

<p><b>Docket Number:</b> <u>58-0102-1502</u>  <b>Effective Date:</b> <u>2017 Sine die</u>  <b>Rules Title:</b> <u>Water Quality Standards</u>  <b>Agency Contact and Phone:</b> <u>Barry Burnell, 373-0194/Jason Pappani, 373-0515</u></p>	<p style="text-align: right;"><b>Public Notice</b></p> <p><b>Hearings:</b> [ ] Yes [X] No  <b>Locations and Dates:</b> N/A  <b>Written Comment Deadline:</b> 10/6/17  <b>Negotiated Rule Making:</b> [X] Yes [ ] No</p>
<p><b>Descriptive Summary of Rule as Initially Proposed:</b>  This rulemaking has been initiated to update DEQ's existing hardness dependent criteria by using EPA's 2007 304(a) copper criteria. This update is a Reasonable and Prudent Alternative identified in National Oceanic and Atmospheric Administration's (NOAA) biological opinion (BiOp) on Idaho's criteria for toxic substances to support aquatic life.</p> <p>The toxicity of copper to aquatic life is highly variable depending on physicochemical factors within a water body. The effect of hardness on metal toxicity has long been acknowledged as one such factor and is reflected in DEQ's current hardness dependent criteria, whereby the acute and chronic criteria are determined based on the total hardness of the receiving water body. However, DEQ's current hardness dependent criteria do not take into account the effects of other physicochemical properties of the receiving water body which affect toxicity, leading to DEQ's current criteria being either over- or under-protective of aquatic life.</p> <p>This action is identified in NOAA's BiOp on Idaho's criteria for toxic substances to support aquatic life. This BiOp concluded that the current copper criteria were not always protective of aquatic life and would result in adverse modification of critical habitat. NOAA's recommendation is to use EPA's 2007 304(a) copper criteria, which uses other physicochemical properties of the water (e.g., pH, dissolved organic carbon, etc.) to predict water-body specific criteria known as the Biotic Ligand Model (BLM). NOAA has called for state adoption and EPA approval or EPA promulgation of these criteria by May 2017. Because of this, DEQ's 2014 triennial review identified revision of the aquatic life criteria for copper as a high priority. By adopting a copper criterion based on the BLM, DEQ will be able to use the most current state of the science to ensure that the criteria are more precise and are neither unnecessarily burdening dischargers nor increasing risk to aquatic life.</p> <p>This proposed rule replaces the existing hardness dependent criteria for copper with a similar, albeit more detailed, modeled approach. Additionally, the proposed rule references the "<a href="#">Implementation Guidance for the Idaho Copper Criteria for Aquatic Life: Using the Biotic Ligand Model</a>", available at <a href="http://www.deq.idaho.gov/58-0102-1502">www.deq.idaho.gov/58-0102-1502</a>, which details procedures for implementing the criteria including determining minimum data requirements for BLM inputs and guidance for estimating protective criteria when data are incomplete or absent.</p> <p>Idahoans that recreate in, drink from, or fish Idaho's surface waters, and any who discharge pollutants to those same waters, may be interested in commenting on this proposed rule. After consideration of public comments, DEQ intends to present the final proposal to the Board on November 16, 2017, for adoption of a pending rule. The rule is expected to be final and effective upon the conclusion of the 2018 legislative session if adopted by the Board and approved by the Legislature.</p> <p>DEQ recommends that the Board adopt the rule, as presented in the final proposal, as a pending rule with the final effective date coinciding with the adjournment <i>sine die</i> of the Second Regular Session of the Sixty-fourth Idaho Legislature. The rule is subject to review by the Legislature before becoming final and effective.</p>	<p>The <a href="#">Negotiated Rulemaking Summary</a> is attached.</p> <hr/> <p><b>Relevant Statutes:</b> Sections 39-105, 39-107, and 39-3601 <i>et seq.</i>, Idaho Code</p> <p><b>Idaho Code § 39-107D Statement:</b> This rule does not regulate an activity not regulated by the federal government, nor is it broader in scope or more stringent than federal regulations.</p> <p><b>Costs To the Agency:</b> DEQ expects to incur some initial training costs, in addition to normal rulemaking costs. Once the rule is adopted, DEQ expects no changes in agency operational costs or staffing.</p> <p><b>Costs to the Regulated Community:</b> The costs will be dependent upon the water body and data requirements. The proposal is to base the new copper criterion on the peer reviewed Biotic Ligand Model (BLM). The BLM calculated criteria are more dependent on dissolved organic carbon (DOC); therefore, facilities discharging into waters with high DOC or that also discharge DOC are likely to see relaxed criteria. For discharges to waters with low DOC, adoption of the new criteria may result in increased treatment requirements and increased costs for owners of those facilities.</p> <p>Calculation of the BLM criteria requires more inputs than the existing hardness based criteria. Dischargers will likely see increased costs associated with compliance monitoring associated with the additional data requirements needed to calculate the BLM criteria. There are currently 20 facilities with NPDES discharge limits for copper that may be affected by this rulemaking. Of these, 10 are wastewater treatment plants, 2 are aquaculture facilities, and 8 are mines. Since wastewater treatment plants and aquaculture facilities generally discharge DOC, they are likely to see an increase in criteria values for copper; mines are likely to see a decrease in criteria values.</p>

Temporary Rule       Necessary to protect public health, safety or welfare  
 Compliance with deadlines in amendments to governing law or federal programs  
 Conferring a benefit

Docket Number: 58-0102-1502

Section	Section Title	Summary of Rule Changes Based on Public Comment
004.	<b>Incorporation by Reference.</b>	This section has not been revised. No comment received.
210.	<b>Numeric Criteria for Toxic Substances for Waters Designated for Aquatic Life, Recreation, or Domestic Water Supply Use</b>	Subsection 210.03.c.v. has been revised. DEQ's Response to Comments is attached.

**Department of Environmental Quality  
Water Quality Standards, IDAPA 58.01.02  
Docket No. 58-0102-1502**

**Negotiated Rulemaking Summary  
Idaho Code § 67-5220(3)(f)**

This rulemaking has been initiated to update copper criteria for aquatic life.

The Notice of Negotiated Rulemaking was published in the October 2015 issue of the Idaho Administrative Bulletin, and a preliminary draft rule was made available for public review. Nine negotiated rulemaking and guidance development meetings were held between October 28, 2015, and July 18, 2017. Key information was posted on the DEQ rulemaking web page and distributed to the public. Members of the public participated in the negotiated rulemaking process by attending the meetings and by submitting written comments.

All comments received during the negotiated rulemaking process were considered by DEQ when making decisions regarding development of the rule. For comments that were not incorporated into the draft rule, DEQ's response to those comments is attached. At the conclusion of the negotiated rulemaking process, DEQ formatted the final draft for publication as a proposed rule in the Idaho Administrative Bulletin. The negotiated rulemaking record, which includes the negotiated rule drafts, written public comments, documents distributed during the negotiated rulemaking process, and the negotiated rulemaking summary, is available at [www.deq.idaho.gov/58-0102-1502](http://www.deq.idaho.gov/58-0102-1502).

DEQ's Response to Comments/Negotiated Rulemaking Summary  
Docket No. 58-0102-1502

Commenter 1 – U.S. Environmental Protection Agency (EPA)	
Commenter 2 – National Marine Fisheries Service (NMFS)	
Commenter 3 – Copper Development Association	

Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
Subsection 210.01	1 2	Implementation procedures and default criteria values should be in rule (rather than guidance) and should be legally binding.	<p>Providing implementation procedures in guidance allows for flexibility and for permit writers, dischargers, and DEQ assessors and TMDL writer's to take advantage of novel approaches, such as the fixed monitoring benchmark, to develop effluent limits. Implementation procedures for the Biotic Ligand Module (BLM) are provided in separate guidance document and more generally in the IPDES effluent limit development guidance.</p> <p>By adopting the copper BLM DEQ is setting criteria for copper. DEQ does not believe there is a need for a secondary or backup copper criterion, and expects this could lead to confusion as to which criterion really applies. So called "default criteria" are intended to address the situation of insufficient data to employ the BLM. This is a minor need, one that can be avoided by collection of the necessary input data to the BLM. DEQ has set up a process in guidance that encourages the gathering of data needed to run the BLM such that whatever utility there may be at the outset will diminish as the affected public gain experience with the BLM.</p>
Subsection 210.01	1 2	Recommend using estimated input parameter data when measured data are unavailable, use of values or approach from EPA's missing parameters document. <sup>1</sup>	Use of conservative inputs for individual inputs leads to the unrealistic situation in which the resulting criteria represent no real waters. DEQ prefers use of conservative <i>criteria</i> based on actual data rather than using estimated inputs. Further, DEQ will not reference draft documents (such as the EPA missing parameters report – which is not a final document) as they are subject to revision.

<sup>1</sup> EPA (US Environmental Protection Agency). 2016. Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model. Washington DC: EPA, Office of Water. EPA-820-R-15-106. Available at <https://www.epa.gov/sites/production/files/2016-02/documents/draft-tsd-recommended-blm-parameters.pdf>.

Subsection 210.03	1 2	<p>Recommend additional language in rule stating that BLM criteria will be based on <i>location</i> and <i>time</i> when copper bioavailability is greatest, and that applicable criteria for any site will be based on the lowest time-specific modeled criteria.</p> <p>Recommend :</p> <ul style="list-style-type: none"> <li>(1) Calculation of criteria or reconciling multiple instream water quality criteria (IWQC) in a manner that is protective of designated uses at all times, including under the most bioavailable or toxic conditions;</li> <li>(2) requiring a determination of when and where the most bioavailable conditions occur; and</li> <li>(3) ensuring sufficiently representative data are collected.</li> </ul>	<p>The BLM provides estimates of protective copper concentrations based on site-specific input parameters, known as Instantaneous Water Quality Criteria (IWQC). By definition, an IWQC is protective of conditions <i>at the time</i> that the data were collected. Adopting in rule a procedure that reconciles multiple variable IWQCs and applies the lowest IWQC at all times is inconsistent with the science and time-specific nature of the BLM, and could result in the nonsensical situation where Idaho would be identifying waters as impaired by copper and investing limited state resources into TMDLs for waters where toxic copper conditions are never encountered.</p> <p>DEQ continues to maintain that the applicable criteria at any given time are the associated IWQCs derived from concurrent samples of input parameters.</p>
Subsection 210.01	1	Recommend removing reference values from table.	Reference values are included for illustrative purposes and are consistent with all relevant toxics criteria, e.g. hardness dependent metals criteria. DEQ believes that Idaho WQS users are familiar with the use of reference values and understand that the footnotes direct the user to the appropriate equation or, in this case, model.
	3	Use of 1-hour averaging time for acute criterion is overprotective; the 24-hour averaging period is sufficient to be protective of aquatic life	The 1-hour averaging period for copper is consistent with the averaging period for acute criteria for other toxics.

**DEQ's Response to Comments**  
**Proposed Rule Docket No. 58-0102-1502**

<b>Commenter 1 – Kinross DeLamar Mining Company</b>
<b>Commenter 2 – Treated Wood Council/Western Wood Preservers Institute</b>
<b>Commenter 3 – US Environmental Protection Agency</b>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
1.	210.01	1.	The proposed rule does not clearly state the specific copper aquatic life criteria applicable to surface waters in the State. Rather, the regulated community must interpret guidance to discern applicable criteria. The rule should clearly specify which copper criteria applies [ <i>sic</i> ] to which waters.	The proposed copper criteria revision is for performance-based criteria using the biotic ligand model (BLM) to derive site- and time-specific criteria using site- and time-specific ambient conditions. Therefore, it is not possible to identify waterbody specific numeric criteria in rule.
2.	Guidance	1.	The <i>Implementation Guidance for the Idaho Criteria for Aquatic Life</i> , a guidance document cited in the proposed rule, recommends 24 consecutive monitoring events (one per month) for the above mentioned parameters of a surface water to determine acceptable BLM-Cu based criteria. This represents a significant increase in monitoring requirements for NPDES permit holders compared to monitoring based on the current criteria.	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  DEQ acknowledges that increased monitoring will be required in order to derive BLM based criteria, and that this increase may be significant.
3.	Guidance	1.	This conservative criterion was developed using data collected during a statewide monitoring program that consisted of monitoring the required parameters during one sampling event at 200 surface water locations. It should be noted that no samples were collected in the southwestern corner of the State in the Owyhee river basin. Kinross recognizes this was a large monitoring effort completed by the state and commends their efforts; however, this method lacks scientific rationale by implying regionally scaled criteria based on a single sampling event to a single waterbody lacking water quality data.	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  While it is true that DEQ did not collect samples at all locations or within every river basin in the state, we believe that the analysis provided in the <i>Statewide Monitoring for Inputs to the Copper Biotic Ligand Model</i> <sup>1</sup> demonstrates that conservative, protective criteria can be estimated from limited statewide monitoring.  The purpose of the monitoring effort was not to identify numeric criteria for all waters of the state, but rather to provide estimates of conservative, protective concentrations of copper that could be used in the absence of site

<sup>1</sup> DEQ (Idaho Department of Environmental Quality). 2017. *Statewide Monitoring for Inputs to the Copper Biotic Ligand Model*. Boise, ID: DEQ.  
<http://www.deq.idaho.gov/media/60180618/58-0102-1502-statewide-monitoring-inputs-copper-biotic-ligand-model-0817.pdf>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
				<p>specific data.</p> <p>The proposed rule states that any criteria derived from sufficient representative site data would supersede any conservative criteria estimates (see Subsection 210.03.c.v.(4)).</p>
4.	210.01	1.	<p>Kinross is unaware of any documented impacts from copper in the Jordan Creek subbasin or generally elevated copper concentrations. It is arbitrary to establish new copper criteria for waterbodies absent data indicating current criteria is not protective. The use of the BLM-Cu derived criteria may be appropriate for certain streams and for protection of certain endangered aquatic species; however, it is unjustified and would require an excessive monitoring effort for waters where there is no documented impact to aquatic life caused by copper or any endangered species present such as the Jordan Creek watershed.</p>	<p>States implementing the Clean Water Act are required to consider EPA 304(a) criteria under federal regulations.<sup>2</sup></p> <p>The proposed rule is an update to statewide copper criteria and is based on updated toxicity information and updated EPA 304(a) guidance which demonstrates that 1) the previous, hardness based copper criteria were not adequately protective of aquatic life; and 2) use of the BLM is a better predictor of copper toxicity and <i>is</i> protective of aquatic life.<sup>3</sup></p> <p>In order to apply the updated criteria to only certain waters where aquatic life is impaired by copper would require DEQ to develop site specific criteria for waters where the statewide criteria would not apply. The BLM derived instantaneous water quality criteria are essentially a site specific criteria for that waterbody.</p>
5.	210 Guidance	1.	<p>It is unreasonable to expect inactive and remote facilities to undergo the assumed intricate instream monitoring program in order to determine applicable aquatic life criteria for surrounding waterbodies, especially when these waters are not impacted by copper. Kinross advocates for the current hardness-based criteria absent an identified copper impact to a subbasin or in watersheds where endangered species are present.</p>	<p>While DEQ acknowledges that monitoring at remote locations would require significant resources, we do not believe that the absence of a copper impairment is sufficient to preclude adoption of a protective criterion. DEQ has attempted to provide dischargers with alternatives to monitoring through the implementation guidance, and would allow application of conservative criteria estimates in the absence of representative samples.</p>

<sup>2</sup> 40 CFR 131.20(a).

<sup>3</sup> EPA (US Environmental Protection Agency). 2007. *Aquatic Life Ambient Freshwater Quality Criteria – Copper: 2007 Revision*. Washington, DC: EPA, Office of Water. EPA-822-R-07-001. <https://nepis.epa.gov/Exe/ZyPDF.cgi/P1000PXC.PDF?Dockey=P1000PXC.pdf>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
				Continuing to use the hardness-based criteria in areas without copper impairments would require development of site-specific criteria to demonstrate that the hardness-based criteria are protective of the resident species within each subbasin. The current state of knowledge on copper toxicity and the predictive ability of the hardness based copper criterion suggest that this would not be scientifically defensible without site-specific toxicity studies.
6.	Guidance	2.	IDEQ's recommendation to use the minimum daily pH measurement for continuously recorded pH data is inconsistent with the stipulation that all BLM parameters should be "collected in a single place and time." Selecting the lowest pH value of a continuous pH record and applying it with data for other parameters collected at a different time may lead to input of inaccurate pH values or atypical stream conditions into the BLM. In addition, the recommendation to use the minimum would not be appropriate for determination of a chronic standard	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>We agree that samples should be collected at the same time and suggest that continuous pH data should be used to inform timing of monitoring or to demonstrate that values would be protective.</p> <p>Section 5.2 of the guidance has been revised:  <i>When continuous data are available, <u>the timing of sampling should coincide with minimum daily pH values.</u> <del>should be used to generate BLM criteria.</del></i></p>
7.	Guidance	2.	In some cases, the minimum could actually reflect pH values that are not indicative of typical daily pH ranges (for example, minimum values recorded due to sensor malfunctions or pH probe exposure to air).	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>Spurious results from probe malfunctions or inappropriate placement of the probe should not be used; this should be clearly stated in all applicable QAPPs and SOPs for monitoring programs.</p>
8.	Guidance	2.	We recommend that IDEQ adjust its recommendation to use the 90 percent lower confidence limit on the mean of the pH values collected in a 24-hour period, rather than the minimum daily pH measurement. Alternatively, a	This comment is not applicable to the proposed rule; it is related to the implementation guidance.

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
			continuous pH data set could be analyzed for diel patterns, and timing for collection of the full suite of BLM parameter inputs could be targeted for the time of day when pH is expected to be lowest.	The guidance does provide for flexibility and would allow users to propose alternatives to minimum values such as the 90 percent lower confidence limit, provided the user is able to demonstrate that use of that value would be sufficiently representative of the site conditions and protective of aquatic life.
9.	Guidance	2.	The Implementation Guidance should emphasize the importance of using input parameters from a single place and time to determine each IWQC, and specifically address data needs for development of a chronic standard where this may differ from those of an acute standard.	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>Section 5.1 of the guidance document states that:</p> <p><i>When using the BLM to implement the Idaho copper criteria for aquatic life, a sample refers to a complete set of BLM input parameters as described in Table 1, collected at a single place and time.</i></p> <p>DEQ believes that this statement adequately emphasizes that input parameters should be from a single place and time to determine each IWQC.</p> <p>DEQ does not intend for users to develop separate monitoring efforts for derivation of acute and chronic criteria; users should be able to design monitoring plans to address both.</p>
10.	Guidance	2.	Although IDEQ does define a sample as “collected in a single place and time” for the purposes of BLM inputs in the last paragraph of Section 5.1, we request the addition of a statement to the Implementation Guidance to emphasize that BLM input parameters for each IWQC should be based on concurrently measured water quality data grouped by location. Users should not “mix-and-match” data across time or locations to incorporate the lowest pH or lowest DOC values, if the complete set of input parameters are not measured at the same time. In addition, because the data needs may differ for an acute standard	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>See responses 8 and 9 above.</p>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
			and a chronic standard, we suggest changing the text quoted above to “BLM input measurements shall be planned to capture the most bioavailable conditions for copper relevant to the criteria being evaluated.”	
11.	Guidance	2.	BLM users in Idaho will benefit from specific guidance on field methods, and the option to use State-authored standard operating procedures (SOPs). ...Users should be provided the option of employing the State’s default SOPs, or preparing comparable method-specific SOPs in their site-specific QAPP. Further, IDEQ could direct users to guidance on the preparation of QAPPs and sampling and analysis plans that would enable users to meet the State’s expectations without a lot of trial and error. Also, in addition to providing specifications for analytical methods, preservatives, hold times, and reporting limits presented in Table 1, IDEQ could add specific information regarding appropriate field and laboratory QA/QC sample requirements and precision and accuracy targets for samples.	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>It is not DEQ’s policy to provide SOPs and QAPPs for outside entities.</p> <p>For information on what is considered appropriate see <i>Water Body Assessment Guidance</i><sup>4</sup>, <i>DEQ Quality Management Plan</i><sup>5</sup>, and the QAPP prepared for DEQ’s statewide monitoring effort<sup>6</sup>.</p>
12.	Guidance	2.	We request clarification of recommended dissolved organic carbon (DOC) sample filtration procedures discussed in Implementation Guidance, Section 5.2 Special Considerations for Monitoring pH and DOC. ... Implementation Guidance does not specify precision targets, nor does it direct the reader to a separate reference with that information. IDEQ suggests flushing sample filters prior to sampling, and/or collecting whole-water samples for DOC for	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>For more discussion on possible procedures to control for contamination see negotiated rulemaking presentation<sup>7</sup> and comment letter<sup>8</sup> prepared by Chris Mebane, USGS.</p>

<sup>4</sup>DEQ (Idaho Department of Environmental Quality). 2016. *Water Body Assessment Guidance, 3<sup>rd</sup> Edition*. Boise, ID: DEQ. <http://www.deq.idaho.gov/media/60179244/water-body-assessment-guidance.pdf>

<sup>5</sup>DEQ (Idaho Department of Environmental Quality). 2016. *Quality Management Plan*. Boise, ID: DEQ. <http://www.deq.idaho.gov/media/60180002/deq-quality-management-plan-2017.pdf>

<sup>6</sup>DEQ (Idaho Department of Environmental Quality). 2016. *Quality Assurance Project Plan (QAPP) Statewide Monitoring for Inputs to the Copper Biotic Ligand Model (BLM)*. Boise, ID: DEQ.

<sup>7</sup><http://www.deq.idaho.gov/media/60178564/58-0102-1502-usgs-presentation.pdf>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
			filtration at an analytical laboratory. However, 40 CFR 136 requires that National Pollutant Discharge Elimination System (NPDES) compliance monitoring samples must be filtered in the field. IDEQ acknowledges this conflict between its DOC filtration recommendation and NPDES requirements, yet the Implementation Guidance does not provide a clear path forward for entities that conduct NPDES compliance monitoring. In addition to the need for this information, the Implementation Guidance should specify how a correction would be made if filters were found to be a source of DOC, and how many filter blanks are needed to quantify the DOC “contamination” introduced by the filter.	<p>DEQ is unable to supersede the requirements for field filtration as defined in federal regulations related to NPDES compliance monitoring in either rule or in guidance.</p> <p>Users that desire to deviate from the requirements of 40 CFR 136 may follow federal guidelines for approval of alternate test procedures.</p>
13.	Guidance	2.	The Implementation Guidance should clarify the meaning of “representative” areas for sampling, and the specific conditions that would justify upstream sampling.	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>5.3.1 states that:</p> <p><i>When determining the representativeness of a location to an AU, DEQ assessors will consider differences in activities and discharges within the AU.</i></p> <p>Generally, for ambient monitoring, this means monitoring locations should be sited to capture the range of conditions and discharges that one represent the entire assessment unit.</p> <p>For monitoring to determine criteria for use in effluent limit development (Section 5.3.2), the guidance recommends that monitoring be sited in order to</p> <p><i>characterize site-specific conditions characterize site-specific conditions within the effluent’s receiving water.</i></p>

<sup>8</sup> <http://www.deq.idaho.gov/media/60179624/58-0102-1502-mebane-comment-1216.pdf>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
				<p>In instances where there are multiple downstream dischargers, tributary waters, issues of safe access, or trespass concerns with sampling areas downstream, users may need to sample upstream of the discharge to adequately characterize site specific conditions of the effluent's receiving water.</p>
14.	Guidance	2.	<p>Please provide additional clarity regarding the minimum number of samples and sample collection frequency required for input to the BLM.</p>	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>See Section 5.4 of the guidance document for discussion on minimum sampling requirements.</p>
15.		2.	<p>In Section 5.4.1, the draft Implementation Guidance notes that “Generally, 24 consecutive, monthly IWQCs calculated over the course of 2 years would be considered appropriate to characterize seasonal variability for any single location,” but that fewer or more samples may be needed based on the environmental conditions at the time of sampling, the representativeness of stream flow at the time of sampling in comparison to the historical flow record, and site safety considerations. This flexible guidance allows regulators and entities to develop individual sampling plans for sites with variable conditions (e.g. flood or drought). However, the Implementation Guidance should thoroughly list the specific conditions under which such flexibility is possible. It should also clearly identify the process for entities to address questions to IDEQ related to temporal sampling requirements.</p>	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>The default should be 24 monthly samples. The guidance provides for use of less frequent or shorter monitoring windows when justified (see Section 5.4.1:</p> <p><i>Monthly sampling may not be possible at some sites in Idaho due to accessibility and safety considerations. For locations where monthly sampling is not practical, effort should be made to minimize the time period when there are no samples collected.</i></p> <p>The guidance does not provide a list of specific conditions when 24 consecutive months of monitoring may not be feasible because it would not be possible to foresee all situations that would prevent monitoring, or possible data quality issues that would limit the available dataset. The goal is to not limit the approaches that can be used, but rather to allow for use of any monitoring approach that can be demonstrated to be sufficient to</p>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
				capture variability and critical conditions.
16.	Guidance	2.	IDEQ further notes on p. 20 that “[w]henever data are available, users should use longer datasets to fully capture temporal variability at any given site.” This suggestion is too open ended and may lead entities to incur sample collection and analytical costs with no actual benefit such as improved understanding of temporal variability. We recommend modifying the language in the above sentence by replacing the word “should” with “may.”	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  The key statement is “whenever data are available”- the guidance suggests using all available data, not requiring additional sampling.
17.	Guidance	2.	In addition, the conditions under which multiple sampling events across multiple months and years can be aggregated for the purposes of applying the BLM should also be clearly specified. Such specifics should include whether data collected using different protocols or equipment can be aggregated; whether all questions of the most appropriate time of day to sample have to be resolved before a set of monthly samples can be aggregated; and whether the 2-year (or greater) data set must be continuous across the 24 months to be aggregated.	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  DEQ will rely on our <i>Existing and Readily Available Data Policy</i> <sup>9</sup> to determine allowable data. Generally, decisions will be based on only Tier 1 data.
18.	Guidance	2.	Regardless of any actual limit, we suggest that the final Implementation Guidance specify the allowable age of BLM input data.	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  See response #17 above.
19.	Guidance	2.	In Section 5.5.2 (p. 21), IDEQ presents the general concept of using a “conservative percentile” of IWQC values to select a criterion from multiple IWQC values collected over time. The option provided in Section 5.5.2 would be clearer if IDEQ included an example using real stream or hypothetical stream data to illustrate the mechanics of how this option could be applied.	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  The inclusion of further examples may be incorporated in future revisions of the guidance document, as more time-series data become available throughout Idaho.  Figure 11 of the guidance document presents data from the Boise River

<sup>9</sup> DEQ (Idaho Department of Environmental Quality). 2016. *Water Body Assessment Guidance, 3<sup>rd</sup> Edition*. Boise, ID: DEQ. <http://www.deq.idaho.gov/media/60179244/water-body-assessment-guidance.pdf>

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				<p>with reference lines for the minimum and 10<sup>th</sup> %ile of the IWQCs. This demonstrates how both the minimum of IWQCs and 10<sup>th</sup> %ile of IWQCs compare to actual calculated BLM IWQCs and copper concentrations.</p> <p>This was also discussed at the December 11, 2015 negotiated rulemaking meeting, using data from the South Fork Coeur d’Alene River (see slides 14 – 18, 35 – 37).<sup>10</sup> In this example, there were two IWQCs that were lower than the 10<sup>th</sup> percentile of IWQCs from the dataset within 27 months, while selection of a value just below the 10<sup>th</sup> percentile (CCC of 0.58 µg/L) would be sufficiently protective (Slide 18).</p>
20.	Guidance	2.	Please consider revising the title of Section 5.3.3., Statistical Approaches. Other sections in 5.5 address statistical methods as well	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>The guidance has been revised as recommended. The title of Section 5.5.3 has been revised to <i>Other Statistical Approaches</i>.</p>
21.	Guidance	2.	<p>A definition of “predictable seasonal variability” and/or examples to illustrate the concept</p> <p>Clarification as to how seasonal criteria are addressed in the proposed rule (IDAPA 2017) and incorporated into total maximum daily loads discharge permits</p> <p>Clarification as to how critical daily and critical seasonal conditions, as described in the last paragraph of Section 5.2, are addressed with seasonal criteria (e.g., the specific dates or conditions that constitute each season, the temporal extent of shoulder seasons, etc.).</p>	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>Rule specifies that the IWQC is the criterion, so seasonal limits must demonstrate that they will not lead to exceedance of any applicable IWQC during that seasonal timeframe.</p> <p>This language is intended to allow for tiered effluent limits and TMDL targets analogous to flow-tiered approaches used in effluent limit development.</p>

<sup>10</sup> <http://www.deq.idaho.gov/media/60177691/58-0102-1502-update-copper-criteria-aquatic-life-use-1215.pdf>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
22.	Guidance	2.	...it appears that IDEQ is providing a range of possibilities, but without describing all of them in sufficient detail to be implemented. We request that IDEQ either clarify that its preferred approach is the one described in Section 6.1, or provide additional information regarding the other possible approaches.	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>The approach outlined in Section 6.1 is not a preferred approach, but an example of an approach that is considered appropriate and protective. DEQ will entertain alternatives. DEQ does not intend to list possible approaches, but instead provide reference to an acceptable approach (as outlined in Section 6.1) and the type of analysis necessary to demonstrate it is appropriate (Section 6.1.1, <i>Statewide Monitoring for Inputs to the Copper Biotic Ligand Model</i><sup>11</sup>).</p>
23.	Guidance	2.	We recommend that the last sentence in the second paragraph on page 25 be changed to read, “Additionally, if the reasonable potential analysis indicates reasonable potential to exceed, the discharger should initiate monitoring of BLM input parameters to confirm or refine applicable criteria once sufficient data (e.g., 24 monthly samples) are collected.”	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>The guidance has been revised as recommended.</p>
24.	210.01 210.03 Guidance	3.	DEQ has stated it does not view the guidance as legally binding. The EPA believes it is important to include additional clarification and defined procedures in rule if the guidance is not legally binding. Additional clarity on this issue would be helpful, since as described in the revised guidance, there are several scenarios when this could occur. These include estimated or default acute and chronic criteria values provided by DEQ which may be used when no data are available or when data do not adequately characterize conditions when copper is most bioavailable or when dissolved organic carbon (DOC) or pH data are absent. As DEQ states in the revised implementation guidance, conservative criteria estimates should be used to estimate critical conditions of a waterbody or assessment unit. Additionally, DEQ states that the permit writer can use these conservative estimates to perform reasonable potential analysis and that these conservative estimates could also be utilized by the Idaho	<p>By definition, guidance is not legally binding. DEQ has repeatedly stated our preference for adopting the 304(a) recommended copper criteria in rule and for having implementation procedures detailed in a separate guidance. This approach is consistent with other equation and model based criteria, and meets the requirements of the Clean Water Act and federal regulations for adoption of protective criteria based on sound science and for adoption of performance based water quality standards. This approach has been approved by EPA Regions 3 and 7. See attached EPA approval letters for Delaware and Kansas. In the EPA approval letter for Kansas, the discussion regarding adoption of the Copper Biotic Ligand model (BLM) is found on pages 7 and 8 of the letter’s enclosure.</p> <p>The CWA does not require that implementation procedures be stated</p>

<sup>11</sup> DEQ (Idaho Department of Environmental Quality). 2017. *Statewide Monitoring for Inputs to the Copper Biotic Ligand Model*. Boise, ID: DEQ. <http://www.deq.idaho.gov/media/60180618/58-0102-1502-statewide-monitoring-inputs-copper-biotic-ligand-model-0817.pdf>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
			Pollutant Discharge Elimination System (NPDES) program when developing effluent limits for permits in those circumstances where data is insufficient or absent. Given how DEQ expects the estimated/default criteria values will be used in some circumstances, it seems reasonable to interpret these values as essentially legally binding criteria values.	<p>explicitly in rule, nor does it require EPA approval of these procedures. Furthermore, EPA's 304(a) recommended copper criteria does not specify estimated or default acute and chronic criteria values nor does it specify any procedures for deriving default acute and chronic criteria values.</p> <p>We believe that detailing these procedures in guidance is appropriate and within federal requirements and guidelines.</p> <p>It is not reasonable, nor accurate, to interpret recommendations in DEQ's implementation guidance as legally binding criteria.</p>
25.	210.01 210.03 Guidance	3.	It is the EPA's understanding that data for the ten input variables/parameters to calculate freshwater copper criteria using the BLM (temperature, pH, DOC, calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity) on a waterbody specific basis in Idaho may be currently limited and/or non-existent. Therefore, it is particularly important for DEQ to provide legally binding default criteria values to be used in lieu of sufficient data at a particular site.	<p>See above response to comment #24.</p> <p>While DEQ appreciates EPA's concern about limited data availability, we do not believe that the lack of data requires that DEQ provide legally binding default criteria values in rule. Indeed, EPA has approved BLM-based copper criteria in Kansas and Delaware that do not specify default criteria. The very nature of equation or model based criteria means that site specific data are required to determine protective criteria values. If EPA's position is that default criteria are required for all equation or model based criteria then EPA should consider revising their 304(a) recommendations to reflect appropriate default criteria.</p>
26.	210.01 210.03 Guidance	3.	A performance-based approach consists of a legally binding methodology that provides a transparent, predictable, repeatable, and scientifically defensible procedure for the protection of designated uses. This approach relies on the adoption of a systematic process (i.e., a criterion derivation methodology) rather than a specific outcome. The comprehensive and detailed implementation procedures (methodologies, minimum data requirements, and decision thresholds) of a performance-based approach establish a clear, predictable decision-making framework and have sufficient detail and suitable	DEQ believes that EPA's 304(a) copper BLM criterion is performance based. Our proposed rule, adopts the BLM to derive copper criteria (consistent with the EPA 304(a) recommended copper criteria), thus meets the requirements of a performance based approach, that the model is the criterion derivation methodology, and that the model is transparent, predictable, repeatable, and scientifically defensible. This is consistent with EPA approved Idaho Water Quality criteria for other metals using the hardness based equations and the pH and temperature dependent criteria for

C o m m e n t #	R u l e S e c t i o n/ S u b j e c t M a t t e r	C o m m e n t e r	C o m m e n t	R e s p o n s e
			safeguards to ensure repeatable outcomes. Such procedures are either adopted into rule or provided in legally binding guidance that is referenced in rule... DEQ's revised implementation guidance lacks the necessary specificity to be considered a performance-based approach...	ammonia.  We disagree that detailed implementation procedures are a requirement, and do not believe that it is appropriate to require or consider state implementation procedures when evaluating whether or not criteria revisions meet the requirements of a performance based approach for calculating criteria.  EPA's current 304(a) recommended criteria for copper do not specify procedures as outlined in Region 10's comment letter. EPA should consider specifying detailed implementation procedures that they consider required elements of adoption of a performance based criteria when revising their 304(a) recommendations.
27.	210.01 210.03 Guidance	3.	Because the state of Oregon recently adopted, and the EPA approved a performance-based approach for a statewide copper criteria [ <i>sic</i> ] using the BLM with sufficient detail, the EPA continues to recommend DEQ include a similar level of detail in rule as Oregon has done and/or in binding guidance.	Holding Idaho or any other state to a standard based on what other states have done is arbitrary and inconsistent with the CWA and its implementing regulations. DEQ notes that other EPA regional offices have approved state copper criteria that simply reference EPA's 304(a) recommended criteria or the BLM without implementation guidance.  CWA requirements are not based on what other states have previously submitted; Idaho's approach should be judged independently based on whether or not the criteria are protective of the designated beneficial uses, are scientifically sound, and have met applicable federal and state requirements.
28.	210.03 Guidance	3.	EPA notes that a number of comments provided to DEQ in the EPA's previous comment letters have not been addressed (January 12, 2016, August 10, 2016, January 31, 2017, May 18, 2017, and July 10, 2017). Therefore, the EPA is reiterating many of those same comments in the enclosure and providing our	DEQ disagrees with the assertion that these comments have not been addressed. DEQ provided informal responses to these comment letters in presentations to the negotiated rulemaking committee and made several revisions to the draft proposed rule and implementation guidance in

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
			review of DEQ's responses to some of these comments.	<p>response to EPA.</p> <p>DEQ has modified the original draft proposal significantly, including all language included in the 210.03.v of the proposed rule, and the development of an implementation guidance document and its reference in rule.</p> <p>See:  <a href="http://www.deq.idaho.gov/media/60178311/58-0102-1502-copper-criteria-presentation-042016.pdf">http://www.deq.idaho.gov/media/60178311/58-0102-1502-copper-criteria-presentation-042016.pdf</a> (use of missing parameters, inclusion of default criteria in rule)  <a href="http://www.deq.idaho.gov/media/60178565/58-0102-1502-copper-criteria-presentation-060216.pdf">http://www.deq.idaho.gov/media/60178565/58-0102-1502-copper-criteria-presentation-060216.pdf</a> (reference implementation guidance in rule, discussion of why we did not consider setting criteria at the 10<sup>th</sup> %ile of IWQCs)  <a href="http://www.deq.idaho.gov/media/60180171/58-0102-1502-update-copper-criteria-aquatic-life-use-presentation-060617.pdf">http://www.deq.idaho.gov/media/60180171/58-0102-1502-update-copper-criteria-aquatic-life-use-presentation-060617.pdf</a>  <a href="http://www.deq.idaho.gov/media/60180398/58-0102-1502-update-copper-criteria-aquatic-life-use-presentation-071817.pdf">http://www.deq.idaho.gov/media/60180398/58-0102-1502-update-copper-criteria-aquatic-life-use-presentation-071817.pdf</a></p>
29.	210.01	3.	The EPA continues to recommend that DEQ not include numeric values for copper in the table of toxic criteria. Inserting example values in the table, even with an explanatory footnote, leads to confusion in implementation as to whether the values are the applicable criteria for all waters. DEQ's response to this comment, as provided in the rulemaking summary document, is that DEQ believes that frequent users of Idaho's water quality standards are familiar with the use of reference values. However, it is the EPA's understanding that there are many users of Idaho water quality standards, including the general public	DEQ continues to believe that inclusion of reference values in the criteria table is appropriate. This approach is consistent with other pollutants in the table at 210.01. Furthermore, it is just as likely that users would misinterpret columns with no numbers as not having any applicable criteria as they are to misinterpret the reference values as the numeric criteria applicable for all waters.

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			and/or new program staff who likely would not be as familiar as frequent users. One important consideration in revising and developing regulatory language is for the language to be easily understood so that it is more likely to be implemented consistent with what DEQ's intention	
30.	210.01 210.03	3.	Idaho's adoption of the BLM as a statewide criteria for copper is sufficiently more complicated than any previous equation-based criteria adopted by Idaho, such as hardness based metals and ammonia, and therefore any additional clarity that can be provided by the rule language is critical	<p>While derivation of copper criteria requires data for more input variables, and the model is not a simple equation, the BLM is fundamentally no different than any other equation or model based criterion: site and time specific criteria are based on ambient conditions at the particular site for the particular time when data were collected.</p> <p>EPA acknowledges this in the 304(a) recommended criteria guidance:</p> <p><i>With regard to BLM-derived freshwater criteria, to develop a site-specific criterion for a stream reach, one is faced with determining what single criterion is appropriate even though a BLM criterion calculated for the event corresponding to the input water chemistry conditions will be time-variable. This is not a new problem unique to the BLM—hardness-dependent metals criteria are also time-variable values. Although the variability of hardness over time can be characterized, EPA has not provided guidance on how to calculate site-specific criteria considering this variability<sup>12</sup>.</i></p> <p>DEQ does not believe that implementation of the BLM based criteria is fundamentally any more complicated or is unique from other equation or model based criteria.</p>

<sup>12</sup> Pg. 22 of EPA (US Environmental Protection Agency). 2007. *Aquatic Life Ambient Freshwater Quality Criteria – Copper: 2007 Revision*. Washington, DC: EPA, Office of Water. EPA-822-R-07-001. <https://nepis.epa.gov/Exe/ZyPDF.cgi/P1000PXC.PDF?Dockey=P1000PXC.pdf>

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31.	210.03	3.	For Part c.v.(1)(a), the EPA recommends adding the phrase "calculated using adequate site- specific data to protect aquatic life under the range of conditions expected at the given site."	<p>Adding the requested language to Subsection 210.03.c.v.(1)(a) is unnecessary as this is captured elsewhere in rule language that was previously added in response to this specific comment.</p> <p>Specifically, Subsection 210.03.c.v.(2) specifies which parameters must be collected at a site, and (3) specifies that collection of parameters should be planned to capture the most bioavailable conditions.</p>
32.	210.03 Guidance	3.	The provision at c.v.(1)(b) now clarifies that the estimate does utilize the BLM, however it is unclear if DEQ's intention is to allow the use of "default" or "estimated" criteria that is calculated, such as the criteria in Table 2 from Section 6 of the revised implementation guidance. The EPA recommends clarifying (b) to include the BLM-based estimates in rule, such as Table 2 from Section 6. Otherwise, the provision lacks specificity on the procedures or methods to be used to develop the criteria based on an estimate derived from the BLM outputs. Therefore, the EPA strongly recommends DEQ provide additional clarity regarding 58.01.02.210.03.c.v.(1)(b).	<p>DEQ has maintained throughout the negotiated rulemaking that we do not intend to include default criteria in rule, and prefer to provide for flexible approaches to deriving protective estimates to be used in lieu of sufficient data.</p> <p>DEQ does view the values in Table 2 from Section 6 of the implementation guidance to meet the requirements specified in Subsection 210.03.c.v.(1)(b). However, they are not intended to serve as default criteria, nor are they the only estimates that would meet the requirements as stated in rule. To clarify this intention, we have revised rule language at 210.03.c.v.(4) to read:</p> <p><i>A criterion derived using BLM software under Subsection 210.03.c.v.(1)(a) shall supersede any estimated criterion derived under Subsection 210.03.c.v.(1)(b). Acceptable BLM software includes the "US EPA WQC Calculation" for copper in BLM Version 3.2.2.37.</i></p>
33.	210.03	3.	<p>...the EPA continues to recommend that DEQ include additional specificity in rule regarding copper bioavailability. As stated in EPA's May 18, 2017 and July 10, 2017 comment letters, the EPA recommends the following additional language be included by DEQ in rule under 58.01.02.210.03.c.v.:</p> <p><i>General Policy for the copper BLM</i></p>	This recommendation was incorporated as 210.03.c.v.(3) and (5) in response to EPA's May 18, 2017 comment letter.

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
			<ol style="list-style-type: none"> <li>1) <i>Determination of where and when the most bioavailable conditions occur at a site is required</i></li> <li>2) <i>Use of appropriate statistical methods to collect sufficiently representative data of the site is required in order to ensure that the most bioavailable period is captured by the dataset.</i></li> <li>3) <i>When reconciling multiple instantaneous water quality criteria (IWQC) derived using the BLM, procedures will be used to ensure that the waterbody is protected at all times, including sensitive conditions i.e., most bioavailable.</i></li> </ol>	
34.	210.03 Guidance	3.	<p>As long as DEQ has temporal and spatially representative input data for calculating IWQC's that protect all conditions at the site, as well as the most bioavailable conditions, the EPA would agree with DEQ's response. However, where data is not available, is scarce, and or not representative of the critical conditions, DEQ should make use of conservative estimates or inputs. The EPA continues to stress that if data are not sufficient to capture the range of conditions at the site or the monitoring did not capture the range of conditions, including those that are time varying, then conservative estimates are needed to ensure the waterbody is protected at all times. The EPA continues to recommend that DEQ include this additional clarification because there is sufficient uncertainty whether DEQ will have the appropriately representative input data when needed</p>	<p>A BLM IWQC for copper is by definition protective of the time and place it is calculated for. The real question is, given a range of IWQC values calculated for a particular location, which should be used for 1) assessment, 2) TMDLs, and 3) permitting. For assessment purposes DEQ believes the IWQC for the specific time and place data are available must be used. To address temporal variability monitoring programs should be planned to target likely critical conditions and acquire all BLM input parameters. For TMDLs and permitting which target critical conditions that may be unknown DEQ believes conservative criteria estimates can be useful. But even in this situation actual data are preferred.</p> <p>The rule language and referenced guidance does allow for use of conservative estimates of protective criteria values when data is not available, is scarce, or are not representative of the critical conditions. The 2016 monitoring effort, subsequent monitoring report<sup>13</sup> and guidance were all developed in response to EPA's previously stated concerns related to the limited nature of data in Idaho.</p>

<sup>13</sup> DEQ (Idaho Department of Environmental Quality). 2017. *Statewide Monitoring for Inputs to the Copper Biotic Ligand Model*. Boise, ID: DEQ. <http://www.deq.idaho.gov/media/60180618/58-0102-1502-statewide-monitoring-inputs-copper-biotic-ligand-model-0817.pdf>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
35.	Guidance	3.	<p>In reviewing DEQ's revised implementation guidance, the EPA believes there are a number of important areas in which the guidance does not provide detailed implementation methods, such as determining minimum data requirements, guidance on developing permit limits, and identifying impairments. The EPA has reviewed DEQ's most recent draft IPDES and waterbody assessment guidance and did not find detailed procedures or methods with respect to developing permit limits or identifying impairments for copper using the BLM. As a result, the EPA continues to recommend that DEQ's implementation guidance include detailed methods for its Clean Water Act programs. This would include identifying the default or estimated criteria values that DEQ intends to use in its permits, TMDL, and listing programs if sufficient data are lacking for a site, evaluating reasonable potential to exceed, development of water quality based effluent limits using-the copper BLM criteria under NPDES permitting, and methods that will be used to identify impairments of copper for 303(d) listing, _and TMDL development.</p>	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>Earlier versions of the draft implementation guidance were revised to incorporate these comments as previously submitted by EPA.</p> <p>The guidance clearly states minimum data requirements in Section 5, including what parameters must be measured and how many samples must be collected (“Generally, 24 consecutive, monthly IWQCs calculated over the course of 2 years would be considered appropriate to characterize seasonal variability for any single location. However, users should consider any site-specific factors, such as flood or drought conditions, that may require additional sampling to fully capture site variability.” Section 5.4.1); clearly provides guidance on determining criteria for development of permit limits (Section 5.3.2); and clearly states identification of impairments for the integrated report (Section 7). It also provides estimated criteria values to use in permits, TMDLs, and listing programs when data are lacking for a site (Section 6).</p>
36.	Guidance	3.	<p>However, the EPA is still concerned that DEQ has not explained how the approach to deriving estimated default criteria in Table 2 is representative of the conditions under which copper would be most bioavailable at each site.</p>	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>EPA seems to misunderstand the purposes of the monitoring effort and Table 2. The goal was not to identify the most bioavailable condition <i>at each site monitored</i>, but to identify regional estimates of the most bioavailable condition.</p> <p>Monitoring occurred at the time of year (late summer / fall) when it is reasonable to expect the most critical conditions for copper availability at most sites in Idaho. Regional estimates were then taken from the lower end</p>

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				<p>of the distribution of BLM-derived criteria for each regional classification, and the recommendation is to take the lowest of these values as the regional estimate. This approach is very conservative, and has been shown to be either equivalent to or lower than the BLM derived criteria for most sites with independent time-series BLM data in Idaho.</p> <p>The regional estimates are representative of the most bioavailable conditions for any given site, as described in Section 4.2 of the monitoring report<sup>14</sup> and Section 6.1.1 of the guidance.</p>
37.	Guidance	3.	<p>In order to discern how protective the default criteria are of Idaho waters, a Type II error (false negative) analysis is recommended...</p> <p>In addition, the EPA recommends including all available data of acceptable quality, including U.S. Geological Survey's National Water System Information System (NWIS) data.</p>	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>A type II analysis was performed in response to EPA's previous submission of this comment, and the guidance and monitoring report were revised to document the results of this analysis. The results are described in Section 4.2 of the monitoring report and Section 6.1.1 of the guidance document.</p> <p>As described previously, DEQ did not use USGS data in developing the criteria estimates in order to provide for an independent data set to confirm the protectiveness of the recommended conservative criteria, and because these data were not limited to the time of year when one should expect the most bioavailable copper conditions, and would have led to less conservative estimates. This would be counter to the purpose and goal of the 2016 monitoring effort and the resultant criteria estimates.</p>

<sup>14</sup> DEQ (Idaho Department of Environmental Quality). 2017. *Statewide Monitoring for Inputs to the Copper Biotic Ligand Model (BLM)*. Boise, ID: DEQ.  
<http://www.deq.idaho.gov/media/60180618/58-0102-1502-statewide-monitoring-inputs-copper-biotic-ligand-model-0817.pdf>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
38.	Guidance	3.	With respect to the first bullet point under Section 3 of the revised implementation guidance which states that the BLM-derived criteria will apply at the boundary of any regulatory mixing zone, the EPA notes that the criteria also apply to the rest of the waterbody outside the mixing zone.	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>Thank you for your comment.</p>
39.	Guidance	3.	the EPA recommends that DEQ use conservative flows for purposes of dilution of the effluent, conservative criteria for the site, and conservative copper concentration in effluent to ensure that the frequency of exceedance requirements are met.	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>Thank you for your comment.</p>
40.	Guidance	3.	<p>The EPA recommends that DEQ provide more detail or decision criteria for determining what a “representative” location is as this would help the EPA more fully understand DEQ’s proposed procedures. For example, how will DEQ determine if a sampling location is representative of an assessment unit? Also, what is the spatial extent of an assessment unit? DEQ is required to assess all readily available data to determine attainment. If data is not being used, DEQ should provide a rationale as to why a given sampling location is not representative and the data does not apply to that assessment unit</p>	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>DEQ believes that we have adequately provided the requested information with previous guidance revisions and with references to other DEQ guidance and policies that were made in response to previous submission of these comments.</p> <p>DEQ describes AUs in detail in Section 5.3.1: <i>Currently, there are 5,754 AUs in Idaho representing 95,119 miles of rivers and streams (DEQ 2017b). More detailed discussions of AUs can be found in the most recent version of the IR (DEQ 2017b) as well as the Water Body Assessment Guidance (DEQ 2016).</i></p> <p>Section 5.3.1 also describes how DEQ will handle data if it is determined to not be representative:</p> <p><i>When determining the representativeness of a location to an AU, DEQ assessors will consider differences in activities and discharges within the AU. If data are not considered representative, DEQ will provide sufficient rationale to describe why the sampling location is not representative and that the data do not apply to the AU. If some or all of the sampling sites are not representative of the water, then DEQ may opt to use none of the data</i></p>

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				<i>or only use data from those sampling sites that do represent the AU. Decisions regarding representativeness of sample results to an AU and any decision to exclude data for assessment purposes would be subject to public comment and EPA approval through the IR approval process.</i>
41.	210.03 Guidance	3.	The EPA recommends DEQ include clarification that monitoring must represent and characterize conditions when copper is most bioavailable. Further, DEQ should include a discussion that determination of where and when the most bioavailable conditions occur at a site is required.	<p>The proposed rule has been revised to add section 210.03.c.(v)(3) in response to EPA's previous submission of this comment.</p> <p>The rule language at 210.03.c.v.(3) is clear: <i>BLM input measurements shall be planned to capture the most bioavailable conditions for copper.</i></p> <p>DEQ provides ample discussion of how users determine the most bioavailable conditions at a site throughout the guidance document, and that is the focus of Section 5.2, 5.3, and 5.4.</p>
42.	Guidance	3.	Furthermore, DEQ's IPDES program and permit writers should be provided with-sufficient direction and detail from DEQ's water quality standards program as to how to derive the applicable copper criteria for a waterbody. In circumstances where criteria need to be determined on a waterbody specific basis, DEQ's water quality standards program should be able to provide detailed procedures/methodology for each approach and/or options that DEQ recommends as appropriate in the guidance.	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>Thank you for your comment. We believe the guidance document provides sufficient detail.</p>
43.	Guidance	3.	Further coordination between DEQ's WQS and IPDES programs would be helpful in the development of sufficiently detailed guidance for evaluating both reasonable potential to exceed (RPTE) and development of water quality-based effluent limits (WQBELs) using the copper BLM criteria. The guidance should cover unique considerations or circumstances for identifying copper as a pollutant of concern, determining the applicable criteria (considering spatial and temporal variation), evaluating RPTE both with or without data needed to establish the applicable criteria, and calculating WQBELs based on the applicable criteria. If copper is	<p>This comment is not applicable to the proposed rule; it is related to the implementation guidance.</p> <p>This guidance provides the necessary detail for determining protective criteria. Copper criteria derived using the BLM are fundamentally no different than any other equation or model based criteria; therefore, the procedures for determining RPTE and WQBELs that are used for other pollutants are appropriate for determining RPTE and WQBELs once a copper criteria value is determined.</p>

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			identified as a pollutant of concern, then reasonable potential must be evaluated using the applicable criteria, with or without monitored input data.	
44.	Guidance	3.	The goal would be to develop additional detailed methods so that the IPDES program has the necessary tools to consistently develop protective effluent limits based on the copper BLM derived criteria.	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  See Response 43 above.
45.	Guidance	3.	The EPA continues to recommend that DEQ use all available high quality data and that the estimates/default criteria presented in Table 2 should be included in the rule or at a minimum incorporated by reference in the rule.	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  See Response 37 above.
46.	Guidance	3.	In addition, DEQ stated the following in the negotiated rulemaking summary document: <i>"providing flexibility in implementation procedures allows permit writers, dischargers, DEQ's assessors and TMDL writers to take advantage of novel approaches such as the fixed monitoring benchmark (FMB), to develop effluent limits."</i> Because the EPA has not fully [ <i>sic</i> ] the use of FMB approach on a statewide basis, it is not appropriate at this time for DEQ to imply that it can be used in developing effluent limits. The FMB can be used in Colorado because it is coupled with the site-specific approach in deriving copper criteria using the BLM. The EPA recommends DEQ consult further with EPA when considering use of the FMB for any purposes.	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  DEQ disagrees with EPA's statement that it is not appropriate to imply that the FMB can be used to develop effluent limits.  DEQ does not suggest that FMB (or other approaches not specified) be used to derive CWA applicable criteria, but rather as approaches to develop permit limits, TMDL goals, and/or interpretations of WQS for assessment purposes.
47.	Guidance	3.	The EPA recommends DEQ include methods for deriving default inputs when available data are limited as well as present the option of using the EPA's missing parameters document as a guide for those default inputs. This type of information should be included in both IPDES permitting guidance i.e., (ELDG) and the Implementation Guidance for the Idaho Copper Criteria for Aquatic Life. The EPA understands DEQ's preference not to cite to the EPA's draft missing parameters document as it is draft at this time. The EPA suggests DEQ include a reference to the document	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  In response to this previously submitted comment DEQ has repeatedly discussed why we will not be referencing EPA's missing parameters document. These discussions are not limited to the draft status of the document, but also because we do not believe EPA's outlined approach is scientifically valid. More detailed discussion is available in DEQ's

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
			once it is finalized.	comments submitted to <i>the EPA Proposed Aquatic Life Criteria for Copper and Cadmium in Oregon</i> and the draft missing parameters document. <sup>15</sup>
48.	Guidance	3.	The EPA recommends DEQ either remove this wording or provide clarity that an approach that deviates from what DEQ provides in rule or guidance would entail adoption as site-specific criteria.	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  There is no need to detail in guidance that development of site specific criteria requires rulemaking and approval.
49.	Guidance	3.	The EPA requests that DEQ provide more clarity on the listing procedures that the state will use when data are unavailable. The EPA appreciates that DEQ has added a hierarchy for the listing process that details the process for determining what parameter data are available, and when defaults or estimates will be used versus when the model will be run.	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  DEQ previously revised the guidance document in response to this comment (see Section 7).
50.	Guidance	3.	Overall, the EPA recommends that DEQ clarify that the state will list waterbodies according to the State's 303(d) official listing methodology	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  It is not necessary to reiterate here that DEQ intends to follow other policies, guidance, and rules.
51.	Guidance	3.	In order to measure/protect the most bioavailable conditions, the EPA recommends that DEQ collect input data for each copper sample at the same place and time or if there is more than one set of measurements in an AU, to use a conservative criterion number applied to the AU. For Step (3) of the hierarchy, the EPA is requesting clarification on what "follow-up monitoring" means. For example, if DEQ is using historical copper data without concurrently sampled input data to use in BLM calculations, and must use the default criteria instead of site-derived BLM criteria, it is unclear if the waterbody will be listed as impaired after two exceedances within a three-year period. Since DEQ's application of the default criteria is to be used when site-specific input data are unavailable, the listing approach should be consistent	This comment is not applicable to the proposed rule; it is related to the implementation guidance.  See Response to comment 50 above.

<sup>15</sup> <http://www.deq.idaho.gov/media/60178548/58-0102-1502-deq-letter-to-epa-060116.pdf>

C o m m e n t #	Rule Section/ Subject Matter	C o m m e n t e r	Comment	Response
			with Idaho's rules and the State's listing methodology. Please also describe how this information will be managed and tracked from listing cycle to listing cycle, and if there is a process by which a third party could provide new parameter data and request re-assessment using the model.	



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029

MAY 04 2017

Mr. Robert Palmer, Acting Director  
Division of Watershed Stewardship  
Department of Natural Resources  
and Environmental Control  
89 Kings Highway  
Dover, Delaware 19901

Dear Mr. Palmer:

The Delaware Department of Natural Resources and Environmental Control (DNREC) adopted amendments to the State's Water Quality Standards (SWQS) in Title 7 of the Delaware Administrative Code (Natural Resources & Environmental Control), 7400 Watershed Assessment Section, 7401 Surface Water Quality Standards, as part of its triennial review of water quality standards initiated on December 26, 2013. DNREC published the proposed regulations on April 1, 2014. Secretary's Order 2014-WS-0019, issued on August 21, 2014, adopted the proposed revisions to the Standards. The Delaware Register published notice of the adoption of the revisions on October 1, 2014, with an effective date of October 11, 2014. DNREC submitted these revisions to the U.S. Environmental Protection Agency (EPA) as required under the Clean Water Act (CWA) Section 303(c)(2)(A), 33 U.S.C. §1313(c)(2)(A), and 40 CFR §131.20(c). DNREC and the Delaware's Office of the Attorney General (AG), certified in a letter dated October 22, 2014, that these SWQS revisions were duly adopted in accordance with Delaware's laws.

On May 8, 2014, EPA approved many of the SWQS revisions adopted by Delaware, but deferred taking action on several revisions, which consisted of new or revised criteria for copper, acrolein, carbaryl, diazinon and tributyltin. EPA is now approving the revised copper criteria as consistent with the CWA and the implementing regulations, as described in the table below. EPA will address acrolein, carbaryl, diazinon, and tributyltin in a subsequent CWA 303(c) action.

EPA's approval of new and revised aquatic life WQS is subject to the consultation requirement of Section 7(a)(2) of the Endangered Species Act (ESA). Under Section 7(a)(2) of the ESA, 16 U.S.C. §1536, EPA has the obligation to ensure that its approval of these modifications to Delaware's WQS regulation will not jeopardize the continued existence of threatened and endangered species and their critical habitat in Delaware. On April 9, 2015, the U.S. Fish and Wildlife Service (USFWS), Chesapeake Bay Field Office concurred with EPA's finding that approval of Delaware's adoption of the Copper Biotic Ligand Model (Cu BLM) is not likely to adversely affect listed species under its jurisdiction. EPA has determined that

Delaware's adoption of new and revised criteria for freshwaters will have no effect on any ESA-listed species or critical habitat under National Marine Fisheries Service (NMFS) jurisdiction.

Delaware has adopted the EPA freshwater Cu BLM as its aquatic life criteria (acute and chronic) for copper in freshwaters of the state. Since 2007, the Cu BLM has been the EPA's national recommended freshwater aquatic life criteria for copper (*Aquatic Life Ambient Freshwater Quality Criteria - Copper 2007 Revision* (EPA-822-R-07-00I, February 2007)), and the EPA supports its adoption into state water quality standards. In addition to the revised water quality standards, DNREC staff also provided information about how Delaware intends to implement the Cu BLM criteria. Specifically, through e-mail exchanges with Dave Wolanski and George Mwangi of, DNREC EPA understands that Delaware will use the freshwater Cu BLM version 3.1.2.37 and require facilities to collect all ten parameters required to run the BLM on a monthly basis for 12 to 24 months in order to derive protective criteria, using appropriately protective estimates for situations where all BLM input data are not available. EPA also understands that Delaware will use an approach to integrate the multiple individual BLM results into numeric criteria that will be protective of aquatic life throughout the year, including during times of high copper bioavailability. If DNREC anticipates deviating from this approach in the future, please consult with EPA to ensure appropriate protection.

EPA looks forward to continued close collaboration with DNREC in implementing the freshwater Cu BLM. EPA recommends that in future triennial reviews Delaware consider adopting additional regulatory language to clarify the state's Cu BLM implementation procedures. For example, EPA encourages the state to outline its data requirements to run the BLM, its plan for how to calculate protective values for water bodies where no or few data are available, and its approach to integrate individual BLM results for a water body into protective values. In addition, because environmental conditions could change over time, for example if there are major land use changes in the watershed, EPA recommends that Delaware WQS regulations require review of more recent data during permit renewal to facilitate periodic update (or confirmation) of the site-dependent copper calculations. Such regulatory specificity is critical to ensuring that BLM-based values are protective during the periods when copper is most bioavailable in the receiving water.

If you have any questions, please do not hesitate to contact me or have your staff contact Mrs. Evelyn S. MacKnight, Associate Director, Office of Standards, Assessment and Total Maximum Daily Loads at 214-814-5717 or Mark A. Barath in Region III Water Protection Division at 215-814-2759.

Sincerely,



Dominique Lueckenhoff, Acting Director  
Water Protection Division

Enclosures

cc: John Schneider, DNREC

**ENVIRONMENTAL PROTECTION AGENCY, REGION III  
STATE OF DELAWARE WATER QUALITY STANDARDS  
APPROVAL OF 2013 NEW AND REVISED ITEMS**

<b>Section Approved</b>	<b>Description of Revision</b>	<b>EPA Rationale</b>
7 DE Admin. Code 7401: 4.5.9.3 Table 1 Water Quality Criteria for Protection of Aquatic Life	Copper Revised  Aquatic Life Fresh Water Acute (µg/L)  Freshwater criteria calculated using EPA Biotic Ligand Model	<b>Criterion consistent with EPA's recommendations published in the <i>National Recommended Water Quality Criteria: 2013</i> (EPA Web Publication); see note below.</b>
7 DE Admin. Code 7401: 4.5.9.3 Table 1 Water Quality Criteria for Protection of Aquatic Life	Copper Revised  Aquatic Life Fresh Water Acute (µg/L)  Freshwater criteria calculated using EPA Biotic Ligand Model	<b>Criterion consistent with EPA's recommendations published in the <i>National Recommended Water Quality Criteria: 2013</i> (EPA Web Publication); see note below.</b>

## Enclosure 2

### Copper Criteria Application

EPA's 2007 copper criteria recommendations apply to fresh waters, which the Agency considers those waters with a salinity of less than 1 part per thousand at least 95 per cent of the time. Delaware's definition of fresh waters, however, includes waters up to 5 ppt of salinity. In practice, though, there is no conflict because any Delaware waters with salinity over 1 ppt are covered by the Delaware River Basin Commission's (DRBC) water quality standards (Administrative Manual-Part III, WATER QUALITY REGULATIONS; 18 CFR 410, 3.30.5 A & 6 A), incorporated by reference by Delaware. DRBC's existing copper criteria apply to any waters in Delaware with salinity above 1 ppt, i.e., those estuarine waters in the Delaware River basin. EPA recommends that Delaware work with the DRBC to update DRBC's copper criteria to the biotic ligand model to reflect the latest science. EPA also recommends that Delaware consider revising its definitions of freshwater and saltwater to be consistent with EPA's 304(a) criteria recommendation.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 7**

11201 Renner Boulevard  
Lenexa, Kansas 66219

**JUL 18 2017**

Mr. John Mitchell  
Director, Division of Environment  
Kansas Department of Health and Environment  
1000 S.W. Jackson Street, Suite 540  
Topeka, Kansas 66612-1368

Dear Mr. Mitchell:

The U. S. Environmental Protection Agency has completed its review of the revisions to Kansas Water Quality Standards K.A.R. 28-16-28b through K.A.R. 28-16-28f, adopted by the Secretary of Health and Environment on February 12, 2015. The EPA also reviewed the Kansas Implementation Procedures, which are rule referenced in the state's regulations. The Kansas Department of Health and Environment sent revisions to the EPA for review, as required under the Code of Federal Regulations at 40 CFR §131.20, on March 27, 2015.

As part of the review process, the KDHE made the final draft revisions available for public review and comment, starting on September 11, 2014, and ending on November 20, 2014. A public hearing was held at the Curtis State Office Building on November 20, 2014. The availability of the revisions was announced in the Kansas Register (Volume 33, Number 37 on September 11, 2014). The Office of the State Attorney General certified the revised WQS on February 3, 2015; the new or revised WQS were formally adopted by the KDHE on February 12, 2015. The final regulations were published in the March 5, 2015, Kansas Register. The WQS regulations became effective under state law on March 20, 2015.

Under Section 303(c) of the Clean Water Act, 33 U.S.C. § 1313(c), states are to hold public hearings for the purpose of reviewing applicable WQS no less than once every three years, and to submit any revised or new standards to the EPA for review and approval. Federal regulations at 40 CFR §§ 131.20, 131.21, and 131.22 implement these requirements. Based on our review, Kansas' public participation process is consistent with, and satisfies, the procedural requirements of 40 CFR § 131.20.

Under Section 303(c) of the CWA, the EPA is required to review and approve or disapprove new or revised WQS adopted by the state. This review involves a determination of whether:

- The state has adopted designated uses consistent with the requirements of the CWA;
- The state has adopted criteria that protect the designated water uses;
- The state has followed its legal procedures for revising or adopting standards;
- The state standards that do not include the uses specified in Section 101(a)(2) of the CWA are based upon appropriate technical and scientific data and analyses; and
- The state submission meets the requirements included in 40 CFR § 131.6.



The EPA initiated consultation with the U. S. Fish and Wildlife Service under Section 7(a)(2) of the Endangered Species Act on July 10, 2015, for items EPA is approving. Section 7(a)(2) requires that federal agencies, in consultation with the USFWS, ensure that their actions are not likely to jeopardize the existence of federally listed species or result in the adverse modification of designated critical habitat of such species; this consultation was completed on September 22, 2015.

As Director of the Water, Wetlands and Pesticides Division, I am charged with the responsibility of approving or disapproving new or revised state WQS under Section 303(c) of the CWA. With this letter and enclosure, the EPA is approving four areas of new or revised WQS submitted by the KDHE. The EPA is taking no action on the remaining provisions. In addition, the EPA is acknowledging the State's deletion of language disapproved by the EPA in 2005. The Enclosure to this letter provides a more detailed description of the EPA's rationale for these actions.

### SECTION I: ITEMS THE EPA IS APPROVING

A.	Kansas Water Quality Standards Regulations: <b>Definitions</b> K.A.R. 28-16-28b.
B.	Kansas Water Quality Standards Regulations: <b>General Provisions</b> K.A.R. 28-16-28c. <b>28-16-28c(b)(2), 28-16-28c(b)(5)</b>
C.	Kansas Water Quality Standards Regulations: <b>Surface water classification and use designation</b> K.A.R. 28-16-28d.
D.	Kansas Water Quality Standards: <b>Tables of Numeric Criteria</b> (January 21, 2015): Table 1a. Aquatic Life, Agriculture, and Public Health Designated Uses Numeric Criteria.

### SECTION II: ITEMS ON WHICH THE EPA IS TAKING NO ACTION

A.	Kansas Water Quality Standards Regulations: <b>Definitions</b> K.A.R. 28-16-28b. <b>Point Source Definition.</b>
B.	Kansas Water Quality Standards Regulations (K.A.R. 28-16-28b, 28-16-28c, 28-16-28d, 28-16-28e, 28-16-28f): <b>Non-Substantive Edits.</b>
C.	Kansas Water Quality Standards Regulations: <b>Variiances</b> K.A.R. 28-16-28f(d).
D.	Kansas Water Quality Standards: <b>Tables of Numeric Criteria</b> (January 21, 2015) <b>Non-Substantive Edits.</b>
E.	Kansas Surface Water Quality Standards <b>Tables of Numeric Criteria</b> (January 21, 2015): Table 1h. <b>Natural Background Concentrations.</b>
F.	Kansas Surface Water Quality Standards <b>Tables of Numeric Criteria</b> (January 21, 2015): Table 1g. Temperature, Dissolved Oxygen, and pH Numeric Aquatic Life Criteria. <b>Footnote 2 addressing Dissolved Oxygen.</b>

G.	Kansas Surface Water Quality Standards <b>Tables of Numeric Criteria</b> (January 21, 2015): Table 1g. Temperature, Dissolved Oxygen, and pH Numeric Aquatic Life Criteria. <b>Footnote 3 addressing Dissolved Oxygen in lakes or reservoirs.</b>
H.	Kansas Implementation Procedures, Surface Water Quality Standards (October 1, 2012): <b>Section III. Criteria, C. Naturally Occurring Conditions for Low Dissolved Oxygen (DO) Criterion in Streams.</b>
I.	Kansas Implementation Procedures, Surface Water Quality Standards (October 1, 2012): Page 10; <b>D. Duration and Frequency Effective Frequency and Durations of Criteria Digressions for Indicating Impairment by Pollutants*<sup>1</sup></b>
J.	Kansas Water Quality Standards Regulations: <b>Application of criteria for designated uses of surface waters</b> K.A.R. 28-16-28e(c)(3).
K.	Kansas Surface Water Quality Standards (February 18, 2015); Page 37: <b>28-16-28e(d)(3)(C):</b> (C) Any substance derived from an artificial source that, alone or in combination with other synthetic or naturally-occurring substances, causes toxic, carcinogenic, teratogenic, or mutagenic effects in humans shall be limited to nonharmful concentrations in surface waters. Unless site-specific water quality conditions warrant the promulgation of more protective criteria under the provisions of subsection (a) of this regulation and K.A.R. 28-16-28f(f), maximum contaminant levels for toxic, carcinogenic, teratogenic, or mutagenic substances promulgated by the United States environmental protection agency pursuant to specified in 40 C.F.R. 141.11 through 141.16, 141.13, and 40 C.F.R. 141.60 141.61 through 141.66, dated July 1, 2003 and adopted by reference in K.A.R. 28-16-28b(hh) 2012, shall be deemed nonharmful. by the department and adopted as domestic water supply criteria.
L.	Kansas Surface Water Quality Standards <b>Tables of Numeric Criteria</b> (January 21, 2015): Table 1a. Aquatic Life, Agriculture, and Public Health Designated Uses Numeric Criteria. <b>Five new or revised water quality criteria for pollutants: Mercury, 1,2-dichloropropane, 1,2,4-trichlorobenzene, barium, and endrin.</b>

### SECTION III: STATE DELETION OF PREVIOUS EPA DISAPPROVAL

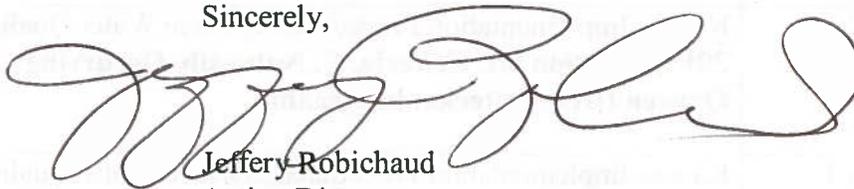
A.	Kansas Water Quality Standards Regulations: <b>General Provisions – K.A.R. 28-16-28c. 28-16-28(c)(2)</b>
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The EPA commends the state's commitment to protecting its waters by establishing WQS and adopting numeric criteria that significantly increase environmental protection to aquatic life and human health for waters of the U.S. located in Kansas. We look forward to continuing to work with the KDHE to update

<sup>1</sup> \* For the purposes of assessment under Section 303(d) of the Clean Water Act, this table displays the thresholds of frequency for pollutant concentrations that exceed numeric criteria within the Surface Water Quality Standards to indicate impairment of the designated uses assigned to waters of the state. Typical ambient sampling implies duration of one hour for acute criteria, 4 days for chronic criteria at stable flow and 70 years for water supply or food procurement as a lifetime average.

its WQS through the triennial review process. If you have any questions regarding this matter, please contact John DeLashmit, Chief, Water Quality Management Branch, at (913) 551-7821. The staff contact regarding this letter is Angela Sena; she may be reached at (913) 551-7989.

Sincerely,



Jeffery Robichaud  
Acting Director  
Water, Wetlands and Pesticides Division

Enclosure

cc: Corey Buffo, EPA HQ  
Trevor Flynn, KDHE  
Julia Young, KDHE  
John Miesner, USFWS

## ENCLOSURE

### **EPA REGION 7 REVIEW OF KANSAS' 2015 TRIENNIAL REVIEW RULE REVISIONS TO KANSAS' WATER QUALITY STANDARDS**

The Kansas Department of Health and Environment (KDHE) sent revisions to Kansas' Water Quality Standards (WQS) Kansas' code of State regulations (K.A.R. 28-16-28b, 28-16-28c, 28-16-28d, 28-16-28e, 28-16-28f, 28-16-58), implementation procedures<sup>1</sup> and tables of numeric criteria to the EPA for review, as required by the Clean Water Act, Section 303(c), and its implementing regulations at 40 CFR § 131.20, on March 27, 2015.

As part of the review process, the KDHE made the final draft revisions available for public review and comment starting on September 11, 2014, and ending on November 20, 2014. A public hearing was held at the Curtis State Office Building on November 20, 2014. The availability of the revisions was announced in the Kansas Register (Volume 33, Number 37 on September 11, 2014). The Office of the State Attorney General certified the revised WQS on February 3, 2015; the new or revised WQS were formally adopted by the KDHE on February 12, 2015. The final regulations were published in the March 5, 2015 Kansas Register. The WQS regulations became effective under state law on March 20, 2015.

Under Section 303(c) of the Clean Water Act (CWA), 33 U.S.C. § 1313(c), states are to hold public hearings for the purpose of reviewing applicable WQS no less than once every three years, and to submit any revised or new standards to the EPA for review and approval. Federal regulations at 40 CFR §§ 131.20, 131.21, and 131.22 implement these requirements. Based on our review, Kansas' public participation process is consistent with, and satisfies, the procedural requirements of 40 CFR § 131.20.

Under Section 303(c) of the CWA, the EPA is required to review and approve or disapprove new or revised WQS adopted by the state. This review involves a determination of whether:

- The state has adopted designated uses consistent with the requirements of the CWA;
- The state has adopted criteria that protect the designated water uses;
- The state has followed its legal procedures for revising or adopting standards;
- The state standards that do not include the uses specified in Section 101(a)(2) of the CWA are based upon appropriate technical and scientific data and analyses; and
- The state submission meets the requirements included in 40 CFR § 131.6.

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<sup>1</sup> Kansas Implementation Procedures, Surface Water Quality Standards dated October 1, 2012; while the state made revisions to this document as part of their triennial review, the date of the document was not updated to reflect these revisions.

## SECTION I: ITEMS THE EPA IS APPROVING

A.	Kansas Water Quality Standards Regulations: <b>Definitions</b> K.A.R. 28-16-28b.
B.	Kansas Water Quality Standards Regulations: <b>General Provisions</b> K.A.R. 28-16-28c. <b>28-16-28c(b)(2), 28-16-28c(b)(5)</b>
C.	Kansas Water Quality Standards Regulations: <b>Surface water classification and use designation</b> K.A.R. 28-16-28d.
D.	Kansas Water Quality Standards: <b>Tables of Numeric Criteria</b> (January 21, 2015): Table 1a. Aquatic Life, Agriculture, and Public Health Designated Uses Numeric Criteria.

## SECTION II: ITEMS ON WHICH THE EPA IS TAKING NO ACTION

A.	Kansas Water Quality Standards Regulations: <b>Definitions</b> K.A.R. 28-16-28b. <b>Point Source Definition.</b>
B.	Kansas Water Quality Standards Regulations (K.A.R. 28-16-28b, 28-16-28c, 28-16-28d, 28-16-28e, 28-16-28f): <b>Non-Substantive Edits.</b>
C.	Kansas Water Quality Standards Regulations: <b>Variances</b> K.A.R. 28-16-28f(d).
D.	Kansas Water Quality Standards: <b>Tables of Numeric Criteria</b> (January 21, 2015) <b>Non-Substantive Edits.</b>
E.	Kansas Surface Water Quality Standards <b>Tables of Numeric Criteria</b> (January 21, 2015): Table 1h. <b>Natural Background Concentrations.</b>
F.	Kansas Surface Water Quality Standards <b>Tables of Numeric Criteria</b> (January 21, 2015): Table 1g. Temperature, Dissolved Oxygen, and pH Numeric Aquatic Life Criteria. <b>Footnote 2 addressing Dissolved Oxygen.</b>
G.	Kansas Surface Water Quality Standards <b>Tables of Numeric Criteria</b> (January 21, 2015): Table 1g. Temperature, Dissolved Oxygen, and pH Numeric Aquatic Life Criteria. <b>Footnote 3 addressing Dissolved Oxygen in lakes or reservoirs.</b>
H.	Kansas Implementation Procedures, Surface Water Quality Standards (October 1, 2012): <b>Section III. Criteria, C. Naturally Occurring Conditions for Low Dissolved Oxygen (DO) Criterion in Streams.</b>
I.	Kansas Implementation Procedures, Surface Water Quality Standards (October 1, 2012): Page 10; <b>D. Duration and Frequency Effective Frequency and Durations of Criteria Digressions for Indicating Impairment by Pollutants*</b>

J.	Kansas Water Quality Standards Regulations: <b>Application of criteria for designated uses of surface waters</b> K.A.R. 28-16-28e(c)(3).
K.	Kansas Surface Water Quality Standards (February 18, 2015); Page 37: <b>28-16-28e(d)(3)(C)</b> : (C) Any substance derived from an artificial source that, alone or in combination with other synthetic or naturally-occurring substances, causes toxic, carcinogenic, teratogenic, or mutagenic effects in humans shall be limited to nonharmful concentrations in surface waters. Unless site-specific water quality conditions warrant the promulgation of more protective criteria under the provisions of subsection (a) of this regulation and K.A.R. 28-16-28f(f), maximum contaminant levels for toxic, carcinogenic, teratogenic, or mutagenic substances <del>promulgated by the United States environmental protection agency pursuant to specified in 40 C.F.R. 141.11 through 141.16, 141.13, and 40 C.F.R. 141.60 141.61 through 141.66, dated July 1, 2003 and adopted by reference in K.A.R. 28-16-28b(hh) 2012,</del> shall be deemed nonharmful <del>by the department and adopted as domestic water supply criteria.</del>
L.	Kansas Surface Water Quality Standards <b>Tables of Numeric Criteria</b> (January 21, 2015): Table 1a. Aquatic Life, Agriculture, and Public Health Designated Uses Numeric Criteria. <b>Five new or revised water quality criteria for pollutants: Mercury, 1,2-dichloropropane, 1,2,4-trichlorobenzene, barium, and endrin.</b>

### **SECTION III: STATE DELETION OF PREVIOUS EPA DISAPPROVAL**

A.	Kansas Water Quality Standards Regulations: <b>General Provisions – K.A.R. 28-16-28c. 28-16-28(c)(2)</b>
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For the remainder of this Enclosure, the Kansas WQS regulations presented with underlined text represent new or revised state WQS provisions; strike-out text denotes language removed from the state WQS.

### **SECTION I: ITEMS THE EPA IS APPROVING**

#### **A. Kansas Water Quality Standards Regulations: Definitions – K.A.R. 28-16-28b**

Revisions include new or revised definitions in K.A.R. 28-16-28b, and the removal of one definition.

(u) [new provision] “Digression” means an actual ambient concentration of a pollutant that does not meet the numeric criteria value for that pollutant.

(w) [new provision] “Discharge design flow” means either of the following:

(1) The anticipated wastewater flow for the next permit cycle determined by the department for an industrial wastewater facility, as defined in K.A.R. 28-16-56c; or

(2) the wastewater treatment capacity of a facility approved by the secretary for other wastewater treatment facilities or systems.

(x) [new provision] “Duration of digression” means the period of time over which pollutant concentrations can be averaged, including the time span during which aquatic life can be exposed to elevated levels of pollutants without harm.

(aa) [new provision] “EPA” means United States environmental protection agency [sic].

(dd) [new provision] “Excursion from numeric criteria value” means the digression of a pollutant exceeding its numeric criteria value beyond the designated duration of digression.

(aa) “Fecal coliform bacteria” means facultatively anaerobic, gram negative, non spore forming, rod shaped bacteria that, when cultured under specific laboratory conditions, will ferment lactose, thereby producing acid, gas, or both.

(gg) [new provision] “Frequency of digression” means the number of times that an excursion from numeric criteria value can occur over time without impairing the designated uses of the water.

(uu) [new provision] “Numeric criteria value” means any of the values listed in tables 1a, 1b, 1c, 1d, 1e, 1g, 1h, 1i, 1j, and 1k of the “Kansas surface water quality standards: tables of numeric criteria.”

(lll) [revised – previously, (fff)]. “Surface waters” means the following: . . . (3) wetlands, including water bodies meeting the technical definition for jurisdictional wetlands given in the “corps of engineers wetland delineation manual,” as published in January 1987 swamps, marshes, bogs and similar areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”

(ooo) [new provision] “Thirty-day, ten-year flow” and “30Q10 flow” mean the 30-day average low flow having recurrence of once in 10 years, as statistically determined from historical flow data. Where used in this regulation in context of mixing zones, these terms shall refer to the minimum amount of streamflow occurring immediately upstream of a wastewater discharge and available, in whole or in part, for dilution or assimilation of wastewater discharges.

The Kansas WQS previously defined water quality criteria by the magnitude of the acceptable concentration. The definitions above for “Digression,” “Duration of digression,” and “Excursion from numeric criteria value” refer to the duration and frequency of criteria and will be used by the state when assessing the state’s waters under Section 303(d) of the CWA. The EPA also approves the removal of the fecal coliform definition because Kansas now uses numeric criteria for the indicator organism *E. coli* to protect its recreational waters.

The KDHE also made a change to the definition of surface waters in K.A.R. 28-16-28b(lll)(3) regarding wetlands. In its November 19, 2014, comment letter, the EPA recommended that with regard to the proposed KDHE revisions to the definition of “wetlands” the KDHE consider retaining the frequency and duration language that refers to the technical definition for jurisdictional wetlands in the 1987 U.S. Army Corps of Engineer’s *Wetland Delineation Manual*.

As a result of the EPA's comments, the KDHE added language to the definition of wetlands from the manual to address the EPA's concerns. The Kansas Department of Administration approved this revision on January 20, 2015, and the Attorney General certified this revision on February 3, 2015.

The KDHE also added a definition for "numeric criteria value" that refers to the Kansas surface water quality standards tables of numeric criteria. The EPA reviewed changes to the tables separately. The EPA's approval of the new definition for numeric criteria value is separate from the EPA's review and action on the specific numeric criteria set forth in those tables, as described in Sections I.D. and II, below.

These definitions were added, revised or deleted to clarify the meaning or to update the reference of applicable guidance or regulations within the state water quality standards. Pursuant to Section 303(c) of the CWA, the EPA is approving these revisions as consistent with the CWA and its implementing regulations.

## **B. General Provisions – K.A.R. 28-16-28c**

a. The KDHE revised **28-16-28c(b)(2)** as follows:

*(2) Discharges into classified ~~streams~~ stream segments. No mixing zone within a classified stream segment, as defined in K.S.A. 2013 Supp. 82a-2001 and amendments thereto, shall extend beyond the middle of the nearest downstream current crossover point, where the main current flows from one bank to the opposite bank, or more than 300 meters downstream from the point of effluent discharge.*

The KDHE added the text "stream segments" to be consistent with the definition in the Kansas Statute; the Statute was also added as cited. These revisions are consistent with 40 C.F.R. § 131.13 and the EPA hereby approves these revisions.

b. The KDHE revised **28-16-28c(b)(5)** as follows:

*(5) Restrictions. Wherever site conditions preclude the rapid dispersion and dilution of effluent within the receiving surface water or if, in the judgement of the secretary, the presence of a mixing zone would unduly jeopardize human health or any of the existing uses of the receiving surface water, The right to prohibit the use of mixing zones or to place more stringent limitations on mixing zones than those stipulated in paragraphs (b)(2), (3), and (13) of this regulation shall be reserved by the ~~department~~ secretary wherever site conditions preclude the rapid dispersion and dilution of effluent within the receiving surface water or if, in the judgement of the secretary, the presence of a mixing zone would unduly jeopardize human health or any of the existing uses of the receiving water.*

The revision to this mixing zone provision simply rearranges the verbiage by adding the struck language to the end of the provision and clarifying the Secretary of the KDHE, rather than generally, "The Department," has the authority to restrict mixing zones. These revisions do not

change the substance of the provision, which EPA approved in the past. Therefore, these non-substantive revisions are approved.

### **C. Surface water classification and use designation – K.A.R. 28-16-28d**

The KDHE revised **28-16-28d(d)(2)** as follows:

*~~(2) A register of surface water classifications and use designations shall be maintained by the department. This register shall identify the designated uses of all listed major classified streams, lakes, wetlands, and ponds and shall list those streams, lakes, wetlands, and ponds recognized by the department as outstanding national resource waters or exceptional state waters. The use designations of listed surface waters or water bodies recognized as outstanding national resource waters or exceptional state waters shall be those identified in the department's "Kansas surface water register," as adopted by reference in K.A.R. 28-16-28g. Classified surface waters and their designated uses shall be identified and listed in the "Kansas surface water register," as adopted by reference in K.A.R. 28-16-28g.~~*

This revision streamlines the provision by striking language that is already contained within the "Kansas surface water register" [sic] which is a rule referenced document as cited in the revision. These revisions do not change the substance of the provision, which the EPA approved in the past. Therefore, these non-substantive revisions are approved.

### **D. Kansas Water Quality Standards Tables of Numeric Criteria**

#### **a. Table 1a. Aquatic Life, Agriculture, and Public Health Designated Uses Numeric Criteria**

K.A.R. 28-16-28e(e) (renumbered from K.A.R. 28-16-28e(d)) adopts by reference the *Kansas Surface Water Quality Standards: Tables of Numeric Criteria*. The KDHE adopted new or revised water quality criteria for several pollutants for the protection of aquatic life uses and of human health. The EPA approves those numeric water quality criteria revisions that result in criteria that are as stringent as EPA guidance under Section 304(a) of the CWA because they protect the designated uses as required by the CWA and EPA's implementing regulations at 40 CFR §§ 131.5(a)(2), 131.6(b),(c),(f), and 131.11(a) and (b)(1)(i). The EPA's actions on the revised and new criteria are contained in Table 1.

For some of the pollutants for which the EPA is today approving criteria, the original criteria were promulgated by the EPA under the National Toxics Rule (NTR) on December 22, 1992 (57 F.R. 60848). These state criteria are determined by the EPA to be fully protective of the applicable designated uses. The adoption by Kansas of these criteria is commendable and represents a vast improvement in the state's ability to protect the designated uses for its surface waters consistent with the purposes of the CWA.

On June 29, 2015, the EPA updated its national recommended water quality criteria for human health for 94 chemical pollutants to reflect the latest scientific information and EPA policies, including updated fish consumption rate, body weight, drinking water intake, health toxicity

values, bioaccumulation factors, and relative source contributions.<sup>2</sup> The EPA expects the KDHE to adopt the water quality criteria that were updated in the 2015 EPA Human Health Update during its next triennial review.

The WQS Clarification final rule (August 5, 2015) "... contains two revisions to the triennial review requirements at 40 CFR § 131.20(a). First, the rule requires that if states and authorized tribes choose not to adopt new or revised criteria during their triennial review for any parameters for which EPA has published new or updated criteria recommendations under CWA section 304(a), they must explain their decision when reporting the results of their triennial review to EPA under CWA section 303(c)(1) and 40 CFR § 131.20(c). The Rule also clarifies the 'applicable water quality standards' that states and authorized tribes must review triennially."<sup>3</sup> These Rules will apply to future WQS submittals from KDHE.

#### **b. Copper Biotic Ligand Model (BLM)**

The KDHE adopted the copper biotic ligand model (BLM) statewide in Table 1a of the *Kansas Water Quality Standards Tables of Numeric Criteria*. The reference to "Table 1b for copper, total" in Table 1a was deleted and replaced with "BLM" and footnote "d." Footnote "d" states:

*The Biotic Ligand Model (BLM) as in the "Aquatic Life Ambient Freshwater Quality Criteria-Copper 2007 Revision (EPA-822-R-07-001, February 2007)" which is adopted by reference.*

The EPA submitted a public comment on November 19, 2014 that stated:

The KDHE has deleted equations for copper in Table 1b due to the state-wide adoption of the copper biotic ligand model for acute and chronic aquatic life. In the EPA's training materials on the implementation of the copper BLM,<sup>4</sup> the EPA refers to the adoption of a statewide approach for the BLM. Kansas can develop numeric results up front when adopting the revised criteria or later when developing permits or conducting assessments. Under this approach, the BLM based criteria would replace the hardness-based criteria for copper. This approach allows Kansas to use the latest available science to the copper biotic ligand model for acute and chronic aquatic life. Please be aware that a statewide implementation option could increase costs for the state's monitoring programs, because some of the BLM inputs (particularly dissolved organic carbon) have not been routinely monitored.

The KDHE responded to the EPA's public comment letter on February 18, 2015, stating:

There are only a limited number of NPDES facilities with actual permits for copper (<10 facilities). NPDES facilities may incur additional costs for sample collection and analysis for a parameter required for the BLM if the facility opts for site specific input data rather

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<sup>2</sup> <http://www.gpo.gov/fdsys/pkg/FR-2015-06-29/html/2015-15912.htm>

<sup>3</sup> <http://www.gpo.gov/fdsys/pkg/FR-2015-08-21/html/2015-19821.htm>

<sup>4</sup> [http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/copper/upload/2007\\_04\\_12\\_criteria\\_copper\\_faqs\\_implementation-issues.pdf](http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/copper/upload/2007_04_12_criteria_copper_faqs_implementation-issues.pdf)

than utilizing the stream chemistry data utilized by KDHE. The KDHE will be utilizing Total Organic Carbon (TOC) and translate these values to Dissolved Organic Carbon (DOC) through the appropriate ratio calculations.

The ratio value the KDHE selected to use came from the Aquatic Life Ambient Freshwater Quality Criteria – Copper, 2007 Revision, EPA-822-R-07-001, Appendix C-2, page C-36 and can also be found in the EPA document #822-B-98-005. The appropriate KDHE monitoring station will be utilized for site specific data. The state currently monitors for the BLM parameters, with the exception that the state monitors for TOC versus DOC and utilizes the ratio 0.7482 to calculate the DOC.

The science supporting the EPA's Section 304(a) recommended criteria for the copper biotic ligand model supports the EPA's conclusion that the KDHE's criteria will be protective of aquatic life uses. In addition to the revised water quality standards, KDHE staff also provided information indicating that Kansas has already collected sufficient data to implement the copper BLM criteria. As such, the adoption of the copper BLM in Kansas WQS is consistent with 40 C.F.R. §§ 131.6(b), (c), and 131.11(a) and (b)(1)(i), and the EPA hereby approves this new and revised criteria and the deletion of its previous hardness-based criteria in Table 1b.

The EPA looks forward to continued close collaboration with KDHE in implementing the freshwater copper BLM. The EPA recommends that in future triennial reviews Kansas consider adopting additional regulatory language to clarify the state's copper BLM implementation procedures. For example, the EPA encourages the state to outline its data requirements to run the BLM, its plan for how to calculate protective values for water bodies where no or few data are available, and its approach to integrate individual BLM results for a water body into protective values. In addition, because environmental conditions could change over time, for example if there are major land use changes in the watershed, the EPA recommends that Kansas WQS regulations require review of more recent data during permit renewal to facilitate periodic update (or confirmation) of the site-dependent copper calculations. Such regulatory specificity is critical to ensuring that BLM-based values are protective during the periods when copper is most bioavailable in the receiving water. The state should reconsider the use of the TOC: DOC ratio if further information shows that the ratio is not representative of the water bodies where the copper BLM is used. Finally, the state should also keep a list of locations/facilities where the copper BLM is being used across the state online on their website for the public to access this information and for the EPA to use as reference in all CWA programs (e.g., NPDES).

## **SECTION II: ITEMS ON WHICH THE EPA IS TAKING NO ACTION**

### **A. Kansas Water Quality Standards Regulations: Definitions K.A.R. 28-16-28b. Point Source Definition.**

*(yy) [revised – previously (ss)] “Point Source” means any discernible, confined, and discrete conveyance including any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or floating craft, from which pollutants are or could be discharged. This term may include structures or site conditions that act to collect*

~~and convey stormwater runoff from roadways, urban areas, or industrial sites. This term shall not include agricultural stormwater discharges or return flow from irrigated agriculture land.~~

This definition of point source is not considered by the EPA to be a new Water Quality Standard, therefore the EPA is not acting on this definition.

**B. Kansas Water Quality Standards Regulations – Non-Substantive Edits – K.A.R. 28-16-28b, 28-16-28c, 28-16-28d, 28-16-28e, 28-16-28f**

Many non-substantive changes were made to various provisions in K.A.R. 28-16-26b through 28-16-28f. For example, the KDHE made wording changes to meet the current style requirements for regulations set by the Kansas Department of Administration, updated dates for citations of supporting statutes and regulation, updated citation cross-references for statutes and regulations incorporated by reference, and changed section numbering to accommodate provisions added or deleted. The EPA previously reviewed and approved each of the underlying provisions in question; the current revisions do not substantively change the meaning or intent of the existing approved WQS.

The EPA determined that the wording changes, cross-reference changes and renumbering of K.A.R. 28-16-26b through 28-16-28f were editorial, non-substantive changes to Kansas' EPA-approved water quality standards. The EPA is neither approving or disapproving these changes.

A list of these changes, including revised citation numbering, is included in Table 2.

**C. Variances – K.A.R. 28-16-28f(d)**

The KDHE revised K.A.R. 28-16-28f(d) to read:

*(d) Variances. If, upon written application by a person, the secretary finds that by reason of substantial and widespread socioeconomic impact that strict enforcement of the water quality criteria of K.A.R. 28-16-28e(e)(d) is not feasible, a variance ~~may be permitted by the secretary~~ from those criteria may be permitted and adopted into regulations at the next systematic review or subsequent triennial review after public notification and opportunity for public comments.*

*(1) ~~The provisions of 40 C.F.R 131.10(g), as adopted by reference in K.A.R. 28-16-29b(III), shall be considered by the secretary in reviewing the need for a variance. Each person requesting a variance shall demonstrate compliance with 40 C.F.R 131.10(g), which is adopted by reference in K.A.R. 28-16-28b.~~*

*(2) In granting a variance, conditions and time limitations may be set by the secretary with the intent that progress be made toward improvements in surface water quality.*

*(3) ~~Each variance shall be granted only after public notification and opportunity for public comment. Each variance, once granted, shall be adopted into the regulations at the next systematic review or subsequent triennial review. No action that impacts water quality shall be granted a variance from the terms and conditions requirements of K.A.R. 28-16-28e(b).~~*

This revised variance authorizing procedure and any subsequent variance issued under this provision constitutes a change to the WQS requiring EPA review pursuant to 40 CFR §§ 131.5 and 131.6. Water quality standard variances require similar substantive and procedural requirements as removing a designated use, but unlike use removal, variances are both discharger and pollutant specific, are time-limited, and do not forego the currently designated use of a water body. A variance is most appropriate where the State believes that the standard can be ultimately attained. By maintaining the standard rather than changing it, this provision provides a mechanism by which the State can assure that further progress is made in improving the water quality and attaining the standard. With a variance, National Pollutant Discharge Elimination System (NPDES) permits may be written such that reasonable progress is made toward attaining the standards without violating section 402(a)(1) of CWA, which requires that NPDES permits must meet the applicable WQS. State-adopted variances have been approved by EPA where, among other things, the state demonstrates, consistent with 40 CFR § 131, that meeting the standard is unattainable based on one or more of the grounds outlined in 40 CFR § 131.10(g). The variance is granted for a specified period of time and reexamined at least every three years as reasonable progress is made toward meeting the standards.

In its November 19, 2014, comment letter, the EPA noted the removal of K.A.R. 28-16-28f(d)(3), above, and commented that, “The WQS under public notice contain changes to the state’s variance procedures, including eliminating the public notice requirement. 40 CFR §§ 131.10 and 131.20(b) require public participation when variances are established, as variances are [changes to] WQS.” As a result of this comment, the KDHE revised item K.A.R. 28-16-28f(d)(1), and included the public notice requirement; the Kansas Department of Administration approved this revision on January 20, 2015, and the Attorney General certified this revision on February 3, 2015.

Kansas adopted and submitted to the EPA this provision prior to the finalization of the EPA’s 2015 WQS Clarification rule which provides much greater clarity on what the EPA’s expectations are regarding variances to WQS at the new 40 C.F.R. 131.14.

KDHE provided public notice, on July 7, 2017, of its intent to update the regulatory process for variances by further revising K.A.R. 28-16-28f(d) to be consistent with the EPA’s 2015 WQS Clarification rule noted above. The latest updates will allow for both individual *and* multiple discharger variances. EPA intends to act on the entirety of the state’s variance provisions when the KDHE formally submits its new regulatory variance process.

#### **D. Kansas Water Quality Standards Tables of Numeric Criteria – Non-Substantive Edits**

The KDHE made non-substantive edits to the *Kansas Surface Water Quality Standards: Tables of Numeric Criteria*. For example, to clarify the association of the water quality criteria in Table 1a to Chemical Abstract Service (CAS) numbers, the KDHE added CAS numbers to the pollutant parameters in Table 1a. The addition of these CAS numbers to Table 1a will assist both the KDHE and the EPA where different pollutants have more than one common name but the same CAS number. The EPA previously reviewed and approved each of the underlying provisions in question; the current revisions do not substantively change the meaning or intent of the existing approved WQS.

The EPA determined that the changes made to the *Kansas Surface Water Quality Standards: Tables of Numeric Criteria*, were editorial, non-substantive changes to Kansas' EPA-approved water quality standards. EPA is neither approving or disapproving these changes.

A list of these changes, including revised citation numbering, is included in the EPA's actions on the revised and new criteria contained in Table 2 at the end of this EPA decision document.

**E. Kansas Surface Water Quality Standards Tables of Numeric Criteria (January 21, 2015):  
Table 1h. Natural Background Concentrations.**

On September 29, 2015, the KDHE and the EPA discussed the basis for the Kansas Natural Background Concentrations provision and concluded that the KDHE would revise this portion of the KS WQS rule and that the EPA would defer action awaiting that revision and submission.

**F. Kansas Surface Water Quality Standards Tables of Numeric Criteria (January 21, 2015):  
Table 1g. Temperature, Dissolved Oxygen, and pH Numeric Aquatic Life Criteria; New  
Footnote a(2) addressing Dissolved Oxygen – Natural Conditions.**

The dissolved oxygen (DO) criteria used by Kansas is 5.0 mg/L for Special, Expected and Restricted Aquatic Life Uses. The KDHE added a new footnote, a(2), addressing implementation of the dissolved oxygen (DO) criteria as follows:

*(2) Dissolved oxygen concentrations can be lower than 5.0 mg/L when caused by documented natural conditions specified in the "Kansas Implementation Procedures: Surface Water Quality Standards."*

The section of this provision referenced in the "*Kansas Implementation Procedures: Surface Water Quality Standards*" is a new provision in this rule referenced document and is addressed below in Section H.

**G. Kansas Surface Water Quality Standards Tables of Numeric Criteria (January 21, 2015):  
Table 1g. Temperature, Dissolved Oxygen, and pH Numeric Aquatic Life Criteria.  
Footnote (a)3 addressing Dissolved Oxygen in lakes or reservoirs.**

The KDHE added a new footnote, a(3), addressing implementation of the dissolved oxygen (DO) criteria as follows:

*(3) For lakes or reservoirs experiencing thermal stratification, the dissolved oxygen criterion is only applicable to the top layer or epilimnion of the waterbody.*

Supporting documentation is needed from the KDHE to be able to determine whether this approach is scientifically defensible and protective per requirements at 40 CFR § 131.11. Supporting documentation must include an explanation as to how the top layer or epilimnion, the metalimnion, and the hypolimnion will be defined. Of particular concern with this approach is that the DO criteria is excluded from protecting the metalimnion during stratification; this zone is of particular importance during hot summer months as refugia for aquatic life. The criteria must

be sufficient to protect designated uses and consistent with EPA's regulations at 40 CFR §§ 131.6(c) and 131.11(b)(1)(ii).

**H. Kansas Implementation Procedures, Surface Water Quality Standards (October 1, 2012)<sup>5</sup>:  
Section III. Criteria, C. Naturally Occurring Conditions for Low Dissolved Oxygen  
(DO) Criterion in Streams.**

The following new provision and explanatory statements were added to the Kansas Implementation Procedures:

*C. Naturally Occurring Conditions for Low Dissolved Oxygen (DO) Criterion in Streams Applicable regulation: Kansas Surface Water Quality Standards: Tables of Numeric Criteria 1g*

*Some conditions that occur naturally can cause low dissolved oxygen levels in streams. Typically, the incidence of low dissolved oxygen occurs in the summer when water temperatures are high (reducing the ability of water to retain dissolved oxygen) and stream flows are low (reducing the ability of the stream to re-aerate itself or flush or dilute any oxygen-demanding substances present in the water). At times, the introduction of natural organic materials such as during periods of leaf fall can cause low dissolved oxygen levels in some segments of streams. Additionally, ground water reaching the surface through springs and seeps may have low dissolved oxygen. Digressions from the dissolved oxygen criterion under the above conditions should be excluded for the purposes of Section 303(d) of the Federal Clean Water Act.*

*Natural conditions contributing to the local digression of low dissolved oxygen should be documented during the field site visit. Factors including flow conditions, ambient air and water temperatures, presence of allochthonous organic matter from wildlife or riparian vegetation, dystrophic inputs to the stream from wetland areas and extended days of cloud cover should be noted at the time of sampling. Additionally, observations and samplings of the resident aquatic life community, including fish, mussels, macroinvertebrates and other shellfish should be made at the time of deficient oxygen to ascertain possible stress on the biota or lack thereof. These ancillary data and information will be used in the Section 303(d) listing and assessment process to determine whether the incident of low dissolved oxygen can be discounted.*

The EPA provided comments (11/19/2014) on this provision during the public notice of the new and revised KS WQS. Specifically, EPA stated the following:

*“Supporting documentation will be needed to demonstrate that a given approach is scientifically defensible and protective per the requirements of 40 C.F.R. § 131.11 if the EPA determines if this is a change in WQS. The criteria must be sufficient to protect*

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<sup>5</sup> Kansas Implementation Procedures, Surface Water Quality Standards dated October 1, 2012; while the state made revisions to this document as part of their triennial review, the date of the document was not updated to reflect these revisions.

*designated uses and consistent with the EPA's regulations at 40 C.F.R. §§ 131.6(c) and 131.11(b)(1)(ii). Supporting documentation consistent with the expectations of naturally occurring conditions articulated in this provision will also be needed to substantiate that the low dissolved oxygen conditions are indeed due to naturally-occurring, non-anthropogenic contributions."*

The KDHE responded (2/18/2015) with the following:

*"KDHE understands it will be necessary to provide any applicable supporting documentation to EPA on a case-by-case basis for waterbodies where the new criteria will be implemented."*

EPA's regulations at 40 CFR § 131.11 require states to adopt water quality criteria that protects the designated use and is based on a sound scientific rationale. In addition, EPA's regulations allow states to establish numeric criteria based on 304(a) Guidance modified to reflect site specific conditions. EPA's 1986 DO criteria recommendations, published pursuant to section 304(a) of the CWA, state that alternative criteria may be appropriate "where natural conditions alone" create the DO concentrations. It goes on to say that "absolutely no anthropogenic dissolved oxygen depression in the potentially lethal area below the 1-day minima should be allowed unless special care is taken to ascertain the tolerance of resident species to low dissolved oxygen."

Also in KDHE's response to the EPA's comments was a statement made in regards to Application of criteria for designated uses of surface waters (page 5):

*"Most Kansas impairments are, in fact, anthropogenic because of land and water activities, regardless if the substance is natural or synthetic."*

The EPA expects the KDHE to submit methods used and analyses conducted to develop site-specific DO criteria, on a site-specific basis, that demonstrate support of the aquatic life use designation per 40 CFR § 131.6; this demonstration includes naturally-occurring low DO. The EPA must approve any new site-specific DO criteria in order for the criteria to be effective and implementable for CWA purposes in Kansas.

**I. Kansas Implementation Procedures, Surface Water Quality Standards (October 1, 2012)<sup>6</sup>:  
Page 10; Effective Frequency and Durations of Criteria Digressions for Indicating  
Impairment by Pollutants\***

The new Table "*Effective Frequency and Durations of Criteria Digressions for Indicating Impairment by Pollutants*" in the Kansas Implementation Procedures provides information for the, "sole purpose of assessment under Section 303(d) of the CWA," according to the asterisk at the bottom of the table.<sup>7</sup>

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<sup>6</sup> Ibid.

<sup>7</sup> \*For the purposes of assessment under Section 303(d) of the Clean Water Act, this table displays the thresholds of frequency for pollutant concentrations that exceed numeric criteria within the Surface Water Quality Standards to indicate impairment of

Several of the pollutant classes identified in the Table are assigned frequencies and durations that are intended to *only* be used for listing purposes under Section 303(d) of the CWA, and thus are not considered to be new WQS. EPA's review included in this enclosure of the state's wqs submission is limited to Section 303(c) of the CWA. EPA does not approve or disapprove assessment methodologies for the purpose of CWA Section 303(d); under Section 303(c)(3), the status of this provision will be determined under the applicable requirements of the CWA Section 303(d) program that the provision is intended to implement.

If it is the intent of the State in the future to revise water quality standard to include frequency and duration components, the revisions should be shown in the Kansas Tables of Numeric Criteria (Table 1a). These revisions should be consistent with the Kansas regulations at K.A.R. 28-16-28e(d). The federal regulation at 40 CFR § 131.11(b) provides that in establishing criteria, states should set numerical values based on the EPA's recommendations under Section 304(a) of the CWA or other scientifically defensible methods. These recommendations generally consist of a magnitude (the level of pollutant that is allowable, usually expressed as a concentration), duration (*e.g.*, the period of time over which the instream concentration is averaged for comparison with criteria concentrations), and frequency (how often a particular criterion can be exceeded).

#### **J. Application of criteria for designated uses of surface waters – K.A.R. 28-16-28e(c)(3)**

The KDHE added a new provision regarding the application of criteria for designated uses of surface waters in the CWA Section 303(d) program (**K.A.R. 28-16-28e(c)(3)**):

*Each digression shall be assessed by the secretary for purposes of section 303(d) of the federal clean water act, with consideration of acceptable duration and frequency of the digression and representation of actual ambient conditions by environmental monitoring data, as specified in the "Kansas implementation procedures: surface water quality standards."*

As noted above, the EPA does not approve or disapprove assessment methodologies for the purpose of CWA Section 303(d); under Section 303(c)(3), the status of this provision will be determined under the applicable requirements of the CWA Section 303(d) program that the provision is intended to implement.

- K. Kansas Surface Water Quality Standards (February 18, 2015); Page 37: 28-16-28e(d)(3)(C):**  
(C) Any substance derived from an artificial source that, alone or in combination with other synthetic or naturally occurring substances, causes toxic, carcinogenic, teratogenic, or mutagenic effects in humans shall be limited to nonharmful concentrations in surface waters. Unless site-specific water quality conditions warrant the promulgation of more protective criteria under the provisions of subsection (a) of this regulation and K.A.R. 28-16-28f(f), maximum contaminant levels for toxic, carcinogenic, teratogenic, or mutagenic

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the designated uses assigned to waters of the state. Typical ambient sampling implies duration of one hour for acute criteria, 4 days for chronic criteria at stable flow and 70 years for water supply or food procurement as a lifetime average.

~~substances promulgated by the United States environmental protection agency pursuant to specified in 40 C.F.R. 141.11 through 141.16, 141.13, and 40 C.F.R. 141.60 141.61 through 141.66, dated July 1, 2003 and adopted by reference in K.A.R. 28-16-28b(hh) 2012, shall be deemed nonharmful by the department and adopted as domestic water supply criteria.~~

This provision was revised to update Maximum Contaminant Level (MCL) citations from 40 CFR §141 that implement Section 1412 of the Safe Drinking Water Act, 42 U.S.C. § 300g-1. This provision previously appeared to require the adoption of criteria equal to the MCLs. While waters with *only* a drinking water supply (water consumption) use may be sufficiently protected by MCLs, this approach would not be protective of waters that also have aquatic life and/or food procurement designated uses and thus have fish consumption exposure pathways. States and authorized tribes must adopt water quality criteria that protect designated uses (*emphasis added*) (40 CFR § 131.11(a)(1)). MCLs are not solely risk-based values, but are calculated as a function of toxicity, treatment capability and cost considerations. Therefore, in some instances, may not be protective of the designated uses. However, the strikethrough (above) of “... and adopted by reference in KAR 28-16-28b(HH)” and “by the department and adopted as domestic water supply criteria” renders that requirement as moot resulting in this provision not being a WQS and therefore the EPA has no authority to act upon.

**L. Kansas Surface Water Quality Standards Tables of Numeric Criteria (January 21, 2015): Table 1a. Aquatic Life, Agriculture, and Public Health Designated Uses Numeric Criteria. Five new or revised water quality criteria for pollutants: Mercury, 1,2-dichloropropane, 1,2,4-trichlorobenzene, barium, and endrin.**

The KDHE adopted new water quality criteria (equivalent to Maximum Contaminant Levels) for toxic pollutants that would replace criteria that currently protect the state’s domestic water supply use. Many of the state’s existing domestic water supply use criteria were promulgated by the EPA under the Agency’s 1992 National Toxics Rule (NTR).

The EPA stated in the NTR that the Agency was promulgating its 304(a)-recommended human health “water + organism criteria” for all waters in Kansas where public water supply and aquatic life uses were designated. In Kansas, all classified waters have a designated aquatic life use. The final NTR specifically stated the following on page 68060:

(7) For human health, the "water + fish" criteria in Column **D1** of § 131.36(b) are promulgated for all waterbodies where public water supply and aquatic life uses are designated, except as provided for elsewhere in these rules (e.g., rule 9).

The EPA also stated in the NTR that “water + organism” criteria were promulgated *instead of* MCLs. The rationale was to ensure that both water and fish consumption exposure pathways were adequately addressed and human health was protected. The final NTR language, on page 68060, is as follows:

(10) For priority toxic pollutants where the State has adopted human health criteria and received EPA approval, but such criteria do not fully satisfy section 303(c)(2)(B)

requirements, the rule includes human health criteria for such pollutants. For example, consider a case where a State **has a** water supply segment that poses an exposure risk to human health from both water and fish consumption. **If** the State has adopted, and received approval for, human health criteria based on water consumption only (e.g., Safe Drinking **MCLs**) which are less stringent than the "water + fish" criteria in Column **D1** of **§ 131.36(b)**, the Column **D1** criteria are promulgated for those water supply segments. The rationale for this is to ensure that both water and fish consumption exposure pathways are adequately addressed and **human** health is **fully** protected. If the State has adopted water consumption only criteria which are more stringent or equal to the Column **D1** criteria, the "water + fish" criteria in Column **D1** **criteria are not promulgated.**

The Kansas domestic water supply use is characterized as the consumption of water after treatment. However, the designated use is also associated with water + organism water quality criteria promulgated under the NTR. While waters with *only* a drinking water supply (water consumption) use may be sufficiently protected by MCLs, this approach would not be protective of waters that also have aquatic life and/or food procurement designated uses and thus have fish consumption exposure pathways. States and authorized tribes must adopt water quality criteria that protect designated uses (*emphasis added*) (40 CFR § 131.11(a)(1)). Criteria must be based on a sound scientific rationale and contain sufficient parameters or constituents to protect the designated uses. Criteria may be expressed in either narrative or numeric form. The EPA's regulations provide that states and authorized tribes should adopt numeric water quality criteria based on:

- 1) EPA's recommended section 304(a) criteria; or
- 2) EPA's recommended section 304(a) criteria modified to reflect site specific conditions;  
or
- 3) Other scientifically defensible methods. (40 CFR § 131.11(b)).

In this WQS submission, the KDHE adopted a new water quality criterion (WQC) for mercury based on the current MCL under the Safe Drinking Water Act; there is no 304(a) recommendation for mercury. The KDHE adopted WQC equivalent to MCLs for four additional pollutants (1,2 dichloropropane, and 1,2,4 trichlorobenzene, Barium, and Endrin) for the domestic water supply use that have more stringent Section 304(a) recommendations.

- Mercury, total. This compound is under the NTR. The NTR promulgation was for 0.14 µg/L. There is no current EPA 304(a) recommendation. The KDHE adopted 2 µg/L, which is the MCL.
- 1,2-dichloropropane- The current EPA 304(a) recommendation is 0.9 µg/L; this criterion was updated in 2015 prior to the KDHE's adoption of 5 µg/L, which is the MCL. The current EPA approved WQC is 0.5 µg/L; this was the 304(a) recommendation prior to the 2015 update.
- 1,2,4-trichlorobenzene- The current EPA 304(a) recommendation is 0.071 µg/L; this criterion was updated in 2015 prior to the KDHE's adoption of 70 µg/L, which is the MCL. The current EPA approved WQC is 260 µg/L; this criterion is based on an EPA

2002 update.

- Barium- The EPA 304(a) recommendation is 1000 µg/L and the KDHE adopted 2000 µg/L, which is the MCL. The current EPA approved WQC for barium is 1000 µg/L; this criterion is based on the EPA's 1986 Quality Criteria for Water (Gold Book) value.
- Endrin- The EPA 304(a) recommendation is 0.03 µg/L; this criterion was updated in 2015 prior to the KDHE's adoption of 2 µg/L, which is the MCL. The current EPA approved WQC is 0.76 µg/L; this criterion is based on an EPA 2002 update.

The WQS submitted by the State did not include information explaining how these new or revised criteria are scientifically defensible or how they are protective of the state's combined domestic water supply/human health water + organism uses established by the EPA under the NTR. Because no explanation was provided, Kansas' adoption of these criteria is not consistent with 40 C.F.R. §§ 131.6(b), (c), (f), and 131.11(a) and (b)(1)(i). It appears the KDHE was relying on the provision discussed directly above in Section G (28-16-28e(d)(3)(C)), which directs the KDHE to adopt MCL's "*Unless site-specific water quality conditions warrant the promulgation of more protective criteria....*" KDHE may believe these pollutants are not "*harmful*" to the water+organism exposure pathway. If that is the case, the EPA requests further justification from the KDHE as to how these criteria are protective even when there are possible additional exposure routes.

Unless the KDHE can demonstrate that these criteria are protective of a human health water + organism designated use, the State should adopt any new or updated Section 304(a) recommended criteria for these compounds as part of its next triennial review process to ensure that state water quality criteria reflect sound science and protect applicable designated uses.

Federal water quality criteria currently applicable to Kansas waters remain in effect until the EPA takes federal action to withdraw these NTR criteria. Until such time, Kansas must continue to use the federally promulgated criteria as the basis for all water quality control activities such as NPDES permitting and Section 401 water quality certifications.

### **SECTION III: STATE DELETION OF PREVIOUS EPA DISAPPROVAL**

#### **A. General Provisions – K.A.R. 28-16-28c**

The KDHE revised 28-16-28c(c)(2) by deleting high-flow exclusion provisions previously disapproved by the EPA in 2005:

*(2) High flow. Any classified stream segment may be exempted by the secretary from the application of the numeric criteria for E. coli specified in tables 1i and 1j of the "Kansas surface water quality standards: tables of numeric criteria," which is adopted by reference in K.A.R. 28-16-28e(d), if any of the following conditions is met:*

*(A) The flow is equal to or greater than the flow that is exceeded 10 percent of the time for any classified stream segment with a mean flow of less than 30 cubic feet per second.*

*(B) The flow is equal to or greater than 50 percent of the two year flood flow for a classified*

*stream segment that has a mean flow of 30 or more cubic feet per second but less than 900 cubic feet per second.*

*(C) The flow is equal to or greater than the two year flood flow for any classified stream segment that has a mean flow great than 900 cubic feet per second.*

In a decision letter dated April 27, 2005, the EPA disapproved the Kansas WQS provision at K.A.R. 28-16-28c(c)(2) allowing for an exclusion from the application of water quality numeric criteria for *E. coli* to stream segments during periods of "high flow." The EPA determined that this provision was inconsistent with federal regulations at 40 C.F.R. §§ 131.5(a)(2) and 131.11(a), which require that states adopt criteria that protect designated beneficial uses. The April 27, 2005, disapproval explained that the high flow exclusion provision in the Kansas WQS was not effective for CWA purposes and that no further federal action was required.

The EPA acknowledges Kansas' deletion of the high flow exclusion, formerly at K.A.R. 28-16-28c(c)(2), which is consistent with the EPA's disapproval of this provision in April 2005.

**Table 1: Summary of the EPA actions on Kansas Water Quality Criteria (WQC) located in Table 1a: Aquatic Life, Agriculture, and Public Health Designated Uses Numeric Criteria.**

New or revised WQC are underlined.

AL: aquatic life, FP: food procurement, DWS: domestic water supply.

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
<b>METALS (µg/L)</b>						
arsenic (III)	<u>a</u>	360	50	<u>b 0.14</u>	<u>b 0.018</u>	Approve. The KDHE adopted the EPA's 304(a) recommendation.
barium, total	<u>7440393</u>	a	a	A	<u>1000 2000</u>	No Action. The KDHE did not adopt the EPA's 304(a) recommendation for domestic water supply. See decision letter for more information.
copper, total	<u>7440508</u>	<u>table 1b BLM<sup>d</sup></u>	<u>table 1b BLM<sup>d</sup></u>	A	<u>1300 1000</u>	Approve. The KDHE adopted a WQC more stringent than the EPA's 304(a) recommendation for domestic water supply. The KDHE also adopted the copper BLM for acute and chronic aquatic life which is the current EPA 304(a) recommendation.
mercury, total	<u>7439976</u>	1.4	0.77	0.146	<u>b 2</u>	No Action. The KDHE did not adopt the EPA's 304(a) recommendation. See decision letter for more information.
selenium, total	<u>7782492</u>	20	5	4,200	<u>170 50</u>	Approve. The KDHE adopted a WQC more stringent than the EPA's 304(a) recommendation.
silver, total	<u>7440224</u>	table 1b	a	a	<u>50-100</u>	Approve. The KDHE provided additional information regarding the protectiveness of this WQC for the designated use.

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
thallium, total	7440280	1,400	40	b 6.3 <sup>b</sup>	2	Non-Substantive Edit
zinc, total	7440666	table 1b	table 1b	26,000	7400 5000	Approve. The KDHE adopted a WQC more stringent than the EPA's 304(a) recommendation.
<b>OTHER INORGANIC SUBSTANCES (µg/L)</b>						
asbestos (fibers > 10µm) (#million-fibers/L)	12001295	a	a	a	7-000000	Non-Substantive Edit
phosphorus, elemental (white)	7723140	a	0.1 a	a	A	Approve. The KDHE removed a WQC for which the EPA does not have a current EPA 304(a) recommendation.
<b>ORGANIC SUBSTANCES (µg/L) (EXCEPT PESTICIDES)</b>						
<b>A. Halogenated Ethers</b>						
1,2 (2-chloroethyl) ether	111444	238,000	a	0.53	b 0.030	Approve. The KDHE adopted the EPA's 304(a) recommendation.
bis(2-chloroisopropyl) ether	108601	238,000	a	65,000	b 1400	Approve. The KDHE adopted the EPA's 304(a) recommendation.
1,2-dichloroethane	107062	18,000	2,000	b 99 <sup>b</sup>	b 0.38 <sup>b</sup>	Non-Substantive Edit
hexachloroethane	67721	980	540	3.3	b 1.9 <sup>b</sup>	Non-Substantive Edit
1,1,2,2-tetrachloroethane	79345	9,320	2,400	3-3 4.0	b 0.17	Approve the DWS criterion; the KDHE adopted EPA's 304(a) recommendation.
1,1,2-trichloroethane	79005	18,000	9,400	16	b 0.6 <sup>b</sup>	Non-Substantive Edit
<b>Chlorinated ethenes</b>						
chloroethylene (vinyl chloride)	75014	a	a	525 2.4	2	Approve. The KDHE adopted the EPA's 304(a) recommendation published prior to the EPA's 2015

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
1,1-dichloroethylene	75354	11,600	a	7,100	b 7	Human Health criteria updates (published prior to the KDHE's 2015 WQS submission).
trans-1,2-dichloroethylene	156605	11,600	a	140000 10,000	100	Approve. The KDHE adopted a WQC more stringent than the EPA's 304(a) recommendation.
tetrachloroethylene (PCE)	127184	5,280	840	3.3	≤ 0.8 <sup>b</sup>	Approve. The KDHE adopted the EPA's 304(a) recommendation.
trichloroethylene (TCE)	79016	45,000	21,900	30	≤ 2.7 <sup>b</sup>	Non-Substantive Edit
<i>Chlorinated propanes/propenes</i>						
1,2-dichloropropane	78875	23,000	5,700	15	0.5 5	No Action. The KDHE did not adopt the EPA's 304(a) recommendation. See decision letter for more information.
1,3-dichloropropene	542756	6600 6060	244	14.1	b 10 <sup>b</sup>	DWS WQC is a Non-Substantive Edit. Approve the adopted 304(a) recommendation for acute aquatic life.
<i>Halogenated methanes</i>						
bromodichloromethane (dichlorobromomethane)	75274	11,000	a	17	b 0.55	Approve. The KDHE adopted a WQC more stringent than the EPA's 304(a) recommendation for domestic water supply.
dibromochloromethane (chlorodibromomethane)	124481	11,000	a	13	b 0.4	Approve. The KDHE adopted a WQC more stringent than the EPA's 304(a) recommendation for domestic water supply.
dichloromethane (methylene chloride)	75092	11,000	a	590	4.7 5	Approve. The KDHE adopted a WQC more stringent than the EPA's 304(a) recommendation.

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
tetrachloromethane (carbon tetrachloride)	<u>56235</u>	35,200	a	<del>b</del> 4.4 <sup>b</sup>	≤ 0.25 <sup>b</sup>	Non-Substantive Edit Approve. The KDHE adopted a WQC more stringent than the EPA's 304(a) recommendation for domestic water supply.
tribromomethane (bromoform)	<u>75252</u>	11,000	a	140	<del>b</del> 4.3	Approve. The KDHE adopted the EPA's 304(a) recommendation.
trichloromethane (chloroform)	<u>67663</u>	28,900	1,240	470	<del>b</del> 5.7	Approve. The KDHE adopted the EPA's 304(a) recommendation.
<i>Other halogenated aliphatic hydrocarbons</i>						
hexachlorobutadiene	<u>87683</u>	90	9.3	18	<del>b</del> 0.44	Approve. The KDHE adopted the EPA's 304(a) recommendation.
hexachlorocyclopentadiene	<u>77474</u>	7	5.2	<del>206</del> 1,100	50	Approve. The KDHE adopted the EPA's 304(a) recommendation.
benzene	<u>71432</u>	5,300	a	51	≤ 1.2 <sup>b</sup>	Non-Substantive Edit
ethylbenzene	<u>100414</u>	32,000	a	<del>287</del> 12 2,100	700	Approve. The KDHE adopted the EPA's 304(a) recommendation.
nitrobenzene	<u>98953</u>	27,000	a	690	<del>b</del> 17	Approve. The KDHE adopted the EPA's 304(a) recommendation.
<b>Chlorinated benzenes</b>						
chlorobenzene	<u>108907</u>	250	50	1,600	<del>130-100</del>	Approve. The KDHE adopted a WQC more stringent than the EPA's 304(a) recommendation.
1,2-dichlorobenzene (o-dichlorobenzene)	<u>95501</u>	1,120	763	<del>2600</del> 1300	600	Approve. The KDHE adopted the EPA's 304(a) recommendation.
1,3-dichlorobenzene (m-dichlorobenzene)	<u>541731</u>	1,120	763	960	<del>b</del> 400 <sup>b</sup>	Non-Substantive Edit
1,4-dichlorobenzene (p-dichlorobenzene)	<u>106467</u>	a	a	<del>2600</del> 190	75	Approve. The KDHE adopted the EPA's 304(a) recommendation.

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
hexachlorobenzene	118741	6	3.7	0.00029	b 0.00075 <sup>b</sup>	Non-Substantive Edit
other chlorinated benzenes, total	a	250	50	a	a	Non-Substantive Edit
pentachlorobenzene	608935	250	50	1.5	1.4	Non-Substantive Edit
1,2,4,5-tetrachlorobenzene	95943	250	50	1.1	0.97	Non-Substantive Edit
1,2,4-trichlorobenzene	120821	250	a	940 70	260 70	The EPA approves the revised WQC for food procurement and drinking water supply because the KDHE adopted the EPA's 304(a) recommendation.
<b><i>Toluenes and xylenes</i></b>						
2,4-dinitrotoluene	121142	330	230	3.4	b 0.11	Approve. The KDHE adopted the EPA's 304(a) recommendation.
dinitrotoluenes, total	25321146	330	230	9.1	a	
toluene	108883	17,500	a	b 15,000	1,000	Approve. The KDHE adopted the EPA's 304(a) recommendation.
xylenes, total	1330207	a	a	a	10,000	Non-Substantive Edit
<b>D. Nitrogen Compounds Except Monocyclic Aromatics</b>						
acrylonitrile	107131	7,550	2,600	0.25	b 0.059 <sup>b</sup>	Non-Substantive Edit
benzideine	92875	2,500	a	0.0002	b 0.00012 <sup>b</sup>	Non-Substantive Edit
3,3-dichlorobenzidine	91941	a	a	0.02 0.028	b 0.04 <sup>b</sup>	Non-Substantive Edit
1,2-diphenylhydrazine	122667	270	a	0.2	b 0.04 <sup>b</sup>	Non-Substantive Edit
nitrosamines, total	a	5,850	a	1.24	0.0008	Non-Substantive Edit
N-nitrosodibutylamine	924163	5,850	a	0.22	0.0063	Non-Substantive Edit

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
N-nitrosodiethanolamine	<u>1116547</u>	5,850	a	1.24	a	Non-Substantive Edit
N-nitrosodiethylamine	<u>55185</u>	5,850	a	1.24	0.0008	Non-Substantive Edit
N-nitrosodimethylamine	<u>62759</u>	5,850	a	3	<del>0.00069</del>	Approve. The KDHE adopted the EPA's 304(a) recommendation.
N-nitrosodiphenylamine	<u>86306</u>	5,850	a	6	<del>5<sup>b</sup></del>	Non-Substantive Edit
N-nitrosodi-n-propylamine	<u>621647</u>	a	a	0.51	0.005	Non-Substantive Edit
N-nitrosopyrrolidine	<u>930552</u>	5,850	a	34	0.016	Non-Substantive Edit
<b>E. Phenolic Compounds</b>						
2,4-dimethyl phenol	<u>105679</u>	1,300	530	850	380	Non-Substantive Edit
2,4-dinitrophenol	<u>51285</u>	a	a	5,300	<del>69</del>	Approve. The KDHE adopted the EPA's 304(a) recommendation.
nitrophenols, total	<u>a</u>	230	150	a	a	Non-Substantive Edit
phenol	<u>108952</u>	10,200	2,560	<del>1,700,000</del> 860,000	<del>10,000</del>	Approve. The KDHE adopted the EPA's 304(a) recommendation.
<b>Chlorinated phenols</b>						
2-chlorophenol	<u>95578</u>	4,380	2,000	150	81	Non-Substantive Edit
3-chlorophenol	<u>108430</u>	a	a	29,000	a	Non-Substantive Edit
2,4-dichlorophenol	<u>120832</u>	2,020	365	<del>790<sup>b</sup></del>	<del>93<sup>b</sup></del>	Non-Substantive Edit
3-methyl-4-chlorophenol	<u>59507</u>	30	a	a	a	Non-Substantive Edit
2,4,5-trichlorophenol	<u>95954</u>	100	63	3,600	1,800	Non-Substantive Edit
2,4,6-trichlorophenol	<u>88062</u>	a	970	2.4	<del>2.1<sup>b</sup></del>	Non-Substantive Edit
<b>F. Phthalate Esters</b>						
butylbenzyl phthalate	<u>85687</u>	a	a	1,900	1,500	Non-Substantive Edit
dibutyl phthalate (di-n-butyl phthalate)	<u>84742</u>	940	3	<del>4500</del>	<del>2,000</del>	Approve. The KDHE adopted the EPA's 304(a) recommendation.

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
diethyl phthalate	<u>84662</u>	a	a	¢ 44000	17,000	Approve. The KDHE adopted the EPA's 304(a) recommendation.
dimethyl phthalate	<u>131113</u>	940	3	1,100,000	¢ 270,000	Approve. The KDHE adopted the EPA's 304(a) recommendation.
bis(2-ethylhexyl) phthalate (DEHP)	<u>117817</u>	400	360	¢ 5.9 <sup>b</sup>	¢ 1.8 <sup>b</sup>	Non-Substantive Edit
phthalates, total	<u>a</u>	940	3	a	a	
<b>G. Polynuclear Aromatic Hydrocarbons (PAHs)</b>						
acenaphthene	<u>83329</u>	1,700	520	990	670	Non-Substantive Edit
acenaphthylene	<u>208968</u>	a	a	0.0311	a	Non-Substantive Edit
anthracene	<u>120127</u>	a	a	40,000	¢ 9,600 <sup>b</sup>	Non-Substantive Edit
benzo(a)anthracene	<u>56553</u>	a	a	0.018	¢ 0.0038	Approve. The KDHE adopted the EPA's 304(a) recommendation.
benzo(a)pyrene	<u>50328</u>	a	a	0.018	¢ 0.0028 <sup>b</sup>	Non-Substantive Edit
benzo(b)fluoranthene	<u>205992</u>	a	a	0.018	¢ 0.0038	Approve. The KDHE adopted the EPA's 304(a) recommendation.
benzo(g,h,i)perylene	<u>191242</u>	a	a	0.0311	a	Non-Substantive Edit
benzo(k)fluoranthene	<u>207089</u>	a	a	0.018	¢ 0.0038	Approve. The KDHE adopted the EPA's 304(a) recommendation.
2-chloronaphthalene	<u>91587</u>	a	a	1,600	1,000	Non-Substantive Edit
chrysene	<u>218019</u>	a	a	0.018	¢ 0.0038	Approve. The KDHE adopted the EPA's 304(a) recommendation.
dibenzo(a,h)anthracene	<u>53703</u>	a	a	0.018	¢ 0.0038	Approve. The KDHE adopted the EPA's 304(a) recommendation.
fluoranthene	<u>206440</u>	3,980	a	¢ 370 <sup>b</sup>	¢ 300 <sup>b</sup>	Non-Substantive Edit
fluorene	<u>86737</u>	a	a	5,300	¢ 1,300 <sup>b</sup>	Non-Substantive Edit

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
indeno(1,2,3-cd)pyrene	193395	a	a	0.018	b 0.0038	Approve. The KDHE adopted the EPA's 304(a) recommendation.
naphthalene	91203	2,300	620	a	a	Non-Substantive Edit
phenanthrene	85018	30	6.3	0.0311	a	Non-Substantive Edit
pyrene	129000	a	a	4,000	b 960 <sup>b</sup>	Non-Substantive Edit
Polynuclear Aromatic Hydrocarbons, total (PAHs)	a	a	a	0.0311	0.2	Non-Substantive Edit
<b>H. Miscellaneous Other Organics (Except Pesticides)</b>						
di(2-ethylhexyl) adipate	103231	a	a	A	500 400	Approve. The KDHE adopted a WQC more stringent than the current EPA approved WQC.
Isosporone	78591	117,000	a	b 960	b 35	Approve. The KDHE adopted the EPA's 304(a) recommendation.
polychlorinated biphenyls, total (PCBs)	a	2	0.014	0.000064	b 0.00017 <sup>b</sup>	Non-Substantive Edit
dioxin-(2,3,7,8-TCDD) (dioxin)	1746016	0.01	0.00001	0.0000000	b 1.3E-8 <sup>b</sup>	Non-Substantive Edit
<b>PESTICIDES (µg/L)</b>						
acrolein	107028	68	21	290	190	Non-Substantive Edit
acrylamide	79061	a	a	A	0.01	Non-Substantive Edit
alachlor (Lasso)	15972608	760	76	A	2	Non-Substantive Edit
aldicarb	116063	a	a	A	3	Non-Substantive Edit
aldicarb sulfone	1646884	a	a	a	2	Non-Substantive Edit
aldicarb sulfoxide	1646873	a	a	a	3	Non-Substantive Edit
aldrin	309002	3	0.001	0.00005	b 0.00013 <sup>b</sup>	Non-Substantive Edit

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
atrazine (Aatrex)	<u>1912249</u>	170	3	a	3	Non-Substantive Edit
bromomethane (methyl bromide)	<u>74839</u>	11,000	a	1,500	<del>b</del> 47	Approve. The KDHE adopted the EPA's 304(a) recommendation.
bromoxynil (MCPA)	<u>1689845</u>	a	a	a	a	Non-Substantive Edit
carbaryl (Sevin)	<u>63252</u>	a	0.02	a	a	Non-Substantive Edit
carbofuran (Furadan)	<u>1563662</u>	a	a	a	40	Non-Substantive Edit
chlordan	<u>57749</u>	2.4	0.0043	0.00081	<del>b</del> 0.00057 <sup>b</sup>	Non-Substantive Edit
chlorpyrifos	<u>2921882</u>	0.083	0.041	a	a	Non-Substantive Edit
2,4-D	<u>94757</u>	a	a	a	<del>100</del> 70	Approve. The KDHE adopted the EPA's 304(a) recommendation.
dacthal (DCPA)	<u>1861321</u>	a	14,300	a	a	Non-Substantive Edit
dalapon	<u>75990</u>	a	110	a	200	Non-Substantive Edit
<b><i>DDT and Metabolites</i></b>						
4,4-DDD (p,p--DDD)	<u>72548</u>	a	a	0.00031	<del>b</del> 0.00031	Approve. The KDHE adopted the EPA's 304(a) recommendation published prior to the EPA's 2015 Human Health criteria updates (published prior to the KDHE's 2015 WQS submission).
4,4-DDE (p,p--DDE)	<u>72559</u>	1,050	a	0.00022	<del>b</del> 0.00022	Approve. The KDHE adopted the EPA's 304(a) recommendation published prior to the EPA's 2015 Human Health criteria updates (published prior to the KDHE's 2015 WQS submission).
DDT, total	<u>50293</u>	1.1	0.001	<del>0.000024</del> 0.00022	<del>b</del> 0.00022	Approve. The KDHE adopted the EPA's 304(a) recommendation published prior to the EPA's 2015

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
diazinon (spectracide)	<u>333415</u>	a 0.17	0.08 0.17	a	a	Human Health criteria updates (published prior to the KDHE's 2015 WQS submission).
dibromochloropropane (DBCP)	<u>96128</u>	a	a	15.7	0.2	Approve. The KDHE adopted the EPA's 304(a) recommendation
1,2-dibromoethane	<u>106934</u>	a	a	a	0.05	Non-Substantive Edit
dieldrin	<u>60571</u>	0.24	0.056	0.000054	b 0.00014 <sup>b</sup>	Non-Substantive Edit
4,6-dinitro-o-cresol	<u>534521</u>	a	a	280	b 13	Approve. The KDHE adopted the EPA's 304(a) recommendation.
dinoseb (DNBP)	<u>88857</u>	a	a	a	7	Non-Substantive Edit
diquat	<u>85007</u>	a	a	a	20	Non-Substantive Edit
disulfoton (Di-syston)	<u>298044</u>	a	a	a	a	Non-Substantive Edit
endosulfan, total	<u>115297</u>	0.22	0.056	159	b a	Non-Substantive Edit
alpha-endosulfan	<u>959998</u>	0.22	0.056	89	62	Non-Substantive Edit
beta-endosulfan	<u>33213659</u>	0.22	0.056	89	62	Non-Substantive Edit
endosulfan sulfate	<u>1031078</u>	a	a	b 89	b 62	Approve. The KDHE adopted the EPA's 304(a) recommendation published prior to the EPA's 2015 Human Health criteria updates (published prior to the KDHE's 2015 WQS submission).
endothall	<u>145733</u>	a	a	a	110 100	Approve.

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
endrin	72208	0.086	0.036	0.81 0.060	0.76 2	No Action. The KDHE did not adopt the EPA's 304(a) recommendation.
endrin aldehyde	7421934	a	a	0.3	b 0.76 <sup>b</sup>	Non-Substantive Edit
epichlorohydrin	106898	a	a	a	4	Non-Substantive Edit
ethylene dibromide	106934	a	a	a	0.05	Non-Substantive Edit
fenchlorfos (Ronnell)	299843	a	a	a	a	Non-Substantive Edit
glyphosate (Roundup)	1071836	a	a	a	700	Non-Substantive Edit
guthion	86500	a	0.01	a	a	Non-Substantive Edit
heptachlor	76448	0.52	0.0038	0.000079	b 0.00021 <sup>b</sup>	Non-Substantive Edit
heptachlor epoxide	1024573	0.52	0.0038	b 0.00011 <sup>b</sup>	b 0.00010 <sup>b</sup>	Non-Substantive Edit
hexachlorocyclohexane (HCH or BHC)	61876	100	a	0.0414	0.0123	Non-Substantive Edit
alpha-HCH (alpha-BHC)	319846	100	a	0.0049	b 0.0039 <sup>b</sup>	Non-Substantive Edit
beta-HCH (beta-BHC)	319857	100	a	b 0.046 <sup>b</sup>	b 0.014 <sup>b</sup>	Non-Substantive Edit
delta-HCH (delta-BHC)	319868	100	a	a	a	Non-Substantive Edit
gamma-HCH (gamma-BHC, lindane)	58899	0.95	0.08	0.0625 1.8	b 0.2	Approve. The KDHE adopted a WQC more stringent than the EPA's 304(a) recommendation.
technical-HCH (technical-BHC)	608731	a	a	0.0414	a	Non-Substantive Edit
malathion	121755	a	0.1	a	a	Non-Substantive Edit
methoxychlor	72435	a	0.03	a	40	Non-Substantive Edit
methyl parathion	298000	a	a	a	a	Non-Substantive Edit

PARAMETER	CAS #	Acute AL	Chronic AL	FP	DWS	EPA ACTION
metribuzin (Sencor)	<u>21087649</u>	a	100	a	a	Non-Substantive Edit
mirex	<u>2385855</u>	a	0.001	0.000097	a	Non-Substantive Edit
oxamyl (Vydate)	<u>23135220</u>	a	0.001	a	200	Non-Substantive Edit
parathion	<u>56382</u>	0.065	0.013	a	a	Non-Substantive Edit
pentachloronitrobenzene	<u>82688</u>	250	50	a	a	Non-Substantive Edit
pentachlorophenol (PCP)	<u>87865</u>	table 1b	table 1b	3	<del>b</del> <u>0.28<sup>b</sup></u>	Non-Substantive Edit
picloram (Tordon)	<u>1918021</u>	a	a	a	500	Non-Substantive Edit
propachlor (Ramrod)	<u>1918167</u>	a	8	a	a	Non-Substantive Edit
simazine (Princep)	<u>122349</u>	a	a	a	4	Non-Substantive Edit
2,4,5-T	<u>93765</u>	a	a	a	a	Non-Substantive Edit
tributyltin (TBT) oxide	<u>56359</u>	<del>0.149</del> 0.46	<del>0.026</del> 0.072	a	a	Approve. The KDHE adopted the EPA's 304(a) recommendation.
toxaphene	<u>8001352</u>	0.73	0.0002	0.00028	<del>b</del> <u>0.00073<sup>b</sup></u>	Non-Substantive Edit
2,4,5-TP (Silvex)	<u>93721</u>	a	a	a	<del>10</del> <u>50</u>	Approve. The KDHE adopted a WQC more stringent than the EPA's 304(a) recommendation.

a - Criterion not available

b - US EPA has promulgated this criterion for Kansas under the Code of Federal Regulations, Title 40, part 131.36. KDHE has not adopted the criterion into the Kansas Surface Water Quality Standards. Nevertheless, the criterion is still applicable to Kansas.

c - Criterion under investigation

d - The Biotic Ligand Model (BLM) can be found in the "Aquatic Life Ambient Freshwater Quality Criteria-Copper-Copper 2007 Revision (EPA-822-R-07-001, February 2007)", which is incorporated by reference.

Table 2 – Non-Substantive Changes Crosswalk

Current KAR #	Former KAR # (where applicable)	Title/Description (summary)	Comments Regarding Changes (other than renumbering)
<b>28-16-28b</b>		<b>Definitions</b>	
28-16-28b(e)		Background concentration	non-substantive wording changes; updated cross-references
28-16-28b(m)		Classified surface water	updated cross-references
28-16-28b(n)		Compliance Schedule	non-substantive wording changes; updated cross-references
28-16-28b(o)		Condition of acute toxicity	non-substantive wording changes
28-16-28b(p)		Condition of chronic toxicity	non-substantive wording changes
28-16-28b(q)		Criterion	non-substantive wording changes; updated cross-references
28-16-28b(r)		Critical low flow	non-substantive wording changes; updated cross-references
28-16-28b(v)	28-16-28b(u)	Discharge	
28-16-28b(y)	28-16-28b(v)	Ecological integrity	
28-16-28b(z)	28-16-28b(w)	Effluent	updated cross-references
28-16-28b(bb)	28-16-28b(x)	Escherichia coli	
28-16-28b(cc)	28-16-28b(y)	Exceptional state waters	updated cross-references
28-16-28b(ee)	28-16-28b(z)	Existing use	updated cross-references
28-16-28b(ff)	28-16-28b(bb)	Federal Clean Water Act	Date cited is inconsistent with promulgation and amendment dates
28-16-28b(hh)	28-16-28b(cc)	General purpose waters	
28-16-28b(ii)	28-16-28b(dd)	Groundwater	
28-16-28b(jj)	28-16-28b(ee)	Inhibition concentration 25	non-substantive wording changes
28-16-28b(kk)	28-16-28b(ff)	Kansas antidegradation policy	non-substantive wording changes
28-16-28b(ll)	28-16-28b(gg)	Kansas implementation procedures	non-substantive wording and date changes
28-16-28b(mm)	28-16-28b(hh)	Maximum contaminant level	non-substantive wording changes; update cross-references and dates
28-16-28b(nn)	28-16-28b(hh)	Median lethal concentration	
28-16-28b(oo)	28-16-28b(jj)	Microfibers per liter	non-substantive wording changes

Current KAR #	Former KAR # (where applicable)	Title/Description (summary)	Comments Regarding Changes (other than renumbering)
28-16-28b(pp)	28-16-28b(kk)	Microgram per liter	non-substantive wording changes
28-16-28b(qq)	28-16-28b(ll)	Milligram per liter	non-substantive wording changes
28-16-28b(rr)	28-16-28b(mm)	Mixing zone	updated cross-references
28-16-28b(ss)	28-16-28b(nn)	Mutagenic	
28-16-28b(tt)	28-16-28b(oo)	Nonpoint source	
28-16-28b(vv)	28-16-28b(pp)	Outstanding national resource water	updated cross-references
28-16-28b(ww)	28-16-28b(qq)	pH	
28-16-28b(xx)	28-16-28b(rr)	Picocurie per liter	non-substantive wording changes
28-16-28b(zz)	28-16-28b(tt)	Pollutant	non-substantive wording changes
28-16-28b(aaa)	28-16-28b(vv)	Potable Water	
28-16-28b(bbb)	28-16-28b(ww)	Precipitation runoff	
28-16-28b(ccc)	28-16-28b(xx)	Presedimentation sludge	non-substantive wording changes
28-16-28b(ddd)	28-16-28b(yy)	Private surface water	
28-16-28b(eee)	28-16-28b(zz)	Public swimming area	
28-16-28b(fff)	28-16-28b(aaa)	Seven-day, ten-year flow	non-substantive wording changes
28-16-28b(ggg)	28-16-28b(bbb)	Site-specific criterion	
28-16-28b(hhh)	28-16-28b(ccc)	Streamflow	non-substantive wording changes
28-16-28b(jjj)	28-16-28b(ddd)	Surface water register	non-substantive wording changes; update cross-references
28-16-28b(kkk)	28-16-28b(eee)	Surface water segment	
28-16-28b(mmm)	28-16-28b(ggg)	Surface waters of the state	
28-16-28b(nnn)	28-16-28b(hhh)	Teratogenic	
28-16-28b(ppp)	28-16-28b(iii)	Toxic substance	
28-16-28b(qqq)	28-16-28b(jjj)	Turbidity	
28-16-28b(rrr)	28-16-28b(kkk)	Use attainability analysis	update cross-references
28-16-28b(sss)	28-16-28b(lll)	Variance	non-substantive wording changes; update cross-references and dates
28-16-28b(ttt)	28-16-28b(mmm)	Water-effect ratio	non-substantive wording changes; update cross-references
28-16-28b(uuu)	28-16-28b(nnn)	Water quality certification	
28-16-28b(vvv)	28-16-28b(ooo)	Whole-effluent toxicity limitation	

Current KAR #	Former KAR # (where applicable)	Title/Description (summary)	Comments Regarding Changes (other than renumbering)
28-16-28b(www)	28-16-28b(ppp)	Zone of initial dilution	
<b>28-16-28c</b>		<b>General Provisions</b>	
28-16-28c(a)(1)(B)		Antidegradation – General purpose waters	non-substantive wording changes; updated cross-references
28-16-28c(a)(2)		Antidegradation – Exceptional state waters	non-substantive wording changes
28-16-28c(a)(3)		Antidegradation – Outstanding national resource waters	non-substantive wording changes
28-16-28c(a)(4)		Antidegradation – Threatened or endangered species	non-substantive wording changes; update cross-references and dates
28-16-28c(a)(5)		Antidegradation – Temporary discharges	non-substantive wording changes; updated cross-references
28-16-28c(a)(6)		Antidegradation – Thermal discharge	non-substantive wording changes; updated dates
28-16-28c(a)(7)		Antidegradation – Implementation	non-substantive wording changes
28-16-28c(b)(1)		Mixing zones – General limits	non-substantive wording changes; updated cross-references
28-16-28c(b)(3)		Mixing zones – Effluent-dominated streams	non-substantive wording changes
28-16-28c(b)(4)		Mixing zones – Applications	non-substantive wording changes; updated cross-references
28-16-28c(b)(6)		Mixing zones – Outstanding national resource waters	non-substantive wording changes; updated cross-references
28-16-28c(b)(8)(D)		Mixing zones – Recreational Uses	non-substantive wording changes
28-16-28c(b)(9)		Mixing zones – Alternate low flows	non-substantive wording changes
28-16-28c(b)(10)		Mixing zones – Alternate or site-specific mixing zones	non-substantive wording changes
28-16-28c(b)(11)		Mixing zones – Discharges into classified lakes	
28-16-28c(b)(12)		Mixing zones – Discharges into classified ponds	non-substantive wording changes
28-16-28c(b)(13)		Mixing zones – Discharges into classified wetlands	non-substantive wording changes; updated cross-references

Current KAR #	Former KAR # (where applicable)	Title/Description (summary)	Comments Regarding Changes (other than renumbering)
28-16-28c(c)		Special conditions	non-substantive wording changes; updated cross-references
28-16-28c(c)(1)		Special conditions – low flow	updated cross-references
28-16-28c(c)(2)	28-16-28c(c)(3)	Effluent-created flow	
28-16-28c(c)(2)(A)	28-16-28c(c)(3)(A)	Effluent-created flow – treatment in accordance with secondary treatment standards	non-substantive wording changes; updated cross-reference and dates
28-16-28c(c)(2)(B)	28-16-28c(c)(3)(B)	Effluent-created flow – discharge shall not violate general surface water quality criteria or impair existing/attained designated uses of downstream classified stream segments	non-substantive wording changes; updated cross-reference
28-16-28c(c)(2)(C)	28-16-28c(c)(3)(C)	Effluent-created flow – if UAA demonstrates designated uses of surface water segment are not attainable, new use designations for effluent-created flow shall be adopted and approved by EPA before serving as basis for permit	non-substantive wording changes; updated cross-reference
28-16-28c(d)(1)		Treatment requirements – minimum level of treatment	non-substantive wording changes; updated dates
28-16-28c(e)		Analytical testing – prescribed by the department.	non-substantive wording changes; updated cross-reference
<b>28-16-28d</b>		<b>Surface water classification and use designation</b>	
28-16-28d(a)(1)		Surface water classification – classified stream segments defined KSA 82a-2001	update cross-reference
28-16-28d(a)(2)(B)(iii)		Surface water classification – classified wetlands	non-substantive wording changes
28-16-28d(b)		Designated uses of classified surface waters other than classified stream segments	non-substantive wording changes; added title

Current KAR #	Former KAR # (where applicable)	Title/Description (summary)	Comments Regarding Changes (other than renumbering)
28-16-28d(b)(7)		Designated uses of classified surface waters other than classified stream segments – recreational use defined	non-substantive wording changes
28-16-28d(b)(7)(A)		Designated uses of classified surface waters other than classified stream segments – primary contact recreation use defined	non-substantive wording changes
28-16-28d(c)		Designated uses of classified stream segments	non-substantive wording changes; added title
28-16-28d(d)(1)		Assignment of uses surface waters – classified surface waters designation process, based on UAA	non-substantive wording changes; updated cross-reference
28-16-28d(d)(2)		Assignment of uses surface waters – Classified surface waters and designated uses shall be identified "Kansas surface water register"	non-substantive wording changes
28-16-28d(d)(3)		Assignment of uses surface waters – use designation for classified streams, lakes, wetlands, and ponds not on surface water register shall be determined on case-by-case basis	non-substantive wording changes
<b>28-16-28e</b>		<b>Surface water quality criteria</b>	
28-16-28e(a)		Criteria development guidance	non-substantive wording changes
28-16-28e(b)		General criteria for surface waters	non-substantive wording changes
28-16-28e(b)(2)		General criteria for surface waters – hazardous materials derived from artificial sources	non-substantive wording changes
28-16-28e(b)(9)		General criteria for surface waters - naturally occurring substances	non-substantive wording changes; updated cross-reference
28-16-28e(c)		Application of criteria for designated uses of surface waters	non-substantive wording changes
28-16-28e(c)(1)	formerly part of 28-16-28e(c)	Application of criteria for designated uses of surface waters – critical low flow less	non-substantive wording changes; new subsection

Current KAR #	Former KAR # (where applicable)	Title/Description (summary)	Comments Regarding Changes (other than renumbering)
28-16-28e(c)(2)	formerly part of 28-16-28e(c)	than 0.03 cubic meters when water designated as expected aquatic life use waters and restricted aquatic life use waters	
28-16-28e(d)	formerly part of 28-16-28e(c)	Application of criteria for designated uses of surface waters – critical low flow less than 0.03 cubic meters when water designated as special aquatic life use waters	non-substantive wording changes; new subsection
28-16-28e(d)(1)	formerly part of 28-16-28e(c)(1)	Criteria for designated uses of surface waters	new subsection; added title
28-16-28e(d)(2)(A)-(D)	28-16-28e(c)(2)(A)-(D)	Criteria for designated uses of surface waters – agricultural water supply use	non-substantive wording changes; updated cross-reverence
28-16-28e(d)(3)(A)-(D)	28-16-28e(c)(3)(A)-(D)	Criteria for designated uses of surface waters – aquatic life support use	non-substantive wording changes; updated cross-reverence
28-16-28e(d)(4)(A)-(B)	28-16-28e(c)(4)(A)-(B)	Criteria for designated uses of surface waters – domestic water supply use	non-substantive wording changes; updated cross-reverences and dates
28-16-28e(d)(5)	28-16-28e(c)(5)	Criteria for designated uses of surface waters – food procurement use	non-substantive wording changes; updated cross-reverences
28-16-28e(d)(6)	28-16-28e(c)(6)	Criteria for designated uses of surface waters – industrial water supply use	
28-16-28e(d)(7)(A)-(F)	28-16-28e(c)(7)(A)-(F)	Criteria for designated uses of surface waters – recreational use	non-substantive wording changes; updated cross-reverences
28-16-28e(d)(8)	28-16-28e(c)(8)	Criteria for designated uses of surface waters – multiple uses	non-substantive wording changes; updated cross-reverences
28-16-28e(e)	28-16-28e(d)	Tables – numeric criteria	updated date
<b>28-16-28f</b>		<b>Administration of surface Water quality standards</b>	
28-16-28f(a)	28-16-28f(b)	Application of modified surface water quality standards	non-substantive wording changes

Current KAR #	Former KAR # (where applicable)	Title/Description (summary)	Comments Regarding Changes (other than renumbering)
28-16-28f(b)(1)-(4)	28-16-28f(c)	Water quality certification	non-substantive wording changes
28-16-28f(c)(1)-(2)	28-16-28f(d)	Compliance schedules compliance schedules	updated cross-references
28-16-28f(f)	28-16-28f(g)	Enforcement	
<b>28-16-58</b>		<b>Definitions</b>	Not WQS
28-16-58(a)(8)		Kansas implementation procedures: wastewater permitting means procedures written/used by dept. for development of NPDES permit limitations	