 C.F.R. §131.3). Town Branch and Homan Creek have insufficient flow to support the Domestic Water Supply use. The critical low flow used for permitting is the 7Q10, which for Town Branch and Holman Creeks is considered zero. This means that Town Branch and Holman Creek have a 10% probability of no flow each year.

- 2) *The cost of alternatives, based on literature over twenty years old, is not representative of current technology costs. Also, please explain the relevance of using implicit price deflator data for the adjustment of technological treatment costs. Inflation may be a significant way of determining relevant cost differences across time periods for commodities that are relatively static in their production costs. It is not understood how technological advances that provide greater treatment costs at more affordable rates could in any way be accurately represented by this approach. There were no quotes obtained to comprehensively evaluate potential alternatives or references to costs of similar infrastructure upgrades from the last decade. This effort is not sufficient.*

Response - EPA has developed a Guidance Manual (EPA 452B-02-001) and methodology to assist environmental stakeholders in development of cost estimates of various compliance options. Chapter 2 of the document is titled Cost Estimation: Concepts and Methodology and is current as of November 2017. The estimation methodology described therein is universal with regard to control technologies though it is contained within guidance tailored to air pollution control. The manual states “This chapter presents a methodology that will

enable the user, having knowledge of the source being controlled, to produce study-level estimates of the costs incurred by regulated entities for a control system applied to that source. ...If the regulation or permit establishes performance standards, with flexibility as to how the standards can be achieved, then the cost estimation methods can be used to estimate the costs of various options for achieving the standards."

Further the EPA document refers to the same document (Perry's Chemical Engineers Handbook) used by the City of Huntsville to prepare the alternative cost estimates:

"...the costs and estimating methodology in this Manual are directed toward the "study" estimate with a probable error of 30% percent. According to Perry's Chemical Engineer's Handbook, a study estimate is "... used to estimate the economic feasibility of a project before expending significant funds for piloting, marketing, land surveys, and acquisition ... [I]t can be prepared at relatively low cost with minimum data." The accuracy of the study-level estimate is consistent with that for a Class 4 cost estimate as defined by the Association for Advancement of Cost Engineering International (AACEI), which AACEI defines as a "study or feasibility"-level estimate."

None of the technologies available to remove or reduce dissolved solids from the City of Huntsville effluent are "off the shelf" items that generally benefit from mass production and therefore more competitive pricing compared to site-specific design and operational parameters. The study-level capital and operating cost estimates prepared by the City of Huntsville followed the EPA methodology by using available recognized cost indices for equipment, installation, and operation including consumables, then adjusting those costs to real present value dollars using a representative price index. The EPA Manual acknowledges several indices including the Gross Domestic Product implicit price deflator which measures broad price changes in the economy. Nonetheless, the Manual states "...the application of an appropriate factor requires the subjective application of the analyst's best judgment" which the Professional Engineer with over thirty-years' experience utilized to prepare the alternative cost estimates.

3) "There were no quotes obtained..." for the alternatives analysis submitted by the City of Huntsville.

Response - The EPA Manual describes the information required to develop a study estimate as:

- Location of the plant;
- Location of the source within the plant;
- Design parameters, such as source size or capacity rating, uncontrolled pollutant concentrations, pollutant removal requirements, etc.
- Rough sketch of the process flow sheet (i.e., the relative locations of the equipment in the system);

- Preliminary sizes of, and material specifications for, the system equipment items;
- Approximate sizes and types of construction of any buildings required to house the control system;
- Rough estimates of utility requirements (e.g. electricity, steam, water, and waste disposal);
- Quantity and cost materials consumed in the process (e.g., water, reagents, and catalyst);
- Preliminary flow sheet and specifications for ducts and piping; Approximate sizes of motors required;
- Economic parameters (e.g. annual interest rate, equipment life, cost year, and taxes.)

Note that equipment quotes are not necessary to develop the study-level estimates. The most accurate estimation type (detailed level) requires complete drawings, specifications, site surveys and potentially equipment quotes. A detailed estimate is not available until right before construction since its preparation requires detailed and process-specific information that is "very expensive for an entity to prepare...". Thus, the study-level and not the detailed level is the estimation method promoted by the EPA Manual and recognized by several States for evaluation of control technologies to comply with the regulations.

In summary, the City of Huntsville relied on the best information available and followed the accepted method for developing study-level estimates of capital and operating costs for the comparison of dissolved solids treatment alternatives.

- 4) *In response to comments it was stated that land application was not a viable option because "land application requires characteristics, remote location, etc.) land. Significant areas of suitable (slope, soil characteristics, remote location, etc.) land. Because Huntsville is situated in the Ozark Highlands, adequate nearby land having characteristics compatible with ADEQ restrictions for land application of treated effluent is not available " However, ADEQ has issued many land application permits within the Ozark Highlands. This alternative was not even remotely explored or considered.*

Response - Disposal of wastewater via sprinkler irrigation of cropland is a widely accepted practice in locations where large contiguous tracts of relatively inexpensive suitable land exist. Suitable land is considered as:

- Less than 6% slope (per ADEQ),
- Soils with sufficient hydraulic conductivity to allow irrigation without runoff or ponding;
- Soils with adequate depth above a restrictive layer to sustain continuous irrigation without runoff, ponding, or development of anoxic/anaerobic conditions;
- Within a ten-mile distance from the corporate boundary to be subject to eminent

- domain statutes, or be outside that distance and currently listed for sale;
- Soils with characteristics (SAR, CEC, pH, etc.) compatible with the long term application of wastewaters.

Study-level engineering calculations to determine the initial land requirements were performed using information from the National Resources Conservation Service (NRCS) regarding suitability and limitations for disposal of wastewater by irrigation for Madison County, Arkansas. Those calculations based solely on hydraulic conductivity indicate that an approximate 450 acre tract is necessary for the irrigation and storage facilities plus buffers to accommodate the City of Huntsville effluent. A review of the NRCS soil survey for an Area of Interest (AOI) within ten-miles of Huntsville results in some areas that are classified as “somewhat limited” for wastewater irrigation but none that meet the minimum area required.

While ADEQ has issued land application permits within the Ozark Highlands mostly for agricultural operations, those permits are somewhat controversial and have met rigorous opposition from members of the community including White River Waterkeeper. While not an absolute technical disqualification of the alternative, the potential negative social impacts of land application of wastes coupled with the physical restrictions described above results in confirmation that adequate nearby land having characteristics compatible with ADEQ restrictions for land application of treated effluent is not available.

- 5) *ADEQ has not developed unique mineral criteria specific to the protection of Agricultural Supply uses. The criteria used to assess those uses are the same as criteria for the assessment of Domestic Water Supply uses (250, 250, 500 for Cl, SO₄, and TDS, respectively). Has there been any examination of whether these proposed criteria changes could impact livestock operations relying on water from these stream reaches? Are there any grazing cattle operations that could be negatively impacted by the proposed changes?*

Response - Arkansas does not have unique mineral criterion specific to Agricultural Supply uses. However, Oklahoma has regulations for total dissolved solids (TDS) that are specific to protect Livestock Agriculture which are less stringent than requirements for protecting Irrigation Agriculture. The Oklahoma Water Resources Board states in the Oklahoma Water Quality Standards (Section 785:45-5-12) that “For the purpose of protecting the Livestock Agriculture subcategory, neither long-term average concentrations nor short term average concentrations of minerals shall be required to be less than 2500 mg/L for TDS.” TDS concentrations are not to exceed 2500 mg/L in any of the stream reaches. The United States Department of Agriculture, NRCS, Environment Technical Note No. MT-1 (June 2011) describes water that is less than 1000 mg/L as a “Relatively low level of salinity. Excellent for all classes of livestock and poultry.” For water that is between 1,000 and 3,000 mg/L TDS they note

that it is "Very satisfactory for all classes of livestock and poultry. May cause temporary and mild diarrhea in livestock not accustomed to saline water. Poultry may exhibit watery droppings."

- 6) *The aquatic life collections were not conducted in a fashion that allows for the evaluation of spatial or temporal differences to be examined (i.e., no replicate samples were collected). Without such, it is impossible to tell whether there are significant differences noted at upstream and downstream sampling locations on each stream.*

Response - Macroinvertebrates were collected according to the QAPP that was approved by ADEQ and EPA.

- 7) *While the selection of the reference reaches is suitable for determining the impacts from a particular point source in relation to other contributing factors, it does not mean that the reference reach was a suitable representation of least-disturbed streams in the Ozark Highland ecoregion.*

Response - Reference reaches were selected and sampled according to the QAPP that was approved by ADEQ and EPA.

- 8) *There was no discussion of how reach length was determined.*

Response - Reach lengths were determined by habitat assessments. Habitat assessment reach length is equal to 20 times the bank full width, or at least 100 yards of in-stream distance.

- 9) *It was stated that "the fish sampling was terminated when, in the opinion of the principal investigator, a representative collection had been obtained." This infers that the entirety of the stream reach used for habitat characterization was not sampled. Since there is no information provided in the report that indicates the habitat conditions of the area sampled; then it is impossible to determine how much habitat differences factored into metrics based on the fish community.*

Response - The semi-quantitative habitat sampling reach length coincided as much as possible with that of the fish and macroinvertebrate collection reaches. Fish were collected from available habitats until the same repeats fish species were being collected and/or there were no new or different habitat types that had not already been sampled.

- 10) *What fish species were categorized as tolerant, intolerant, and intermediate? No comments on the appropriateness of such categorization can be provided without that pertinent information being included in the report.*

Response - The report was revised to include the categorization of tolerant, intolerant, and intermediate fish species in Appendix G, the appendix with the fish species list.

- 11) *Isn't WEC-1 the reference reach? Since the multimetric assessment is to be utilized to determine the impairment status of an impacted reach, then how was the % comparison to reference was only 94% and not 100% seeing as how WEC-1 was the reference reach?*

Response - Multimetric assessments were analyzed using ADEQ's variation on Rapid Bioassessment Protocol III, developed by the EPA that was modified from Plafkin et. al, 1989. There are six metrics used in this assessment Protocol. Comparisons of the study site to the reference are made for five of the six metrics in the analysis, except for percent dominant taxa. Percent dominant taxa is not a comparison to the reference value, but rather actual percent contribution for the given site therefore the reference reaches are also given a value for the metric.

When analyzing the data further in response to these comments an error was realized in the comparison on WEC-1 to WEC-2. The reference reach, WEC-1, macroinvertebrate multimetric total score was 34. The reference stream score should have been used to compare WEC-1 to WEC-2 to evaluate if WEC-2 was impaired. The error realized was that 36 (the highest score possible) was used to compare to the downstream reach, WEC-2, instead of 34. The percent comparison to reference for WEC-2 was 89% but should have been 94%. The outcome of the study has not changed since both scores are considered nonimpaired.

- 12) *Are the biotic index values referenced in Appendix E the tolerance values for macroinvertebrate taxa utilized in the calculation of Hilsenhoff Biotic Index?*

Response - Yes, the biotic index values in Appendix E are Hilsenhoff Biotic Index values. (See Section 5.4 of the report also).

- 12) *Proposed criteria are based on the 95th percentile of water quality data. However, the assessment of these streams allow for a 10-25% exceedance rate, depending on whether the Department is choosing to adhere to EPA approved water quality standards. Setting the criteria based on this percentile, along with allowing up to 25% exceedance of this standard, should in fact ensure that the City of Huntsville will not cause a future impairment listing to minerals to these stream reaches. This in no way translates to the protection of aquatic life, however.*

Response - The request for amendment of the minerals criteria is being made to adjust

the criteria to reflect the historical discharge from the City of Huntsville, not to allow future increases in allowable discharge of minerals. The results of the study indicated aquatic life in each of the streams was fully supported at levels higher than the 95th percentile.

Comments of Jeff Stone (Arkansas Health Department)

- 1) *Additionally, with regards to the protection of downstream designated uses, the federal regulations state, "In designating uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards for downstream waters" (40 C.F.R. §131.10(b)).*

Response - Domestic Water Supply water quality criteria for minerals are being maintained in War Eagle Creek; thus, this proposed rulemaking does maintain the water quality standards of downstream waters.

- 2) *ADH requests that all Exhibits and documents mentioning ADH within the current proposed rulemaking reflect our opposition to the proposed rulemaking and the removal of the domestic supply designation for Town Branch and Holman Creek.*

Response - ADH opposition to the proposed rulemaking is documented in the rulemaking record.

Comments of Colene Gaston (Beaver Water District)

- 1) *There is no discussion of why the WQC currently proposed by Huntsville have changed so dramatically from what was proposed in 2013. Section 7.1 provides mostly "summary statistics" and notes that the data used for the "percentile calculations" are provided in Appendix I. The data in Appendix I, however, is very limited. It appears, for example, that only twelve measured data points were used in the percentile calculations for chloride and TDS for Town Branch and War Eagle Creek and that only four measured data points were used in the percentile calculations for sulfate for those two streams. The data for those two streams also was limited to the time period of July 2011 through June of 2012.*

Response - The criteria changed as a requirement of the Department to use the 95th percentile of data collected during the study period. Section 2.306 studies at one time used a calculation process that projected a 95th percentile value instream using effluent data, and a 4.0 cfs upstream flow. The Department determined that using the 95th percentile values of instream

data was a superior method and the proposed WQC reflect that change in calculation methods. The data provided in Appendix I contain the instream data collected by GBMc during the study period and data collected by the Department for a five-year period that bracketed the study. The year-long study was required by the Department.

- 2) *Beaver Water District (BWD) objects to the use of such limited data sets for making changes to the WQC in Reg. 2 and also objects to the use of data that does not include current water quality analyses. The data used was primarily from samples collected by GBMc.*

Response - The study was completed following an approved QAPP that was approved by ADEQ and EPA. Five-years of data collected by ADEQ for sulfate, chloride, and TDS were used also.

- 3) *Was all of the available water quality monitoring data collected by the Arkansas Department of Environmental Quality utilized?*

Response - The study did not use all ADEQ collected data as the Department limited the dataset to a five-year period bracketing the study.

- 4) *Why wasn't data collected by other entities, such as the United States Geological Survey, used?*

Response - Modeling work conducted by the United States Geological Survey (which indicated that a doubling of the minerals load from Huntsville would have negligible to no effect on Beaver Lake and a 2 mg/L increase in War Eagle Creek at Hindsville) was used for the study. Other than Department ambient monitoring data, which was used, we are not aware of data collected within the study reaches during the study period.

- 5) *At a minimum, the water quality data used should be reasonably current and the sample size should be large enough, when viewed conservatively, to justify the changes. We do not believe that is the case in this proposed rulemaking.*

Response - This opinion is acknowledged however; the study was completed following the QAPP that was approved by ADEQ and EPA.

- 6) *BWD understands the need to allow Huntsville's existing wastewater discharge in a manner consistent with the regulations and based on sound science. We question, however, whether that standard has been met in this proposed rulemaking.*

Response - This question is acknowledged however; the study was completed following an approved QAPP, and is supported by the Department.

Comments of Aletha T. Petty, Brian Thompson, and John Murdoch

- 1) I OPPOSE the removal of the domestic water supply designated use from Holman Creek and Town Branch. Although domestic water supply use is not an existing use on these stream reaches, designated uses are meant to represent the goal of a particular waterbody. I feel strongly that the domestic water supply uses should remain a GOAL for these stream reaches.

Response - Arkansas Department of Pollution Control and Ecology Commission Regulation 2.306 provides that a process for removal of a Domestic Water Supply use if that use is not existing under certain conditions. Those conditions include a determination that existing uses, such as fishable/swimmable uses are maintained and protected fully. The results of the biological evaluation performed as a requirement of the study shows that the aquatic life in Holman Creek and Town Branch (and War Eagle Creek) are not being impaired by the Huntsville discharge and are in good condition. The Domestic Water Supply designated use for a 2.25-mile reach of Town Branch/Holman Creek is being proposed for removal only because there is no other feasible alternative. This removal has no effect upon the designated use of War Eagle Creek as the Domestic Water Supply criteria applicable to the creek are required to be maintained by the discharge. According to Reg 2.306 "As community water needs change, or technological advancement, including long-term environmental improvement projects, make treatment options more practicable, the Commission may reevaluate the need for the reestablishment of the more stringent water quality criteria or the removed use."

Comments of Chuck Bitting

- 1) I OPPOSE the removal of the domestic water supply designated use from Holman Creek and Town Branch. Although domestic water supply use is not an existing use on these stream reaches, designated uses are meant to represent the goal of a particular waterbody. I feel strongly that the domestic water supply uses should remain a GOAL for these stream reaches.

Response - See response to comments of Aletha T. Petty, Brian Thompson, and John Murdoch above.

- 2) The change proposed will allow a reduction in water quality in Holman Branch and allow Butterball to expand their operations in NE Arkansas. This will impact additional streams with increased pollution. These impacts must be analyzed and modeled prior to any decision. It does not matter that these will mostly be non-point source impacts. They will become point source where they drain into the streams. Table Rock Lake is downstream and already has enough

problems with water quality. This is a cross state issue.

Response - The proposed change does not allow for a reduction in historical water quality as a turkey processing plant has discharged wastewater to the City of Huntsville Waste Water Treatment Plant since 1973. The Department has data from Holman Creek going back to 1990. Trend analysis for TDS indicates that concentrations have not increased (or decreased) over time. The proposed rulemaking does not allow Butterball to increase the minerals loads to the City because the criteria development process (use of the 95th percentile value) will lead to discharge limitations that the City would not be able to meet should Butterball's load increase. The USGS has modeled the system and determined that a doubling of Huntsville's load (which can't happen because of permit limits based upon the rulemaking) would likely result in a minimal 2 mg/L increase of TDS in War Eagle Creek at Hindsville.

Comments of Gordon Watkins

- 1) *I OPPOSE the removal of the domestic water supply designated use from Holman Creek and Town Branch. Although domestic water supply use is not an existing use on these stream reaches, designated uses are meant to represent the goal of a particular waterbody. I feel strongly that the domestic water supply uses should remain a GOAL for these stream reaches.*

Response - See response to comments of Aletha T. Petty, Brian Thompson, and John Murdoch above.

- 2) *ADEQ should not allow degradation of Waters of the State, which by definition belong to all Arkansawyers, just to benefit a private corporation such as Butterball. Butterball should upgrade their pretreatment facilities as a cost of doing business and not pass this cost along to public citizens by way of lowered water quality.*

Response - There are no conventional pretreatment process changes that could be made at the Butterball facility that would appreciably reduce the levels of dissolved minerals. Due to the characteristics of the Butterball effluent and the membrane technologies (reverse osmosis or electrodialysis reversal) required to reduce dissolved minerals, secondary treatment levels that occur in the Huntsville Waste Water Treatment Plant must be attained before considering advanced minerals removals technologies due to their susceptibility to fouling.

Comments of Laura Timby

- 1) *I OPPOSE the removal of the domestic water supply designated use from Holman Creek and Town Branch. Although domestic water supply use is not an existing use on these stream reaches,*

designated uses are meant to represent the goal of a particular waterbody. I feel strongly that the domestic water supply uses should remain a GOAL for these stream reaches.

Response - See response to comments of Aletha T. Petty, Brian Thompson, and John Murdoch above.

- 2) *Clean water is of the utmost importance for our communities and must be safeguarded. Industry must look to other avenues to expand without jeopardizing our clean water sources.*

Response - See response to comment 2 of Chuck Bitting above.

Comments of Shawn Porter

- 1) *I OPPOSE the removal of the domestic water supply designated use from Holman Creek and Town Branch. Although domestic water supply use is not an existing use on these stream reaches, designated uses are meant to represent the goal of a particular waterbody. I feel strongly that the domestic water supply uses should remain a GOAL for these stream reaches.*

Response - See response to comments of Aletha T. Petty, Brian Thompson, and John Murdoch above.

- 2) *ADEQ should be protecting (and improving) water quality not enabling agriculture and industry to pollute and degrade our streams, lakes, and aquifers. Please do your jobs and live up to the name of your agency. Protect the quality of our environment.*

Response – For the reasons explained in the prior responses to comments, this rulemaking protects water quality, and implements the responsibility of ADEQ under the laws and regulations that it administers for protection of water quality.

Comments of Vallie Graff

- 1) *I OPPOSE the removal of the domestic water supply designated use from Holman Creek and Town Branch. Although domestic water supply use is not an existing use on these stream reaches, designated uses are meant to represent the goal of a particular waterbody. I feel strongly that the domestic water supply uses should remain a GOAL for these stream reaches.*

Response - See response to comments of Aletha T. Petty, Brian Thompson, and John Murdoch above.

2) *I hope that your concern for the Well-Being of your Citizens will remain a priority over easy solutions for business.*

Response – The procedure and documentation required for establishing site specific water quality criteria are not easy solutions. For the reasons explained in the prior responses to comments, this rulemaking protects water quality, and implements the responsibility of ADEQ under the laws and regulations that it administers for protection of water quality.

Respectfully submitted,

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By:



Charles R. Nestrud, AR Bar # 77095

CERTIFICATE OF SERVICE

I, Charles R. Nestrud, state that I have, on this 29 day of January, 2018, a copy of the foregoing Statement of Basis and Purpose on the following by electronic mail:

Mr. Michael McAlister
Managing Attorney, Legal Services Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118.



Charles R. Nestrud