

ADEQ

A R K A N S A S
Department of Environmental Quality

August 5, 2013

Mr. Doug Szenher
Public Outreach and Assistance
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR72118-5317

Re: Response to GBM^c Third Party Rulemaking for Tyson Foods, Inc. – Waldron (AR0038482)
Poteau River – Section 2.306 Site Specific Criteria Water Quality Study

Dear Mr. Szenher,

The Department has several concerns regarding the proposed site specific minerals criteria changes to the Unnamed Tributary and Poteau River with respect to critical flow, designated use attainment, use of mass balance equations to create standards, use of 99th percentile data to calculate criteria, and use of default background mineral concentrations to calculate criteria.

The Department does not support the proposed site specific minerals criteria changes for the Poteau River. Details on the Department's decision are attached.

If you have any questions or comments, please feel free to call 501-682-0660 or email me at clem@adeq.state.ar.us

Sincerely,



Sarah Clem
ADEQ Branch Manager
Water Quality Planning Branch
Water Division

Enclosure

Use of mass balance equations to create site specific criteria can be a useful tool. However, when nonrepresentative background flows (typically assuming more flow than is actually there), default background concentrations (typically underestimating what is actually already in the stream), and elevated effluent concentrations are used in calculating the mass balance, then the resulting criteria are not representative of instream conditions. Any conclusions about how the aquatic community may respond to these non-representative, calculated concentrations are not based on sound science.

Concerning Flow:

In situ flow measurements collected above and below the unnamed tributary that receives Tyson's effluent show that the Poteau River's discharge is less than 4 cubic feet per second (cfs) for six months of the year; specifically, June through November. Applying 4 cfs during this time of lower flow will allow an instream concentration more closely related to the effluent mineral concentration

The Department recognizes that a critical flow of 4 cfs is allowed under current regulations; however, this situation is a prime example of how the use of 4 cfs is not appropriate for small, low-flow systems.

Current site specific criteria were created using a 7Q10 critical flow of zero (0) cfs. This is a more appropriate representation of actual instream conditions and is more protective of current designated uses.

Concerning Use of 99th Percentile to Calculate Instream Standards:

Proposed criteria were created using the 99th percentile of Outfall 001 data obtained during the study and DMR data and the estimated 99th percentile from the City of Waldron's permitted maximum daily limit.

The existing aquatic community is not exposed to mineral concentrations on a regular basis equal to the values used to create these proposed criteria (the 99th percentile values). It is more appropriate to say that the existing communities are more often exposed to an average concentration of minerals.

Tyson has not submitted information to support that the existing designated use providing for the protection and propagation of fish, shellfish and other forms of aquatic life will be maintained and protected where the criteria are based on the 99th percentile concentration of minerals at Outfall 001 and from the City of Waldron's wastewater treatment plant. The Department cannot make favorable conclusions about the biological integrity of the aquatic community at elevated levels of mineral concentrations similar to the 99th percentile values.

Concerning use of Default Background Mineral Concentrations:

The use of default minerals background concentrations, as provided in the ADEQ Continuing Planning Process, Appendix D, Minerals Implementation Policy, are specific for the development of NPDES permit limitations, NOT site specific criteria.

Data representing ambient conditions from each of the proposed reaches were submitted and these data should be used to develop proposed criteria instead of default background concentrations that are not representative of actual instream concentrations.

Furthermore, background concentrations for minerals used in the Instream Waste Concentration (IWC) calculations are much lower than actual data submitted for the proposed reaches. The data submitted are more appropriate, representing annual seasonal conditions. Below are the average minerals concentrations from each station provided in the Tyson’s Site Specific Criteria document:

	Chloride	Sulfate	TDS
UT-2	145	131	627
PR-1	27	30	202
PR-2	97	93	461

If a mass balance equation is used to develop the criteria, use of these values would result in criteria differing from the proposed criteria.

Concerning Fisheries (Aquatic Life) Designated Use Attainment:

Data supplied from this study raises concerns about whether the information regarding biological assemblage structure for sites immediately above and below the unnamed tributary (PR-1 and PR-2, respectively) provide valid comparisons. GBM^c's habitat potential scores rated these sites similarly; however, closer investigation of habitat availability between the two selected sites reveals that meso-habitats, especially in regard to substrate composition and stream morphology, are dissimilar. Therefore, a question remains regarding the validity of direct comparisons between these two contrasting habitats.

The habitat discrepancies noted above, coupled with documented non-point source impacts to the stream, suggest that a more appropriate reference site could have been selected. Reference sites should represent least impacted conditions and be as similar to the study site as possible in habitat and hydrologic condition in order to determine causes of biological perturbation, if any. An appropriate reference site would allow informed conclusions to be made about the effect or non-effect of minerals on aquatic biota in the Poteau River downstream of the Unnamed Tributary. Information provided thus far requires conclusions to be made based on inference, at best.

Biological communities collected during this study exhibited less than optimal compositions. The Planning Branch cannot conclude that the Fisheries designated use is not affected by minerals or other parameters in the Poteau River.