

BEFORE THE ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

**IN THE MATTER OF AMENDMENTS TO)
REGULATION NO. 2, REGULATION)
ESTABLISHING WATER QUALITY) DOCKET NO. 15-002-R
STANDARDS FOR SURFACE WATERS)
OF THE STATE OF ARKANSAS)**

**ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY'S
RESPONSIVE SUMMARY TO APCEC QUESTIONS OF CALCULATING
SITE-SPECIFIC MINERAL CRITERIA**

Arkansas Department of Environmental Quality (“ADEQ” or “Department”) submits the following Responsive Summary regarding questions posed by the Arkansas Pollution Control and Ecology Commission (“APCEC” or “Commission”) during an August 28, 2015 third-party rulemaking initiation. The Commission invited the Public to comment on two questions:

1. Whether the proposed new criteria should be rounded up to the nearest whole number for Chloride and Sulfate and up to the nearest multiple of ten for Total Dissolved Solids.
The Commission was interested in this idea to avoid giving the public a misleading perception of accuracy and sought input on what levels of numerical precision constitutes environmentally significant revision to the rulemaking.
2. Whether the proposed new criteria should be revised to correspond to the 99th percentile of relevant instream data.
The Commission sought input on this issue in order to consider what values reflect actual instream concentrations and the frequency with which those values can be met.

One public hearing was held in Harrison on Monday, October 19, 2015. The final day to submit written comments was November 23, 2015. The Commission received ten written comments during the public comment period. There were no oral comments were received during the public hearing.

Written Comments (in part) received on or before November 23, 2015.

Comment 1: Arkansas Department of Environmental Quality

In the most recent third-party rulemaking public notice on behalf of the Cities of Harrison and Yellville for Crooked Creek, the Arkansas Pollution Control and Ecology Commission solicited public comments for two specific questions regarding calculation of site-specific criteria (SSC). The first question posed was whether calculated SSC for chlorides and sulfates could be rounded to the nearest whole number and whether total dissolved solids could be rounded to the nearest multiple of ten. The second question was whether calculated site-specific criteria for minerals (chlorides, sulfates, and total dissolved solids) could be derived from the 99th percentile of all available data, rather than the 95th percentile. Arkansas Department of Environmental (ADEQ) quality submits the following responses to these questions.

ADEQ understands concerns raised about the scientific significance of the evaluations and relationship to the data accuracy. Using normal rounding conventions, site-specific chloride or sulfate criteria may be increased or decreased to nearest whole number. Specific guidance on rounding is described in Part 1050 B of Standard Methods for Examination of Water and Wastewater (21st Ed.). Based on Standard Method guidance, SSC calculations should be performed prior to any rounding. If rounding percentiles with multiple significant digits and the digit to be dropped is between 6 and 9 (121.781), then the number will be increased (122). If significant digits to be dropped are within 1 and 4, the number remains unchanged (121.321, then 121). If rounded to the nearest whole number which is higher, the change may require further justification to demonstrate the criteria would not cause unintended consequences to stream quality.

ADEQ has evaluated rounding total dissolved solids criteria to the nearest multiple of ten. Rounding to the nearest multiple of ten, depending on the available instream data, could elevate SSC to greater than the 95th percentile.

Implementation of the 99th percentile SSC for sulfates, chlorides, or total dissolved solids would potentially violate Clean Water Act (CWA) ((Section 303(c)(3)), 40 CFR 131.11 (Criteria), and APC&EC Anti-Degradation policy (Reg. 2.201). States are authorized to adopt criteria that are based on sound scientific rationale and are protective of designated uses. To satisfy CWA and 40 CFR 131.11 requirements for SSC, Arkansas currently requires third parties to perform a Use Attainability Analysis (UAA) to document existing designated uses and whether they are attained under current conditions. Site-specific criteria would be established at concentrations observed during the UAA process with any additional historical physical, chemical, or biological data. In the 99th percentile example, criteria would be derived at concentrations that aquatic organisms may only be exposed to less than one percent of the time. Calculated 99th percentile SSC may be unrepresentative of observed ambient conditions and increase the possibility that designated uses would not be attained, specifically Aquatic Life and Domestic Water Supply (DWS).

Additionally, if the 99th percentile were approved and rounded to the nearest multiple of ten, SSC could equal the maximum observed instream concentrations or, in some instances, even exceed actual observed concentrations (Table 1).

As illustrated in Table 1, if the 99th percentile of WHI0066 TDS data, which is the data set used to calculate criteria for Crooked Creek from Harrison WWTP to Yellville WWTP, were rounded to the nearest multiple of ten, this value would exceed the highest concentration for TDS observed in the data set used to calculate the proposed SSC. For the same data set, if each consecutive percentile were rounded to the nearest multiple of ten (e.g. 96th, 97th), rounding would increase the value to the next percentile (i.e. rounded 96th becomes the 97th percentile).

Table 1: Percentiles and rounding of actual instream data observed from Crooked Creek, Arkansas from 2003-2013.

Site Name	Parameter	95 th Percentile	96 th Percentile	97 th Percentile	98 th Percentile	99 th Percentile	Rounded 99 th Percentile to nearest 10	Maximum Value Observed
WHI0066	Cl	22.6	23.2	23.5	24.7	25.5	---	26.6
WHI0066	SO4	24.4	28.0	28.9	29.4	30.8	---	37.7
WHI0066	TDS	269.1	270.5	272.9	274.0	284.5	290	288.0
WHI048C	Cl	7.9	8.3	8.6	9.3	10.4	---	11.7
WHI048C	SO4	10.2	10.4	10.9	15.9	24.6	---	36.5
WHI048C	TDS	237.7	240.2	244.0	244.7	257.2	260	281.0

Impacts and subsequent impairments to the aquatic life designated use from highly variable or elevated mineral concentrations are difficult to anticipate. Recent published data supports higher macroinvertebrate sensitivity to ion (mineral) concentrations than were previously reported through traditional toxicity testing (US EPA 2011). Many of Arkansas’ ecoregions are among the naturally lowest ion concentrations in the United States (Griffith 2014). Empirical evidence that supports aquatic life sensitivity to low mineral constituents is advancing.

Domestic Water Supply designated uses would be vulnerable when an effluent has a high amount of mineral constituent variability and these constituents exceed Secondary Drinking Water Maximum Containment Levels (MCLs)¹ one percent of the time, or less (Table 2). For this example, 95th percentile of TDS, rounded to the nearest multiple of ten, is below the 500 mg/L MCL for DWS or domestic water supply criteria. However, due to the variability of observed instream data the rounded 99th percentile would be 690 mg/L, which is above the maximum contaminant level established for DWS or the domestic water supply criteria contained in Regulation 2. ADEQ provides the latter example from common observances in recent mineral third-party rulemakings and urges the Commission to retain the 95th percentile.

States or authorized tribes are required by 40 CFR 130.7(d) to assess waterbody attainment every two years. Permit effluent limitations calculated using criteria developed for the 99th percentile of available instream data and assessed with either a 10% or 25% exceedance, would provide

¹ MCLs are established under the federal Safe Drinking Water Act. The secondary MCLs of 250 mg/L for chlorides, 250 mg/L for sulfates, and 500 mg/L for total dissolved solids are also criteria adopted to protect the domestic water supply use in Regulation 2.511(C).

permittees the ability to avoid effluent limit violations, which would likely result in degradation of downstream designated uses.

The long-term implications and broad application of the 99th percentile to non-mineral constituents (i.e. nutrients) should be considered prior to approval. Site-specific criteria derived from the 99th percentile for non-mineral constituents would likely result in significant impacts to existing uses.

Table 3. Randomly generated data for the designated use protection example.

	Chlorides	Sulfate	TDS
	59	20	303
	148	7	268
	58	13	93
	47	15	94
	87	5	207
	123	5	121
	71	16	219
	92	5	177
	32	8	208
	150	17	160
	136	20	225
	63	2	144
	97	3	255
	107	10	164
	80	13	315
	108	15	78
	22	5	205
	72	9	54
	27	6	309
	108	19	220
	80	18	250
	94	17	265
	147	13	246
	87	18	315
	126	20	181
	82	6	62
	98	3	81
	22	15	345
	67	10	320
	126	11	214
	132	5	251
	118	17	97
	93	2	153
	80	16	180
	51	8	172
	119	8	303
	81	7	275
	58	10	202
	103	19	150
	105	9	346
	119	4	188
	99	32	288
	109	47	341
	200	57	722
	39	71	431
	32	35	353
	225	44	645
	145	34	411
	270	21	387
95th	182.2	165	423.0
96th	203	223.3	448.1
97th	214.8	237.2	550.8
98th	227.7	250.6	648.1
99th	248.9	258.3	685.0
Maximum	270	266	722
Minimum	22	31	54

Comment 2: Beaver Water District

The following comments are submitted on behalf of Beaver Water District (BWD) in regard to the public notice regarding the third-party rulemaking of the Cities of Harrison and Yellville (hereinafter, the “Cities”) that proposes changes to the Arkansas water quality standards for

minerals in Arkansas Pollution Control and Ecology Commission (APCEC) Regulation No. 2 (hereinafter, “Reg. 2”). The City of Harrison seeks to increase the site-specific water quality criteria (WQC) for the minerals sulfate, chloride, and total dissolved solids (TDS) at Reg.2.511(A) that apply to a segment of Crooked Creek immediately downstream from its wastewater treatment plants (WWTP) discharge. The City of Yellville seeks to increase the site-specific WQC at Reg.2.511(A) for TDS only for a segment of Crooked Creek in the vicinity of its discharge

Crooked Creek is not in the Beaver Lake watershed, which is the source of water used by Beaver Water District and three other public water utilities to provide drinking water for most of Northwest Arkansas. The Cities’ rulemaking petition and related documents are typical of what has been filed previously in other, but not all, municipal WWTP rulemakings to change the WQC for minerals. The Cities’ petition generally does not present issues of unusual precedent. BWD, therefore, is not commenting on *the Cities’* petition or their related documents. We do, however, offer the following comments related to the two questions in the public notice for the Cities’ proposed rulemaking for which the APCEC invited public comment:

1. Whether the proposed new criteria should be rounded up to the nearest whole number Chloride and Sulfate and up to the nearest multiple of ten for Total Dissolved Solids?
2. Whether the proposed new criteria should be revised to correspond to the 99th percentile of relevant instream data?

In general and as discussed below, BWD believes that the answer to the two questions posed by the APCEC should be “NO”. In responding to these questions, BWD makes reference to the Cities’ petition and related information only for the purpose of illustration. Again, these are not comments on the specific requests *made by the Cities*.

Comment 1: The purpose of the WQC is to protect the designated uses. WQC should not be rounded up or be based on the 99th percentile of relevant instream data without a clear showing that doing so will be protective of the designated uses.

Comment 2: Any change from the standard procedure by which the WQC are set in a third-party rulemakings will set a precedent that could apply not only to minerals but also to other parameters and pollutants. This could result in changes that are inappropriate, scientifically unsupported, and not protective of the designated uses.

Comment 3: Conservative assumptions should be applied in order to ensure that designated uses are protected. If there is a concern about numerical precision, perhaps the numbers should be rounded down instead of up.

Comment 4: WQC often are numbers with decimals (*see, e.g.* Reg. 2.508 regarding toxic substances). Existing analytical methods and accuracy to decimal places support such WQC.

Perhaps the more appropriate arenas for addressing any concerns about fractional numbers are when permit limits are set or enforcement decisions are made.

Comment 5: Setting the WQC to correspond to the 99th percentile of relevant instream data means raising the standards to conditions that are rarely seen in the stream. This could create scenarios where the actual instream levels increase significantly over current levels. The impact on designated uses could be real and detrimental.

Comment 6: Third-party rulemaking petitions for minerals often include language that the petitioners “are not seeking a change from historical water quality regulations” (*see, e.g.* the Cities’ Petition to Initiate Rulemaking to Amend Regulation No. 2). Setting the WQC to reflect the 95th percentile of instream data already allows stream conditions to change to what is currently seen only 5% of the time. Setting the WQC to reflect the 99th percentile of data means those levels may represent “historic” conditions in the sense that they have occurred, they are conditions that are *extremely rare* and may not be reflective of conditions necessary to support the designated uses.

Comment 7: The current assessment methodology by which the Arkansas Department of Environmental Quality (ADEQ) determines waterbody impairment allows exceedance of the Reg. 2.511(A) site-specific WQC for minerals criteria twenty-five percent (25%) of the samples, rather than in ten percent (10%) of the samples as historically allowed. If the WQC are set at the 99th percentile of relevant instream data *and* the numbers are rounded up, the 25% allowable exceedance rate further increases the permissible levels of instream pollutant concentrations. This multiplier effect could allow for pollutant concentrations never before experienced instream that impact the designated uses.

Comment 8: BWD understands the desire of municipal WWTP dischargers to set the WQC at levels that will not put their discharge at risk of causing violations of the water quality standards that will result in NPDES permit limits, if any, that they can readily meet. Again, though, the purpose of any water quality criterion is to protect the designated uses, and that is what must be clearly established. Instead of mathematical manipulations geared to set the WQC so that dischargers are assured of a cushion against violations, perhaps permitting and enforcement policies should be modified to accommodate rare exceedences.

Comment 9: As BWD has noted in other public comments related to minerals, a conservative approach needs to be taken when considering drinking water, as well as aquatic life, designated uses. Conventional drinking water treatment plants cannot remove minerals, and may even add to the minerals concentration produced in the finished water. Therefore, it is too late and the designated drinking water use cannot be maintained if the instream minerals concentrations are allowed to reach the levels set forth in the Reg. 2.511(C) Domestic Water Supply Criteria. Rounding up and the use of the 99th percentile of relevant instream data increases the opportunity for this to occur.

Comment 9: If the APCEC is inclined to adopt or otherwise utilize an approach to the minerals WQC that involves setting the WQC at the 99th percentile and rounding up the numbers, BWD requests that a separate public hearing or hearings be held. First, the Cities did not request that WQC be set at the 99th percentile or that their proposed numbers be rounded up, so the Cities' documentation does not indicate what the numbers so calculated would be and does not include studies related to the impact of such levels on the designated uses. It is, therefore, difficult for the public to assess the implications of such an approach. Second, the application of this approach to other dischargers and data sets could produce much different results. The public should be multiple examples to consider when evaluating the questions posed by the APCEC. Third, the APCEC's questions are of statewide importance in relation to minerals, but members of the public may have overlooked these issues if they were not specifically interested in the Cities of Harrison or Yellville or Crooked Creek. Last, the use of the 99th percentile of instream data and of rounding up numbers has WQC ramifications beyond minerals that deserve a separately announced opportunity for public input.

Thank you for your consideration of these comments.

Comments 3-6: Butterball, LLC, City of Siloam Springs, El Dorado Chemical Company, Martin Resource Management

In the Notice of Proposed Third-Party Rulemaking Public Hearing the Arkansas Pollution Control and Ecology Commission (APC&EC) invited the Public to comment on two specific questions. The first question regards rounding up of proposed new criteria to the nearest whole number for chloride and sulfate and to the nearest multiple of ten for total dissolved solids. The second question is whether proposed new criteria should correspond to the 99th percentile of relevant data.

Regarding the first question, the use of significant digits to the right of the decimal point suggest a higher degree of accuracy than typically exists in the analytical laboratory in our experience. We support the rounding up convention.

With respect to the second question, whether the proposed new criteria should be revised to correspond to the 99th percentile of relevant instream data, we support the use of the 99th percentile. Use of the 99th percentile remains protective of aquatic life and reduces the possibility of a stream returning to the 303(d) list following a study. The use of a 99th percentile basis for criteria development also means that an existing discharge has a greater likelihood of remaining in compliance with limits issued on the basis of site specific criteria.

Once such a criteria modification study for minerals is completed it makes no sense to re-list the stream on the 303(d) list, or subject the permittee to permit compliance issues for discharging the same wastewater as existed during the study. It defeats the purpose of conducting such studies in the first place.

Thank you for the opportunity to provide comments on this important Arkansas issue.

Comment 7: Friends of the North Fork and White Rivers

Based on the information made public, and the statement by the cities that they are not seeking a change from historical water quality conditions in Crooked Creek and that they are seeking standards that reflect actual water quality, allowing them to be compliant with their permit; and, based on the statement that TDS concentrations upstream of the wastewater treatment facility already exceed the current site-specific standard of 200mg/L, we, Friends of the North Fork and White Rivers (Friends) does not oppose the amendment as originally proposed by the cities.

However, on the two questions regarding the consideration of rounding the specified criteria between the 95th and 99th percentile, Friends respectfully and strongly urges this subject be considered in a separate process due to the probable statewide application.

Additionally, Friends encourages the cities to continue to strive to operate at the highest level of regulatory requirements and to seek feasible means of improving water quality rather than pursuing, in the future, a downgrade of the underlying water quality. Friends desires to be a partner with the cities in maintaining the integrity of Crooked Creek waters

Comment 8: Arkansas Public Policy Panel

Thank you for the opportunity to comment on the proposed changes to APC& EC Regulation 2, the Arkansas Water Quality Standards, for Crooked Creek and the additional questions posed by the Commission. These comments focus on the two questions posed by the Commission and the potential for such changes to set a precedent that would degrade water quality statewide.

The request of the City of Harrison and the City of Yellville to amend Regulation 2 for chloride, sulfate and total dissolved solids for Crooked Creek while not ideal, is a calculated and reasonable amendment based in best science and technology that is currently available.

Commission Question One: Whether the proposed new criteria should be rounded up to the nearest whole number for Chloride and Sulfate and up to the nearest multiple of ten for Total Dissolved Solids?

The proposed new criteria should **not** be rounded up to the nearest whole number for chloride and sulfate and up to the nearest multiple of ten for dissolved solids. Rounding up to the nearest whole number or nearest multiple of ten would not address the Commission's interest in avoidance of giving the public a misleading perception of accuracy. Rounding up would permit higher levels of chloride, sulfate and total dissolved solids in waters of our state and would not advance the goal of the Water Quality Criteria which is to protect designated uses.

If the Commission determines that rounding would be a better way to communicate the standards to the public then the Commission should elect to round down, rather than round up, in order to the state's water quality and protect designated uses.

Commission Questions Two: Whether the proposed new criteria should be revised to correspond to the 99th percentile of relevant instream data?

The proposed new criteria should **not** be revised to correspond to the 99th percentile of relevant instream data. The purpose of the Water Quality Criteria is to protect designated uses. Revising the new criteria to correspond to the 99th percentile of relevant instream data would allow discharges at levels streams may have rarely before been subjected and may not support designated uses. Such a change could have longterm effects on the waters of our state leading to significant degradation of our waters.

Arkansans value our abundant water supply and the high water quality that allow us to work, drink, fish and recreate all over the state. Our high quality water resources fuel the tourism industry that accounted for \$6,698,501,022 in travel expenditures in 2014 and brought more than \$10 million to 66 of Arkansas's 75 counties.¹ Arkansas's \$16 billion agriculture sector is also dependent on our abundant high quality waters.² Each Arkansan values the clean water they drink and streams they cool off in or catch dinner and rely on the Department of Environmental Quality and APC&EC to protect the designated uses of our waters. If the questions raised by the Commission are implemented the results could be lower water quality across the state. If the Commission determines to take action on the questions it has proposed a separate public comment period and hearing should be held to provide the public with adequate notice, information and opportunity to comment on the proposed changes.

Thank you for the opportunity to comment and your consideration of these comments.

Comment 9: City of Huntsville

In the Notice of Proposed Third-Party Rulemaking Public Hearing the Arkansas Pollution Control and Ecology Commission (APC&EC) invited the Public to comment on two specific questions. The first question regards rounding up of proposed new criteria to the nearest whole number for chloride and sulfate and to the nearest multiple of ten for total dissolved solids. The second question is whether proposed new criteria should correspond to the 99th percentile of relevant instream data.

Regarding the first question, the use of significant digits to the right of the decimal point suggests a higher degree of accuracy than typically exists in the analytical laboratory. Method 300.0, cited in this rulemaking as the method used to analyze chloride and sulfate, is not predictably accurate enough to produce results sufficient to derive criteria to the tenths of a milligram per liter. For example, Method 300.0 "Determination of Inorganic Anions by Ion Chromatography" lists single operator accuracy and bias for standard ions in various media including surface water and wastewater (EPA, 1993). For chloride in surface water the standard deviation (SD) for wastewater from 7 replicates of a known solution concentration is reported as

5.2 mg/L and for surface water the SD is 0.33 mg/L. For sulfates the wastewater SD reported is 6.4 mg/L and for surface water the SD is 1.7 mg/L. The City of Huntsville supports the rounding up convention.

With respect to the second question, whether the proposed new criteria should be revised to correspond to the 99th percentile of relevant instream data, the City of Huntsville supports the use of the 99th percentile. In some cases other statistical analysis, such as mean plus three standard deviations be useful when working with a normally distributed data set (this method matches the manner in which the ecoregion values in Regulation 2 were initially calculated). Our agreement with the use of a percentile basis higher than the 95th percentile, such as the 99th percentile, especially when working with limited measurements, is based on the analysis of data collected during a similar study.

In the Huntsville situation our conclusion was that the use of a 95th percentile of 12 instream samples would produce criteria that do not capture the full range of conditions that existed during the single yearlong study period. Because the full range of conditions was not reflected in the 12 instream samples, site specific criteria would be developed on lower variability than actually exists instream. Permit limits based upon these criteria would not be expected to be maintained all the time. Additionally, the possibility that the stream would return to the 303(d) List, even though the aquatic life communities are in excellent shape, is much enhanced.

In order to evaluate use of the 95th and 99th percentiles as basis for criteria development we developed a linear regression relationship between discharge concentrations of dissolved minerals and those measured in the first downstream tributary. Statistical procedures are commonly employed with small data sets to improve the accuracy of the data. Procedures commonly used are correlation analysis and regression analysis. These statistical procedures can be used to predict water quality constituent concentration in one waterbody, using data from a nearby similar waterbody or other source of water such as discharged effluent. The accuracy of the predication depends upon the strength of the relationship between the two data sets. In our case, there are only 12 data points from Town Branch (TB-2), below the Huntsville NPDES outfall. There is a strong relationship ($R^2=0.95$) between outfall TDS concentration and the concentration of TDS measured below the outfall at station TB-2 (Figure 1). The strong relationship, which would be expected since the majority of the flow at TB-2 is usually from the outfall, can be used to predict instream concentrations base on effluent concentrations.

The R^2 value of 0.95 indicates that 95 percent of the time TDS at TB-2 can be predicted using the TDS from Outfall 001. Since there is much more TDS data for Outfall 001 (60 data points) that was collected during the study period (June 2011-June 2012) than there is for TB-2 (only 12 data points) the predicted data set is more powerful than the instream data and represents a more accurate range of water quality during the study period.

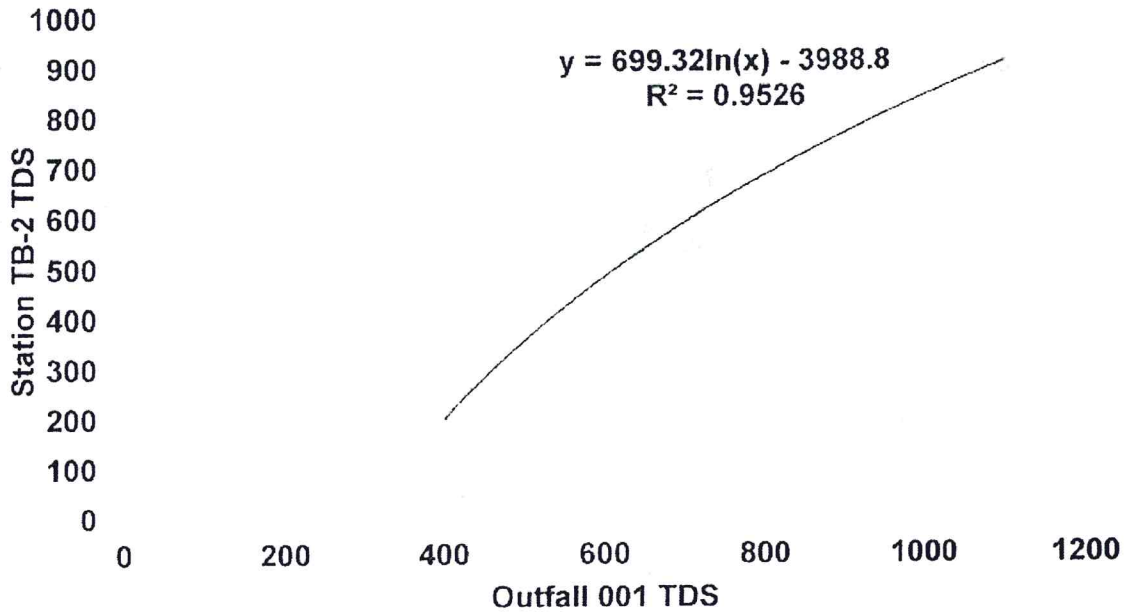


Figure 1. Plot of measured Outfall 001 TDS and measured Station TB-2 TDS.

The regression equation that was found to best fit (best predictive ability) for the outfall data and TB-2 data was a logarithmic equation (Figure 1). When the Figure 1 equation is employed with the Outfall 001 TDS data to predict TDS at TB-2, a much larger data set is achieved, allowing variability to be more accurately assessed (Figure 2).

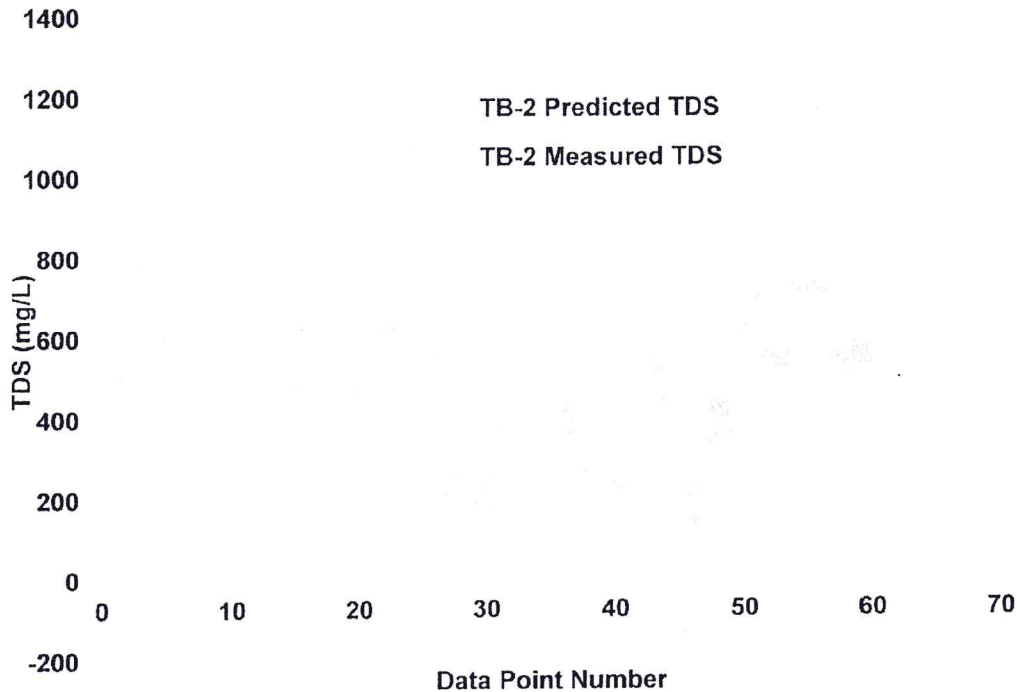


Figure 2. Measured and Predicted TDS at Station TB-2.

The 95th percentile of the predicted TDS data set is 906 mg/L and the 99th percentile for the predicted TDS data set is 1023 mg/L. As an example Table 1 compares the results of various percentiles based on measured values and predicted values for TDS.

Table 1. Comparison of Different Criteria Development Approaches.

Stream Reach	Total Dissolved Solids (mg/L)		Total Dissolved Solids (mg/L)	
	12 Measurements		Predicted (regression)	
	99 th Percentile	95 th Percentile	99 th Percentile	95 th Percentile
Downstream from Huntsville Discharge	876	779	1023	906

The measured data 99th percentile based criteria are less than the values predicted by the correlation/regression analysis; (both 95th and 99th percentile value of the predicted data set) and thus can be considered conservative. The predictive values are likely much more representative of actual instream minerals levels than is the existing 12 data point data set.

Similar correlation and regression analysis procedures have been, and are being employed by EPA and other states in developing nutrient criteria, biological criteria, stressor response relationships and minerals criteria (using conductivity as a surrogate per EPA/600/R-10/023F).

The requirements for completing a minerals criteria modification study, pursuant to Reg. 2.306 have become much more expensive over time. Once these large criteria modification studies for minerals have been completed it makes no sense to place a permittee in jeopardy of having to repeat the study simply because the resulting criteria have been developed too conservatively. This could easily lead to re-listing the stream on the 303(d) list, or subjecting the permittee to permit compliance issues for discharging the same wastewater as existed during the study. It defeats the purpose of conducting such studies in the first place.

Thank you for the opportunity to provide this information.

Comment 10: Carol Bitting

The cities of Harrison and Yellville both rely on tourism dollars for a percentage of support. (see Arkansas Tourism Visitor Center north on Hwy 65) The quality of the air and water are important to visitors and their recommendations to new and returning visitors, not to mention the health of Arkansas residents.

I recently took a walk around the lake in Harrison, Ar. I would have liked to have spent more time and canoed Crooked Creek on down to Yellville and beyond to get a visual of the water quality of this stream. I was recently told by a friend of mine it had given him the best fishing trip of his life.

Walking along the lake trail I sensed the air for odors (recently Harrison friends had told me the smell of hogs prevailed throughout the whole city). The water continued to draw my attention gently flowing and glistening between the banks. Teenage boys were catching fish, the kids on the playground are our future, are those ducks and geese receiving the right nutrition in these waters, what are the attractions that I am enjoying that would make me want to come again? The air was actually clear this day, the sky had blue to it and the only noticeable odor was when I circled to the northwest side of the creek and approached the concrete drainage inlets. Here a rank odor emerged. Runners and walkers passed me by as I took photos of the algae and its noticeable entrance to the stream from the city. The algae was floating on the surface and increased growth was noticed below the water's surface.

Going back in time a few years here is some of my experience in the Harrison area. In the past Harrison has had to churn the lake to reduce algae and hire someone to pick up the trash.

The stream is located near the Jr High School and the football field is located along the stream edge (pollution contributor due to need to grow a perfect grass and sits right over a spring that emerges along Crooked Creek just north of the field).

When I first moved to this community I was appalled at the people, students etc who walked past trash cans and threw their trash on the ground. At football games I was overwhelmed and embarrassed with the lack of respect due to lack of education by this community, people just throwing trash on the ground bypassing trash receptacles. The evenings brought mountains of trash as local youth congregated near the stream and Sonic cups, McDonald bags, etc. are blown into the stream. I had never witnessed this abuse anywhere before. I spoke with someone hired to clean the football stadium, this was an ongoing year after year abuse. The same with the city hired lake personnel. I lived in this community for 8 years, walked the lake daily, it didn't change.

You think, trash is not the question here...you are right, but it is about education and the educated "can make necessary changes".

Today the city wants to change the stream permit requirements so it can come into compliance with permit regulations. Do we really want to change stream quality to make a sewer treatment plant comply? Why not fix the problem? The chlorides and sulfate are high elements in bleach, soaps and laundry detergents....correct? Why not appeal to the people first and ask them to reduce before we change standards? Has this been tried? I know when I speak with people about this no one has any idea and no one wants the quality standards for Crooked Creek reduced. Wal Mart has expressed going more "green". Wal Mart is a major contributor to the elements of stream degradation by the products they sell. Why not approach Wal-Mart, Home Depot, Miller's, Hudson's etc and inform them of the problem, let them re-organize the products they sell for the needs of the community?

Recently the NPS asked for 3 streams to be added to the 303-D list in a letter sent to ADEQ. The streams are Mill Creek (runs thru Dogpatch community), Big Creek (runs thru Mt. Judea) and Bear Creek (near Snowball). This is a serious issue. These streams are adding large amounts of

degradation to the Buffalo River. Crooked Creek enters the White River a major trout fishing stream in Arkansas. Should we reduce the quality standards of these streams so that the Buffalo River is degraded and these streams are in compliance? Do we want to loose the Buffalo River's water quality?

There is allot to be added to education in Arkansas. It is time to require Arkansas students to have an environmental course designed to protect our future. This course could bring awareness to the cost of the "cleanup". We require hunters to take an education course and get a license. Why not allow state drivers to take a basic environmental course to get their license? It could be done at the time of renewal and take only a few minutes as they wait holding their "number".

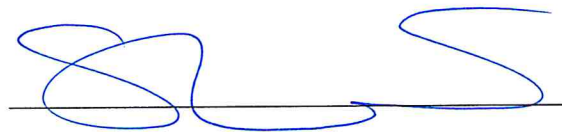
#1. I suggest that no modifications be made to the water quality requirements or regulations and that the treatment plants of these two cities install the equipment designed and needed to increase water quality not degrade it. Round down.

#2. There is industrial growth such as chicken, turkey houses located south of Harrison that could be contributing to the degradation of this stream. It might be important to note that fertilization and water degradation should be paid for by the source. This is ADEQ's job to find the source and enforce actions to correct it. We as citizens pay for ADEQ to protect our environment and we would like to see it upheld to the highest standards.

Revalent stream data....humm, such as Mill Creek which runs south of Crooked Creek into the Buffalo River, note would ADEQ be planning to degrade the quality of this stream's criteria for compliance? This stream is highly degraded and as today my letters of complaints to ADEQ have not shown any action.

This raises many many questions and will allow for degradation throughout the state, we are already losing the battle to larger industrial business' who take the money from locals and turn our downtown shopping into mass Chinese merchandised items or second hand thrift stores where local people try to compete for a living.

Submitted by:



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