



Draft 2018 Listing Methodology Document  
PUBLIC COMMENTS

Public Notice  
October 1, 2015 – January 31, 2016

Missouri Department of Natural Resources  
Water Protection Program  
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## Rielly, Trish

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**From:** Perkins, Bruce <Perkins.Bruce@epa.gov>  
**Sent:** Monday, November 30, 2015 8:01 AM  
**To:** Rielly, Trish  
**Subject:** Comments on the 2016 MO draft 303(d) list

Trish,

Here are the EPA's comments on your draft list. Also one on the 2018 methodology. Let me know if you have any questions.

### **EPA comments on the draft 2016 Missouri Section 303(d) List**

The following comments are presented alphabetically by the water body name as it is expressed in the public notice draft version.

Barker Creek Tributary (WBID 4083) - This water body is proposed to be newly listed for impairment due to an excursion of the EPA-approved Missouri water quality criterion for dissolved oxygen. In review of the state supplied assessment spreadsheet, it was noted that the assessment also recommended impairment by chloride plus sulfate and pH. However, the draft list does not include those two impairments.

Bee Fork (WBID 2760) – This water is proposed to be listed for contaminated sediments (Lead). This water was previously listed for lead in water and the supplied assessment spreadsheet also identifies lead in water not sediment.

Blackberry Creek (WBID 3184) – This water body is proposed for listing due to an impairment cause of Total Dissolved Solids. It was previously listed for excursion of the chloride plus sulfate criterion. The EPA-approved Missouri water quality standards do not have a criterion for total dissolved solids but do for chloride plus sulfate, under section 303(d) a state's waters are assessed against the state's EPA-approved water quality standards. In this case a listing for total dissolved solids could be an assessment of the state's narrative criteria, however, the state must still assess against the criterion of chloride plus sulfate. In its action on the 2014 Missouri section 303(d) List, the EPA added this water body to the list for chloride plus sulfate.

Brush Creek (WBID 1371) -This water body is proposed to continue to be listed for the cause of dissolved oxygen. For the 2016 cycle an additional cause of total suspended solids has been added. In a review of the provided assessment spreadsheet it is noted that the assessment does not indicate an impairment for total suspended solids. The sheet explicitly states there are low levels of total suspended solids.

Brush Creek (WBID 3986) – The assessments sheet has errors. The calculations are not in the same column as the data being assessed. The state did not use the same data that was used by the EPA to list this water for PAHs in sediment. New data for this water body available at the KCwaters web site (the source was identified to the state during the 2014 listing cycle and therefore should be considered readily available) was not used in the 2016 cycle assessment.

Center Creek (WBID 3203) – This water body is proposed for delisting of lead contaminated sediments due to a change in the states methodology for assessing potentially toxic sediments. While the geometric mean of all sediment samples now falls below the narrative threshold, all samples collected from mile 1 through 11.6 are greater that the threshold. This indicates that the new methodology results in an overall average of nontoxic sediments, while all samples from the area located within historic mining areas still indicate potential toxicity based on the methodology. As such, the ten mile portion of this assessment unit with toxic sediments greater that the state's narrative threshold is masked and not acknowledged by this proposal.

Flat River Creek (WBID 2168) – This water body is proposed to have the cause lead in fish tissue added for the 2016 listing cycle. A review of the EPA-approved TMDL for this water body (Big River TMDL approved 3/24/2010) shows the TMDL targets specifically identified lead in fish tissue. As such, that TMDL applies to this cause and the water body / pollutant combination already has a TMDL. Additionally, the cadmium impairment has been shifted from water to sediment while the assessment spreadsheet indicates that the impairment remains in water and not sediment.

Joplin Creek (WBID 5006) - This water body is proposed for listing with causes of lead and cadmium. In review of the assessment spreadsheet no lead impairment is shown. The assessment identifies cadmium and zinc as impairments for

this water body. However, there is only one excursion of zinc criteria shown in the sheet. One excursion does not require the state to identify an impairment, the assessment target is typically more than one excursion in three years on average.

Mississippi River (WBID 1707, 1707.03) – This water body is proposed to continue its listing for *Escherichia coli*. The water body identification number is not consistent between the 2014 list and the 2016 proposal.

Peruque Creek (WBID 0216) – This water body is proposed for delisting based on a lack of fish kills since 2010. There is no information presented that the fish population has recovered so that there are any fish in the assessment unit. As such a delisting may be premature if the fish community is absent. Time itself is not considered “good cause” for delisting an assessment unit.

Turkey Creek (WBID 3217) – This water body is proposed for delisting of the cause lead contaminated sediment. The portion of the assessment unit between Hwy 66 and Hwy 249 are consistently above the target for listing with one exception. In addition, contaminated sediments using the new averaging methodology continue for cadmium and zinc. These multiple lines of evidence suggest continued impairment of this assessment unit. A proposal to delist this water body pollutant combination was disapproved by the EPA for Missouri’s 2014 cycle list and it was listed by the EPA.

Willow Branch (WBID 3280) – This water body is proposed for delisting of the causes cadmium and lead contaminated sediments based on a new listing methodology. The listing is retained for zinc contaminated sediments. Similar to Turkey Creek (see above) this water body exhibits sediment concentrations of cadmium and lead in portions of the assessment unit that consistently exceed the concentration targets for listing. By taking the geometric mean of all samples this condition is masked.

Wilsons Creek (WBID 2375) – The data presented for delisting of PAH contaminated sediments in this water body do not agree with the data collected by the EPA. It seems there have been mix ups in the location of some of the samples as data is attributed to sites on dates where no samples were collected at those sites. If the state would like, the EPA could resupply the original data for reassessment.

#### **General Comment**

Please provide an edited Table H with the extent of assessed water bodies for those previously only identified as 8-20-13 MUDD V1.0.

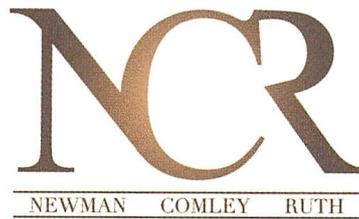
#### **Comment on 2018 listing methodology.**

Hardness is defined in the state’s EPA-approved WQS. A state’s 303(d) list is based on water quality standards and is reviewed by the EPA based on standards.

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January 29, 2016

Missouri Department of Natural Resources  
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[trish.rielly@dnr.mo.gov](mailto:trish.rielly@dnr.mo.gov)

Re: Comment on Proposed 2018 Listing Methodology

Dear Trish:

I am writing on behalf of Simmons Foods, Inc. to provide comment on those sections of the proposed 2018 Listing Methodology that relate to the biological assessment of small streams. As reported in the methodology, when the MSCI is calculated according to the Wadeable/Perennial Reference Stream criteria, 70% of the Class U are unclassified streams. There is a 70% failure rate for unclassified candidate reference streams.

For a fair comparison to be made, small streams being assessed should be of the similar size to candidate reference streams. Candidate reference streams should have the same valley segment type, the same flow excluding artificial flows from effluent and similar land use. Small, effluent-dominated streams do not have the same morphology as streams with the same natural flow but which have much larger watersheds. Therefore, small effluent-dominated streams should not be compared to candidate reference streams with the same flow from natural sources but which have different stream morphology and larger watersheds.

With these thoughts in mind, I suggest to the 2018 Listing Methodology as described in the following paragraphs.

Comment No. 1:

*Aquatic Macroinvertebrate Community Data*

The department conducts aquatic biological assessments to determine macroinvertebrate community health as a function of water quality and habitat. The health of a macroinvertebrate community is directly related to water quality and habitat. Almost all macroinvertebrate evaluation consists of comparing the health of the community of the “target” to healthy macroinvertebrate communities from reference streams of the same general size and usually in the same Ecological Drainage Unit (EDU).

*Assessing Small Streams*

ATTORNEYS AT LAW

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\* \* \*

For test streams that are smaller than wadeable perennial reference streams, MDNR also samples five candidate reference streams (small control streams) of same or similar size, flow under natural conditions (excluding effluent) and Valley Segment Type (VST) in the same EDU with the same or similar land use twice during the same year the test stream is sampled (additional information about the selection small control streams is provided below). Although in most cases the MDNR samples small candidate reference streams concurrently with test streams, existing data may be used if a robust candidate reference stream data set exists for the EDU.

#### *Selecting Small Candidate Reference Streams*

Accurately assessing streams that are smaller than reference streams begins with properly selecting small candidate reference streams. Candidate reference streams are smaller than WPRS streams and have been identified as “best available” reference stream segments in the same EDU as the test stream according to watershed, riparian and in-channel conditions. The selection of candidate reference streams is consistent with framework provided by Hughes *et al.* (1986) with added requirements that candidate reference streams must be from the same EDU and have the same or similar values for VST parameters. If candidate reference streams perform well when compared to WPRS, then test streams of similar size and VST are expected to do so as well. VST parameters important for selection are based on temperature, stream size, natural flow (excluding effluent), geology, land use, and relative gradient, with emphasis placed on the first three parameters.

#### Comment No. 2.

Page 21 of the Listing Methodology discusses full attainment for determining non-attainment of aquatic life based on seven or fewer macroinvertebrate samples or more than eight samples. I inquired with you the minimum number of samples required before an attainment determination will be made by the department. The department responded by saying the data must meet the data qualifications of either a data code three or four.

I am aware the department’s aquatic macroinvertebrates monitoring protocol provides that samples are collected during the fall and spring. However, I am concerned the sample size for Data code three should require both spring and fall samples. I suggest Data code three be revised as follows:

Data code three - where a minimum of one quantitative biological monitoring study of at least one aquatic assemblage (fish, macroinvertebrates, or algae) at multiple sites (spring and fall samples), or multiple samples at a single site when data from that site is supported by biological monitoring at an appropriate control site.

Comments on 2018 Listing Methodology

January 29, 2016

Page 3

Thank you for the opportunity to comment. Should you wish to discuss these comments further, feel free to contact me.

Sincerely,

NEWMAN, COMLEY & RUTH P.C.

By:

A handwritten signature in blue ink that reads "Robert J. Brundage". The signature is written in a cursive style with a long, sweeping tail on the letter "g".

Robert J. Brundage



## ASSOCIATION OF MISSOURI CLEANWATER AGENCIES

### Comments on Draft 2018 Impaired Waters Listing Methodology

January 6, 2015

Thank you for this opportunity to provide input regarding the 2018 proposed 303(d) listing methodology. We are impressed with the technical robustness of much of the proposed methodology. However, we believe there remain several areas that could be enhanced that will facilitate our shared goal of yielding scientifically accurate water body assessments.

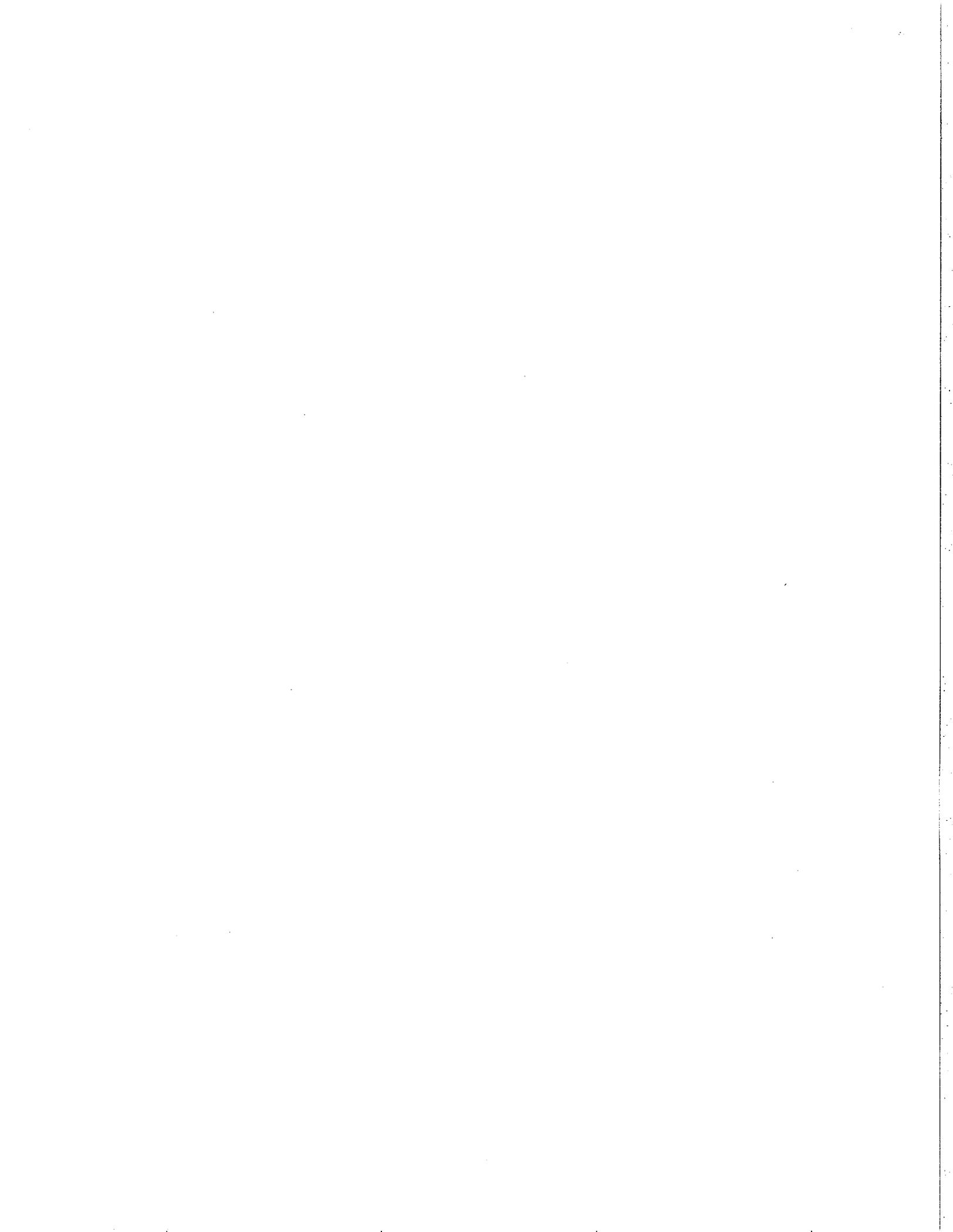
**Sampling for acute toxic pollutant parameters:** The methodology should specify that two grab samples for acute pollutant parameters will be taken within one hour, 15 minutes apart. This is critical to minimize errors in grab sampling as well as the impact of data outliers. Sampling personnel are already at the stream sampling locations and staying here for 15 minutes is not a major staffing issue. The regulatory implications of incorrect impaired waters listings readily justify taking two samples 15 minutes apart for acute toxic pollutant parameters.

**Determination of applicable hardness for hardness dependent water quality criteria:** The methodology provides that when there are fewer than eight samples DNR will use the 25<sup>th</sup> percentile hardness (soon to change to median hardness once that change in the pending triennial review of WQS is adopted) to calculate the applicable instream water quality standard. This approach is okay for chronic criteria but incorrect for acute criteria. For acute samples DNR should use the actual hardness associated with each sample, regardless of number of samples available.

**Evaluating Chronic Criteria:** Chronic criteria are expressed as 4-day average criteria. The methodology does not explain how available data are manipulated to calculate the highest four-day average value. It would be incorrect for DNR to compare a single grab sample result to a 4-day chronic standard. Instead, DNR should either sample daily for four consecutive days or take all annual data and then calculate the highest 4-day average (to an appropriate level of confidence).

**Data Quality.** We are under the impression that USGS grades its data (excellent, good, fair, or poor). If that is correct, where data are evaluated by USGS as being either "poor" or "fair", we do not believe such data should be used to make an impaired waters determination. Instead, follow up monitoring should be performed until valid data (good or excellent) are collected. If DNR currently considers the USGS data qualifiers, it should explain how it does so.

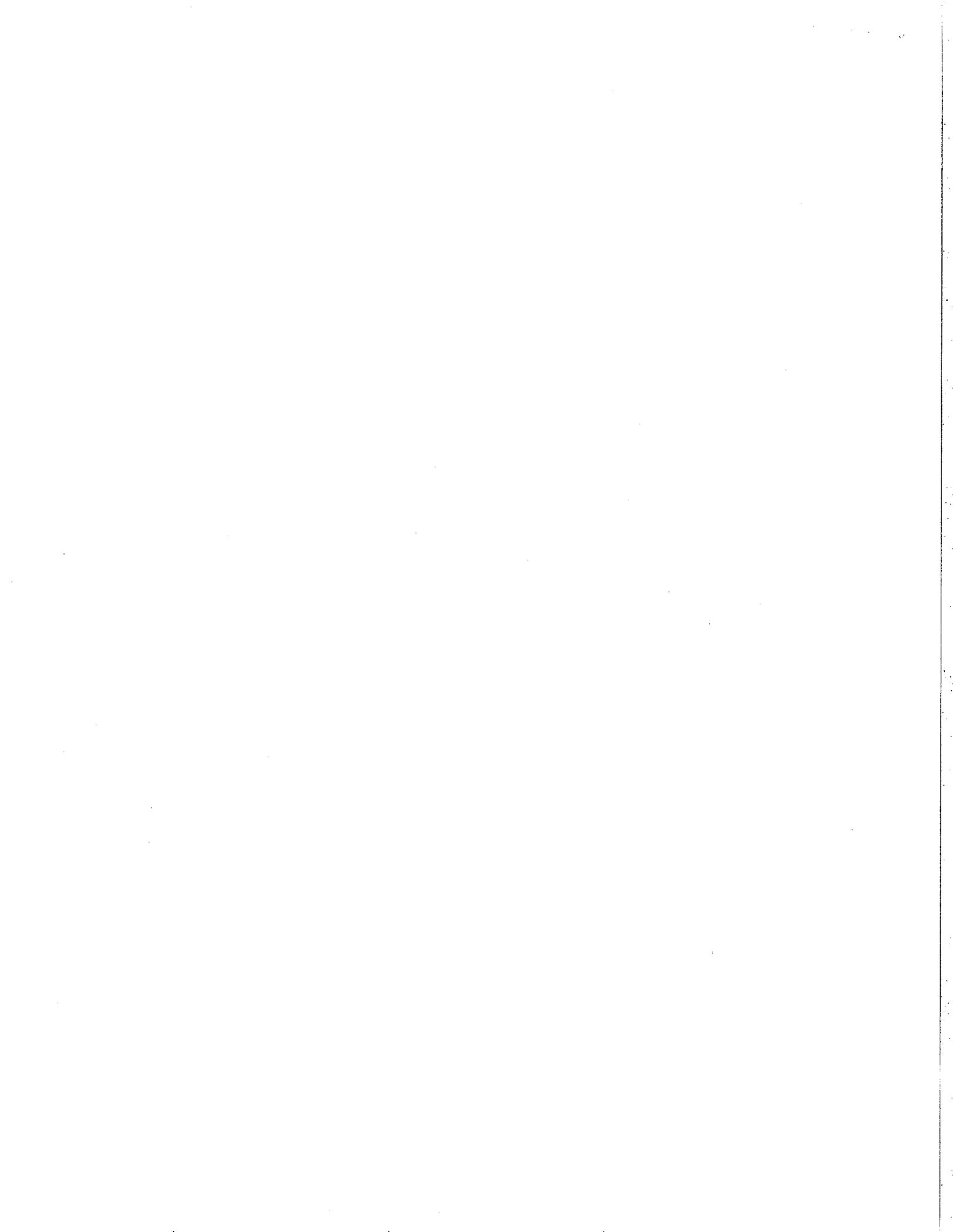
**1-in-3 Samples for Toxics.** We disagree with the proposed approach of listing a water as being impaired for toxics if more than one sample in any three year period exceeds the applicable criterion. While such an approach may make sense for a significant toxicity event such as a fish kill (the three year period giving the aquatic community time to recover) it does not make sense



for isolated, non-significant excursions. Moreover, it places too much significance on a single grab sample or two samples in a three year period. Consider, two samples slightly above the copper criterion out of 50 samples. The two would lead to an impaired waters determination. We think the 10 percent approach should also be applied to toxics in lieu of the 1-in-3 policy with the proviso that DNR will designate a water as being impaired if there are two documented significant toxicity events (fish kill or sampling results exceeding the applicable criterion by 100 percent) in any three year period.

**Application of the Stable Flow Provision.** DNR reports that it applies a “stable flow” qualifier for determining whether toxics data are representative and should be used for impaired waters determinations. We recommend that the final methodology specify that DNR will document its evaluation of stable flow conditions for all data for each water that it proposes and adds to the impaired waters list.

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January 29, 2016

Ms. Trish Rielly  
Water Protection Program  
Missouri Department of Natural Resources  
P.O. Box 176  
Jefferson City, MO 65102

Subject: Public Comments Regarding the Proposed 2018 Section 303(d) Listing Methodology Document

Ms. Rielly:

The City of Springfield, Missouri (City) submits the following comments regarding the proposed Methodology for the Development of the 2018 Section 303(d) List in Missouri (2018 LMD) placed on public notice by the Missouri Department of Natural Resources (MDNR or Department) on October 1, 2015.

***The City supports the addition of subcategory 5-alternative***

The City strongly supports MDNR's addition of subcategory 5-alternative (5-alt) to the LMD. The inclusion of category 5-alt provides additional needed flexibility where TMDLs may not be appropriate, particularly in the case of urban stream impairments where watershed management efforts are much more effective. The City interprets the inclusion of subcategory 5-alt as a willingness by MDNR to strongly consider prioritizing alternative restoration approaches over development of a TMDL.

***Methodology does not explain how excursions from the one-in-three year frequency will be determined***

For the protection of aquatic life, the LMD currently limits exceedances of acute or chronic criteria to no more than once in the last three years for toxic chemicals. The problem with this requirement arises from comparing discrete grab samples to a 4-day average criterion. Counting an individual sample as a criterion excursion places too much significance on single data points and increases the likelihood of false positives (i.e., concluding the segment is impaired when in fact it is not) as sample frequency increases. To address this issue, the City recommends applying the 10% exceedance rule currently applied to conventional pollutants. Alternatively, the Department could specify sampling on four consecutive days or calculate a statistically representative 4-day average. For example, data could be segregated by each of the preceding three years and the 95<sup>th</sup> percentile 4-day average could be used for comparison to the criterion.

### ***Requiring the use of reference percentile hardness values is inappropriate***

The draft LMD now requires the use of “reference” percentile hardness values for hardness based metals where there are more than eight samples. The Department clarified that “reference” points back to Missouri’s water quality standards (10 CSR 20-7.031) rather than reference or control stream conditions. It is unclear why a percentile hardness value would ever be preferred over paired-hardness data, if available. While use of a reference percentile hardness value is appropriate for permit effluent limit calculations, which represents predicted circumstances, paired hardness data should be preferred for determination of standards attainment as it best represents actual toxicity. Therefore, the City requests that the Department remove this requirement. Additionally, the City requests that the LMD specify the following in reference to compliance with any hardness based metals criteria (e.g., numeric criteria that are included in state standards (p. 47) and narrative criteria based on numeric thresholds not contained in state standards (p. 51): “For determination of standards attainment, where available, paired metal/hardness data may be used. Where paired data are not available, the reference percentile hardness provided in state water quality standards will be used to calculate the acute and chronic criteria.” With respect to assessing chronic criteria, hardness data from paired metal/hardness data could be appropriately averaged if the Department adopts a statistically representative 4-day average approach as suggested in the previous comment.

### ***Additional refinements to the Weight of Evidence approach***

In May 2014 the City raised concerns about relying on Probable Effect Concentrations (PECs) for impairment decisions without additional lines of evidence. The City noted that the true impact of sediment pollutant concentrations (i.e., the primary measure of sediment toxicity) is complicated by the actual bioavailability of contaminants, which can vary based upon site conditions. To address this concern in the 2016 LMD, the City requested MDNR make the following revision (in bold) to the LMD (currently found on Page 18 of the 2018 LMD):

*This weight of evidence analysis will include the use of other types of environmental data when it is available or collection of additional data to make the most informed use attainment decision. Examples of other relevant environmental data might include **physical and chemical data to better understand potential toxicity (e.g., carbon-normalized equilibrium sediment benchmarks (ESBs) for non-ionizable organic chemicals (NIOCs), porewater concentrations and simultaneously extracted metals/acid-volatile sulfide)**, biological data on fish [Fish Index of Biotic Integrity (fIBI)] or fish tissue, or toxicity testing of water or sediments.*

At the time this request, MDNR chose to postpone making the proposed revision as noted in the April 30, 2014 response document:

*Additional discussions may be necessary with sediment toxicity experts prior to incorporating specific types of data for determination of toxicity. The Department would like to explore these suggestions further for potential incorporation into the 2018 LMD.*

The City continues to recommend that MDNR adopt the proposed revision and strongly encourages MDNR to explore the issue of sediment toxicity and bioavailability. The City notes that the USEPA has

ESB guidance documents for PAHs, nonionic organics, dieldrin, and endrin, and metals. The City would also welcome the opportunity to provide additional guidance as MDNR explores this issue.

Consistent with the City's previous recommendations and concerns stated above, we also suggest the following refinements (in bold) on Page 19 to clarify that Category 2B or 3B applies where multiple lines of evidence are not available and additional data are needed.

*When the weight of evidence analysis suggests, but does not provide strong scientifically valid evidence of impairment **supported by multiple lines of evidence**, the department will place the water body in question in Categories 2B or 3B.*

Additionally, the City recommends MDNR provide additional clarity that PECs are not independently applicable numeric water quality criteria. Pursuant to §303(c) of the CWA, numeric water quality standards/criteria must be promulgated then reviewed and updated on a regular basis through the rule making process. To date, sediment toxicity numeric criteria have not been addressed in Missouri's WQS. Therefore, numeric translators of narrative criteria (e.g., PECs) may not be used as the sole source for impairment. This is partially addressed in the Appendix D table note on Page 57, which states "the numeric thresholds used to determine the ***need for further evaluation*** (emphasis added) will be the Probable Effect Concentration . . .". However, the intent of the Appendix D table should be clarified by revising the PEC references to read, "*For metals **and organics** use 150% of the PEC threshold.*" Similarly, the City suggests additional clarity is needed and offers the following revisions to the text on Pages 32-33.

*For toxic chemicals occurring in benthic sediments, data interpretation will include calculation of a geometric mean for specific toxins from an adequate number of samples, and comparing that value to a corresponding Probable Effect Concentration (PEC) given by MacDonald et al. (2000). The PEC is the level of pollutant above which harmful effects on the aquatic community are likely to be observed. – MacDonald (2000) gave an estimate of accuracy for the ability of individual PECs to predict toxicity. For all metals ~~except arsenic~~ **and organic contaminants (e.g., polycyclic aromatic hydrocarbons, etc.)**, pollutant geometric means will be compared to 150% of the recommended PEC values. **This comparison should only be used to assess the need for further evaluation and/or as part of a weight of evidence approach.** This comparison should **also** meet confidence requirements applied elsewhere in this document. When multiple contaminants occur in sediment, toxicity may occur even though the level of each individual pollutant does not reach toxic levels. The method of estimating the synergistic effects of multiple pollutants in sediments is described below.*

The City appreciates the opportunity to provide public comment and looks forward to your thoughtful consideration of these comments. Please feel free to contact me at anytime to discuss any of these issues.

Sincerely,

A handwritten signature in black ink, appearing to read "Errin Kemper", with a long horizontal flourish extending to the right.

Errin Kemper, P.E.  
Assistant Director – Environmental Services  
Springfield Missouri

CC:

Steve Meyer, P.E. – Director  
Jan Y. Millington – Assistant City Attorney  
Paul Calamita – Aqualaw  
Trent Stober, P.E. - HDR