

Aluminum:

KDHE elects to defer adoption of the EPA's 2018 Final Aquatic Life Criteria for Aluminum in Freshwater. KDHE has provided consistent feedback during the process of the criteria's adoption by the EPA about the known constraints aluminum criteria hold for Kansas. The EPA has resolved several of the limitations originally presented with the criteria; however, significant limitations persist.

One such limitation includes KDHE using aluminum concentrations greater than 2 mg/L in stream samples as evidence of high precipitation runoff events. Second, total aluminum as presented with the criteria would overestimate the toxic levels after high flow events for what are not as bioavailable forms of aluminum. Additionally, values of parameters used in the model for criteria derivation have a greater range than the values of the same parameters used to derive the model and in the appendix of the EPA's 2019 Technical Support Document for the criteria it is stated that going beyond the range of the inputs, which is evidenced as commonly occurring in samples from Kansas surface waters with high hardness due to our calcium carbonate geology, "should be used with caution." With the release of the EPA's Draft 2020 Technical Support Document, it is stated under Section 2.8 that the models can be extrapolated to cover a broader range of inputs for pH and "a slightly broader range for hardness" but not for DOC; this holds with KDHE's previous comments of model input data range limitations and Kansas regularly seeing exceedances of the ranges with DOC and CaCO₃.

Deferring adoption is further supported as there are no impairment listings of aluminum in the 2020 303(d) list, a lack of point sources contributing to aluminum loading to Kansas' surface waters, and a preliminary 303(d) assessment potentially listing more than two thirds of stream segments and 11 lakes to impaired status despite no point sources to attribute its presence in Kansas surface waters to.

Due to the constraints of natural conditions in Kansas expanding beyond the scope of the model, the lack of impairment due to the metal currently, a lack of point sources to attribute loading to, and an extraordinary increase in 303(d) impairments in addition to eventual corresponding TMDLs with almost exclusively unregulatable limits, KDHE will not be adopting the recommended aluminum criteria at this time.

Bacteria:

KDHE reviewed the history of its bacteria criteria and its validity related to current EPA recommendations. KDHE elects to retain its currently approved bacteria criteria in lieu of adopting the 2012 revised recreation criteria due to two substantive reasons.

The first reason can be attributed to the process of revising these criteria. The last adoption of Kansas' bacteria criteria faced extensive scrutiny, input, and coordination with the Kansas legislature and has been adopted into the Kansas Statutes Annotated (K.S.A.) 82a-2001 and requires considerable outreach and supporting documentation for future changes to receive approval of changes from the Statehouse.

The second reason for retaining the current criteria is based upon review of EPA's latest recommendations. The last adoption of Kansas' bacteria criteria was approved by the EPA in April of 2005; since then, EPA has released their 2012 recreational water quality criteria for the bacteria *E. coli* and enterococci. EPA's 2012 recreational water quality criteria allow the selection for enterococci or *E. coli* criteria presented. Upon review, the only new data presented as used with the 2012 criteria are for enterococci, but the revisions to *E. coli* criteria are based upon changing the illness rate subjectively instead of through empirically driven practices. It is

KDHE's position that its last adoption of bacteria criteria, specifically *E. coli*, approved by the EPA in 2005 are as scientifically defensible as the revised 2012 criteria.

Cyanotoxins:

KDHE elects to defer adoption of the EPA's 2019 cyanotoxin recommended criteria for microcystin and cylindrospermopsin for recreational waters.

KDHE currently assesses cyanotoxins for the recreation use as part of its Harmful Algal Bloom (HAB) Response Program. As a post hoc approach and in relation to water quality standards adoption, the 303(d) listing methodology provides assessment steps for warnings produced as part of the HAB Response Program to determine impairment of the Contact Recreation Use. As part of an immediate response approach, the HAB Response Program produces weekly updates to the public during the recreation season and provides listings for watches, warnings, and hazards of HAB events. Additionally, the HAB Response Program elected to adopt the recommended magnitudes for microcystins and cylindrospermopsin from the 2019 recommendations for advisory levels beginning in the 2020 recreation season and have thus far been successful.

Further, there is no regulatable criteria presented due to the fact point sources don't discharge these toxins, and KDHE is actively involved in reducing the causal contributions to cyanotoxin production in the environment through biology, total phosphorus, nitrate, and eutrophication TMDLs.

At this time, KDHE chooses to continue with use of the criteria's magnitude under the HAB Response Program for advisory levels and to not adopt the 2019 recommended cyanotoxin criteria into its water quality standards.

HHC:

KDHE elects to defer adoption of the EPA's changes to the 304(a) recommended Human Health Criteria. The updates made in 2015 by the EPA include 94 chemical pollutant criteria changes; in short, more time is needed to fully evaluate the implementation of nearly 100 changes to numeric criteria.

Known difficulties in implementation include measuring parameters as low as the criteria in some cases, assessing appropriateness of using some of the flexibility provided in the calculator for the criteria, and reconciling differences in definitions of protected uses between the federal and KDHE's approaches. Several parameters' criteria presented are at concentrations lower than approved laboratory methods' detection limit.

The underlying toxicology and multiple intake pathways culminate in a very technically complex, difficult to understand, and difficult to present in an understandable way to the public and stakeholders despite being boiled down into a general calculation. An additional complication in communication of these criteria revisions to the general public and stakeholders is that many of these pollutants are not discharged by point sources due to the largely rural nature of the state of Kansas resulting in updating of criteria being a potentially expensive number of staff hours evaluating the criteria for a largely non-impactful list of revisions.

The general calculation provided for the revision to the criteria also considers inputs of cancer potency factors, reference doses, relative source contributions, and fish intake values which can be accepted at the national rates/values or allow Kansas specific values to be used and the inputs for the calculation need further consideration before adoption for either selection.

Finally, KDHE presents the broad protected use of Public Health split into Food Procurement and Domestic Water Supply uses; previous rulemakings have resulted in disapproval based on differences for interpreting the definition of these uses compared to EPA's Human Health Criteria split into Consumption of Water + Organism and Consumption of Organism Only.

Each of these considerations and difficulties require further review, discussion, and consideration than can be accomplished during the current triennial review.

Nutrients:

KDHE elects to defer adoption of additional numeric nutrient criteria during this triennial review. The reasons outlined can be split into 3 distinct reasons including current criteria, current practices, and EPA's recommendations.

Currently, Kansas' numeric nutrient criteria are used from a translator of the current Chlorophyll-a criteria established for lakes or reservoirs with active or reserve domestic water supply use under Table 1k of the Tables of Numeric Criteria adopted by reference.

Additionally, the state of Kansas' nutrient reduction program is statewide in scope, applied on a watershed basis, with a focus on wastewater treatment plants, farmland, and animal feeding operations. Technology based limits for major municipal wastewater treatment facilities are addressed via the TMDL Vision, and 319 Watershed Plans are in place to address nonpoint nutrient reductions. This has resulted in over 40 publicly owned treatment works engaged in nutrient reduction through investment in Biological Nutrient Removal technology or optimization experiments in existing waste streams, without having set numeric nutrient criteria, in addition to mass-based nutrient limits being implemented on a growing number of dischargers.

Finally, the 2020 Draft Lake Numeric Nutrient Criteria have been reviewed, and KDHE has provided comments outlining its commendation of the effort and specific issues spanning nearly ten pages. Considering the draft status of EPA's 2020 Lake Numeric Nutrient Criteria, KDHE plans to continue operating under its nutrient reduction plan and strategies while assessing the need and appropriateness of EPA's 2020 Lake Numeric Nutrient Criteria and other numeric nutrient criteria for potential adoption in future triennial reviews.

Selenium:

Due to the frequency of sampling streams in Kansas, the application of the 30-day exposure criteria is overly stringent resulting in many newly identified Category 5 listings requiring follow-up fish tissue analysis that are likely to demonstrate compliance. An alternate assessment for 303(d) listing was proposed by KDHE to EPA during previous communications, where lentic and lotic 30-day exposure criteria would be used as trigger values to place waters into Category 3 until follow-up fish tissue data could be collected and a final determination of impairment status made. The proposed alternative was not considered acceptable and it was expressed that duration and frequency as described in the final criteria would also be required.

With respect to the regulated community, the chronic aquatic life criterion may indicate a more stringent effluent limit, but alternatives are presented for permit holders seeking to demonstrate compliance. Choices include measuring selenium effects in discharge to fish ovary/egg, whole fish, or fish muscle choosing to initially study fish muscle and following up with either of the remaining two options to make a final determination, when needed. Additionally, a study of selenium in the permit holder's receiving waterbody combined with fish tissue analysis would allow for derivation of a bioaccumulation factor for determining site-

specific permit limits. There are expected significant costs to the regulated entity associated with this, however.

In short, the new selenium criteria presented by EPA are limited from sampling constraints by the state, are criteria expressed as being unrealistically stringent adding waters to the 303(d) list of impaired waters indiscriminately, and would require extensive and expensive fish tissue sampling. Additionally, the cost to regulated entities is not considered to be insignificant. It is our recommendation to defer adoption during the 2021 Triennial Review in order to allow more time for a better understanding of water column and fish tissue concentrations of selenium in Kansas waters.