UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

NOV 17 2015

Ms. Sara Parker Pauley, Director
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102

Dear Ms. Pauley:

On March 19, 2014, the U.S. Environmental Protection Agency received a submittal of new and revised water quality standards from the Missouri Department of Natural Resources.[1] The new and revised WQS were approved by the Missouri Clean Water Commission on November 6, 2013, were published in the Code of State Regulations on January 29, 2013, and became effective under state law on February 28, 2014. The submittal package included a certification letter from the Missouri Attorney General's Office, dated January 13, 2014.

On October 22, 2014, the EPA acted on the following components of the WQS submittal:

(1) The renaming/redefining of the uses applied by Missouri for the protection and propagation of fish, shellfish and wildlife;

(2) New regulatory language identifying categories of lakes and streams in Missouri designated for the beneficial uses discussed in section 101(a)(2) of the Clean Water Act (i.e., "fishable and swimmable" uses) and other beneficial uses;

(3) The adoption of the Missouri Use Designation Dataset (MUDD, version 1.0) as well as certain terms and definitions applicable to this dataset;

(4) Revisions to Table G and Table H reflecting the results of recent use attainability analyses and the adoption of MUDD.

On May 14, 2015, the EPA acted on three additional elements in the state's WQS submittal, all bearing on the development and application of site-specific criteria for the protection and propagation of fish, shellfish and wildlife.

Today, the EPA is taking the following actions:

- Approving the new definition for "variance" found at 10 CSR 20-7.031(1)(Z), partially approving and partially disapproving the new variance authorizing provision found at 10 CSR 20-7.031(12),

[1] Some supporting electronic files were inadvertently omitted from the original WQS submittal package. These files were subsequently forwarded by the MDNR, arriving at the EPA regional office in Lenexa on or before June 9, 2014.

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and disapproving two state statutes (sections 644.061 and 644.062, RSMo) adopted by reference at 10 CSR 20-7.031(12).

- Disapproving the revised antidegradation implementation procedure adopted by reference at 10 CSR 20-7.031(3)(D).

- Approving the revised regulatory language found at 10 CSR 20-7.031(4)(I), which addresses the level of water quality protection accorded ephemeral waters and waters lacking designated uses.

- Partially approving and partially disapproving the revised regulatory language found at 10 CSR 20-7.031(5), which addresses the development and application of specific (numeric) water quality criteria.

RATIONALE FOR APPROVAL/DISAPPROVAL ACTIONS

I. New Variance Definition and Authorizing Provision

A. Regulatory Background

A WQS variance is a time-limited use and corresponding criterion targeted to a specific pollutant, pollutant source and/or water body and reflecting the highest attainable water quality condition during a specified time period. Under section 303(c) of the CWA, the establishment of a WQS variance requires both a public participation process and the prior approval of the EPA. To obtain approval, a state must show that the designated use is unattainable during the specified time period owing to one or more of the factors listed at 40 CFR Part 131.10(g). A variance provides a state additional time to implement adaptive management approaches for improving water quality while retaining the designated use as a long-term goal. States have adopted, and the EPA has approved, WQS variances applicable to individual dischargers, groups of dischargers, and entire water bodies or segments thereof.[2]

Missouri's WQS submittal contains the following new definition for "variance" at 10 CSR 20-7.031(1)(Z): "Variance—A temporary modification to 10 CSR 20-7.031 that is deemed necessary in accordance with section (12) of this rule." The referenced section, 10 CSR 20-7.031(12), contains the following newly adopted authorizing language:

(12) Variances.

(A) A permittee or an applicant for a National Pollutant Discharge Elimination System (NPDES) or Missouri state operating permit, may pursue a temporary variance to a water quality standard pursuant to either section 644.061 or section 644.062, RSMo. In order to obtain U.S. Environmental Protection Agency approval for a water quality standards variance for purposes of the federal Clean Water Act, the following additional provisions apply:

[2] *Water Quality Standards Handbook: Second Edition* (EPA-823-B-94-006)

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1. *A variance applies only to the applicant identified in such variance and only to the water quality standard specified in the variance. A variance does not modify an underlying water quality standard.*

2. *A variance shall not be granted if water quality standards will be attained by implementing technology-based effluent limits required under 10 CSR 20-7.015 of this rule and by implementing cost-effective and reasonable best management practices for non-point source control.*

3. *A variance shall not be granted for actions that will violate general criteria conditions prescribed by 10 CSR 20-7.031(4).*

4. *A variance shall not be granted that would likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of such species' critical habitat.*

5. *A variance may be granted if the applicant demonstrates that achieving the water quality standard is not feasible as supported by an analysis based on the factors provided in 40 CFR 131.10(g), or other appropriate factors.*

6. *In granting a variance, conditions and time limitations shall be set by the department with the intent that progress be made toward attaining water quality standards.*

7. *Each variance shall be granted only after public notification and opportunity for public comment. Once any variance to water quality standards is granted, the department shall submit the variance, with an Attorney General Certification that the Clean Water Commission adopted the variance in accordance with state law, to the U.S. Environmental Protection Agency for approval.*

B. The EPA's Findings

The state's new definition for "variance" at 10 CSR 20-7.031(1)(Z) references 10 CSR 20-7.031(12). In turn, 10 CSR 20-7.031(12)(A) incorporates two state statutes by reference, sections 644.061 and 644.062, RSMo. These statutes expand the scope of 10 CSR 20-7.031(1)(Z) and 10 CSR 20-7.031(12) and otherwise constitute policies that affect the application and implementation of the state's WQS. As such, they are subject to federal review and approval or disapproval under 40 CFR Part 131.13. The following considerations prevent these statutes, and portions of 10 CSR 20-7.031(12), from being approved by the EPA for CWA purposes in their adopted form:

- Section 644.061, RSMo, authorizes the Missouri Clean Water Commission to "grant individual variances beyond the limitations prescribed in sections 644.006 to 644.141 [the Missouri Clean Water Law] whenever it is found... that compliance with any provisions of sections 644.006 to 644.141 or rule or regulation, standard, requirement, limitation, or order of the commission or director adopted pursuant thereto will result in an arbitrary and unreasonable taking of property or in the practical closing and elimination of any lawful

business, occupation or activity ... without sufficient corresponding benefit or advantage to the people ... ."

The above statutory language fails to comport with the CWA and applicable federal regulations, because it allows WQS variances to be based on considerations other than those described at 40 CFR 131.10(g). Specifically, the impacts described in section 644.061 may not rise, in all instances, to the level of a "*substantial* and *widespread* economic and social impact" (emphasis added) as this phrase is applied at 40 CFR 131.10(g)(6). Substantial and widespread economic and social impacts are discussed in the EPA's *Interim Economic Guidance for Water Quality Standards Workbook* (EPA-823-B-95-002). The introductory section of this document reads, in part:

> *For public-sector entities, such as a publicly owned treatment works (POTW), substantial impacts include financial impacts* ***on the community****, taking into consideration current socioeconomic conditions. Widespread, on the other hand, refers to changes* ***in the community's*** *socioeconomic conditions. By contrast, for private-sector entities, substantial impacts refer to financial impacts and widespread impacts refer to socioeconomic impacts* ***on the surrounding community.*** [Emphasis added.]

Section 644.061 also authorizes the Commission to grant variances from technology-based effluent regulations and permit limits. However, under federal law, variances of this kind are allowed only under limited circumstances and must be approved by the EPA prior to implementation (40 CFR Parts 122, 124, 125 and 133). Additionally, in evaluating any request for a *WQS variance* under 40 CFR Part 131.10(g), consideration is restricted to those impacts resulting from the implementation of WQS and water quality-based effluent limits. Variances from technology-based regulations and effluent limits are not authorized under 40 CFR Part 131.10(g).[3]

- The second cited statute, section 644.062, RSMo, authorizes the director of MDNR to grant provisional variances for periods as long as 45 days "whenever it is determined ... that compliance on a short-term basis with the limitations prescribed in sections 644.006 to 644.141, or rule, standard, requirement, limitation, or order of the director adopted thereto due to conditions beyond reasonable control such as extended elevated temperatures or extreme drought conditions will result in an arbitrary or unreasonable hardship that exists solely because of the regulatory requirement in question and the costs of compliance are substantial and certain." In granting a provisional variance under section 644.062, the director must "consider the hardship imposed by requiring compliance on a short-term basis and adverse impacts that may result from granting the provisional variance." Moreover, the director "shall exercise wide discretion in weighing the equities involved and the advantages and disadvantages to the applicant and to those affected by water contaminants emitted by the applicant." Section 644.062 also allows a provisional variance to be extended by the director for up to 45 additional days, for a maximum total duration of 90 days in a given calendar year.

[3] Policy memorandum signed by Tudor Davies, EPA, April 27, 1995

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In effect, section 644.062 authorizes the director of MDNR to issue short-term-variances from WQS in response to prolonged heatwaves, severe droughts and other, unspecified emergencies without any opportunity for public input and without the prior approval of the EPA. Unilateral actions of this sort are inconsistent with 40 CFR 131.20 and section 303(c)(1) of the CWA, which require states to hold public hearings for the purpose of reviewing, modifying and approving WQS, and with 40 CFR 131.13 and section 303(c)(2)(A) of the CWA, which require states to submit new and revised WQS to the EPA for review and approval or disapproval. In situations where a weather-related emergency or a similar contingency leads to an uncontrollable condition requiring some degree of regulatory flexibility, accommodating actions normally are (1) taken by the permitting authority only after consulting with the EPA, and (2) based on the concept of enforcement discretion rather than WQS variances.[4] In situations involving thermal discharges, variances from WQS also may be appropriately pursued under section 316(a) of the CWA. Enforcement discretion and section 316(a) variances are regulatory tools already available to the state.

Section 644.062 also authorizes the Commission to grant variances from technology-based effluent regulations and permit limits. However, under federal law, variances of this kind are allowed only under limited circumstances and must be approved by the EPA prior to implementation (40 CFR Parts 122, 124, 125 and 133). Additionally, in evaluating any request for a *WQS variance* under 40 CFR Part 131.10(g), consideration is restricted to those impacts resulting from the implementation of WQS and water quality-based effluent limits. Variances from technology-based regulations and effluent limits are not authorized under 40 CFR Part 131.10(g).[2-3]

- The state's variance authorizing provision at 10 CSR 20-7.031(12)(A)5 reads: "A variance may be granted if the applicant demonstrates that achieving the water quality standard is not feasible as supported by an analysis based on the factors provided in 40 CFR Part 131.10(g), or other appropriate factors." This reference to "other appropriate factors" lends itself to broad interpretation and to considerations extending beyond the scope of 40 CFR Part 131.10(g) and section 303(c) of the CWA. As noted previously, WQS variances (other than section 316(a) variances) must be based on one or more of the factors described at 40 CFR Part 131.10(g).

The EPA hereby disapproves sections 644.061 and 644.062, RSMo, because, as noted above, these statutes fail to comport with sections 301, 303(c), 304 and 306 of the CWA and applicable federal regulations (40 CFR Parts 122, 124, 125, 131 and 133). The EPA also disapproves references to these statutes appearing in the opening paragraph of 10 CSR 20-7.031(12)(A) but approves the remaining language in this paragraph, such that the approved language reads: *(A) A permittee or an applicant for a National Pollutant Discharge Elimination System (NPDES) or Missouri state operating permit, may pursue a temporary variance to a water quality standard. In order to obtain U.S. Environmental Protection Agency approval for a water quality standards variance for purposes of the federal Clean Water Act, the following additional provisions apply:*

The phrase "other appropriate factors" at 10 CSR 20-7.031(12)(A)5 also is disapproved by the EPA, because, as noted above, this phrase fails to comport with 40 CFR 131.10(g) and section

[4] Policy memorandum signed by Steven Herman, EPA, March 3, 1995

303(c) of the CWA. However, the remaining language at 10 CSR 20-7.031(12)(A)5 is approved by the EPA, because this language is consistent with the CWA and 40 CFR 131.10(g). The approved language reads: *5. A variance may be granted if the applicant demonstrates that achieving the water quality standard is not feasible as supported by an analysis based on the factors provided in 40 CFR 131.10(g).*

The remaining language at 10 CSR 20-7.031(12) is consistent with sections 301(b), 303(c) and 306 of the CWA, and with 40 CFR 131.10(g), and is hereby approved by the EPA. This approval extends to all of 10 CSR 20-7.031(12)(A)1-4 and 10 CSR 20-7.031(12)(A)6-7. The EPA also approves the state's new definition for "variance" found at 10 CSR 20-7.031(1)(Z), because this definition is consistent with federal law following the above disapproval actions.

Collectively, the approved language at 10 CSR 20-7.031(1)(Z) and10 CSR 20-7.031(12) should enable the state to provide meaningful regulatory relief in situations where a WQS cannot be achieved in the short term owing to at least one of the factors identified in the federal regulations at 40 CFR Part 131.10(g). Variances granted under 10 CSR 20-7.031(12) and approved by the EPA may be applied by the state in the issuance of water quality certifications and in the implementation of water quality-based effluent limits under sections 401 and 402 of the CWA. The state is reminded that variances approved by the EPA do not replace designated uses and associated water quality criteria, nor do they provide a basis for delisting impaired waters under section 303(d) of the CWA. The EPA looks forward to working closely with the MDNR in the implementation of the state's new variance authorizing provision.

II. Revised Antidegradation Implementation Procedure

A. Regulatory Background

10 CSR 20-7.031(3)(D) adopts a revised antidegradation implementation procedure, or AIP, by reference.[5] On August 16, 2011, the EPA disapproved an earlier version of the AIP because it treated a cumulative reduction in segment assimilative capacity (SAC) of twenty percent or less as a *de minimis* change in water quality not warranting a Tier 2 antidegradation review.[6] The EPA found in its decision letter that a twenty percent reduction in SAC was not scientifically defensible and that the state did not provide adequate technical justification for the twenty percent cumulative cap.

As a potential remedy, the EPA indicated it would support the state's adoption of a revised AIP lacking any *de minimis* provision or incorporating only a ten percent cumulative cap on SAC reduction. The decision letter noted that SAC reductions of less than ten percent had been found by the EPA, and by several states, to strike a reasonable balance between the need to limit the number of detailed antidegradation reviews and the need to maintain and protect high quality waters.[7] The letter also noted that a federal district court had found, in 2003, that the EPA's approval of a *de minimis* ten percent cumulative cap was reasonable, supported by the available scientific evidence, and otherwise consistent with the requirements of the CWA; however, the

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[5] *Missouri Antidegradation Rule and Implementation Procedure, May 2, 2012*

[6] Letter from Karen Flournoy, EPA, to Sara Parker Pauley, MDNR, August 16, 2011

[7] *Final Water Quality Guidance for the Great Lakes Systems,* Federal Register: March 23, 1995 (Volume 60, Numer 56)

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court also held that a twenty percent cumulative cap was arbitrary and capricious because there was no evidence cited in the administrative record to support the notion that, under such a cumulative cap, any degradation in water quality would be truly *de minimis (Ohio Valley Envtl. Coal.*, 279 F. Supp. 2d 732, 770-773).

Missouri responded to the EPA's disapproval action by incorporating a ten percent cumulative cap in its revised AIP and by referencing the revised AIP in its WQS. The AIP (page 8) now defines significant degradation as "[a] reduction by 10 percent or more in the facility assimilative capacity for any pollutant as a result of any single discharge, or ... [a] reduction of the segment assimilative capacity for any pollutant by **10 percent** or more as a result of all discharges combined ... after existing water quality [is] determined [emphasis added]. Events or activities causing significant degradation are required to undergo a Tier 2 review."

Section II.A of the revised AIP (page 15) specifies that, in determining the required scope of an antidegradation review, MDNR shall "determine whether or not [a] proposed new or expanded discharge will result in a significant degradation for a POC [pollutant of concern]." This same section (page 16) also establishes that the impact of a discharge on water quality shall be deemed insignificant if the "*reduction of the facility assimilative capacity... for* [a] *pollutant by less than 10 percent* [will occur] *as a result of any single discharge and the reduction of the segment assimilative capacity... for any pollutant by less than **10 percent*** [will occur] *as a result of all discharges combined after* [existing water quality is] *determined* [emphasis added]."

The revised AIP at section II.A.3 (page 22) further establishes that:

> *Degradation of a water's assimilative capacity may be allowed if it is considered minimal degradation or if it is justified in accordance with an antidegradation review performed in accordance with this document. The assimilative capacity represents the amount of contamination load that can be discharged to a specific water body without exceeding the WQS applicable to the POC. Degradation is considered minimal if the new or proposed loading (i.e., event-specific) is less than 10 percent of the facility assimilative capacity...and the cumulative degradation is less than **10 percent** of the segment assimilative capacity* [emphasis added].

Lastly, section II.A.3 (page 23) requires that a Tier 2 antidegradation review be conducted by the MDNR whenever cumulative degradation represents ten percent or more of the SAC.

B. The EPA's Findings

The above-mentioned revisions to the state's AIP address those objections raised in the EPA's August 16, 2011, decision letter but raise another concern. Specifically, in assessing the need for a Tier 2 review, the AIP treats essentially all SAC reductions of less than ten percent as *de minimis* changes in water quality, making no distinction between the changes caused by bioaccumulative pollutants and those caused by non-bioaccumulative pollutants. The EPA knows of no single threshold value (percentage reduction in SAC) that can be safely applied in a *de minimis* manner, and in all situations, to bioaccumulative pollutants. Depending on a water body's physical, chemical and biological properties, and on the circumstances surrounding the lowering of water quality, even a small increase in the level of a bioaccumulative pollutant may

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pose an unacceptable risk to aquatic organisms and/or human health. As explained by the EPA in a recent WQS action involving the State of Idaho[8]:

- Any increase in the rate of mass loading of a bioaccumulative contaminant has the potential to significantly lower water quality because such substances accumulate in the biota, do not readily degrade and often result in adverse effects at concentrations well below those that can be accurately measured in the ambient environment.

- Aquatic organisms can accumulate chemicals in their bodies when they are exposed to these chemicals through water, diet and other sources. The extent of bioaccumulation by aquatic organisms varies widely depending on the affected species, the water body, water chemistry, and the chemical in question, but it can be extremely high for some highly persistent and lipid-soluble chemicals. Concentrations of such chemicals in fish and shellfish can pose unacceptable long-term risks to humans consuming these organisms.

The EPA hereby disapproves 10 CSR 20-7.031(3)(D), because, as noted above, application of the *de minimis* provision in the state's AIP could lead, in certain situations, to the impairment of Tier 2 waters, an outcome prohibited by 40 CFR Parts 131.12(a)(1) and 131.12(a)(2). We would encourage the state to revise its AIP, either by removing the *de minimis* provision or by no longer applying this provision automatically to activities/discharges constituting sources of bioaccumulative pollutants. Under the latter option, a Tier 2 antidegradation review could be required by the state whenever a proposed activity/discharge would increase the ambient concentration of a bioaccumulative substance; alternatively, in situations involving SAC reductions of less than ten percent, the state could reserve the right to require, or not to require, a Tier 2 antidegradation review after considering the physical, chemical and biological properties of the affected surface water, the circumstances surrounding the lowering of water quality, and the attendant risks to the environment and to human health.

Lastly, we note that the AIP at Appendix 3 (page 52) contains a reference to a 100% (rather than a 10%) cumulative threshold. This reference, which appears to be a typographical error, must be corrected in any revised AIP submitted by the state to the EPA.

III. Revised Provisions Affecting Ephemeral Waters and Non-Designated Waters

A. Regulatory Background

Missouri's general (narrative) water quality criteria at 10 CSR 20-7.031(4) are applied to all waters of the state and serve to (1) protect the public health, (2) safeguard aquatic and terrestrial wildlife and domestic livestock, (3) preserve the aesthetic condition of surface waters and (4) protect the designated uses of surface waters, where applicable. These criteria include the following provisions bearing on toxic substances (bold text represents newly adopted language; strike-through text represents newly deleted language):

[8] Letter from Daniel Opalski, EPA, to Barry Burnell, Idaho Department of Environmental Quality, dated July 23, 2013

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(4) General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions...

(D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal, or aquatic life...

(G) Waters shall be free from physical, chemical, or hydrologic changes that would impair the natural biological community...

(I) Waters in mixing zones, ***ephemeral aquatic habitat*** *and ~~unclassified~~ waters* ***of the state lacking designated uses*** *shall be subject to the following requirements:*

1. *The acute toxicity criteria of Tables A and B and the requirements of subsection (5)(B); and*

2. *The following whole effluent toxicity conditions must be satisfied:*

A. *Single dilution method. The percent effluent at the edge of the zone of initial dilution will be computed and toxicity tests performed at this percent effluent. These tests must show statistically-insignificant mortality on the most sensitive of at least two (2) representative, diverse species; and*

B. *Multiple dilution method. An LC_{50} will be derived from a series of test dilutions. The computed percent effluent at the edge of the zone of initial dilution must be less than three-tenths (0.3) of the LC_{50} for the most sensitive of at least two (2) representative, diverse species.*

C. The EPA's Findings

In revising 10 CSR 20-7.031(4)(I), Missouri deleted an earlier reference to "unclassified waters" and added the terms "ephemeral aquatic habitat" and "waters of the state lacking designated uses." The EPA interprets this to mean that:

(1) The occurrence of toxic substances in toxic amounts, manifested in the form of either acute toxicity or chronic toxicity, is prohibited in all waters of the state (10 CSR 20-7.031(4)(D) and (4)(G)) and

(2) The acute criteria set forth in tables A and B of the WQS are likewise applicable to all waters of the state, including all waters designated for ephemeral aquatic habitat and all waters lacking designated uses (10 CSR 20-7.031(4)(I)1). The EPA hereby approves the revised language at 10 CSR 20-7.031(4)(I) as an interim step in achieving the objectives of section 101(a)(2) of the CWA as applied to ephemeral aquatic habitats and waters lacking designated uses.

The revised language at 10 CSR 20-7.031(4)(I) provides all waters designated for EAH and all waters lacking designated uses with a baseline level of water quality protection, largely in the form of acute criteria. However, this language does not exempt these waters from the future application

of other forms of numeric criteria (e.g., chronic criteria; recreational criteria). The state has not yet adopted criteria specifically designed to protect the EAH use, nor has it assigned any uses and corresponding criteria to wetlands and many smaller streams and lakes meeting the definition of waters of the United States. The EPA is aware that the MDNR has hosted stakeholder meetings in recent months to address these deficiencies and expects the state to

(1) Expeditiously develop and adopt scientifically defensible criteria for the protection of the EAH use and

(2) Expeditiously assign CWA section 101(a)(2) uses to jurisdictional wetlands and other waters of the United States currently lacking designated uses, except where it is demonstrated that section 101(a)(2) uses are unattainable pursuant to 40 CFR Part 131.10(g).

The state is reminded that, prior to assigning EAH to any waters of the United States, it must demonstrate that this use represents the highest attainable use (40 CFR Parts 131.2, 131.5, 131.6 and 131.10), and it must promulgate numeric criteria for this use that are scientifically defensible and protective of resident and migratory forms of aquatic and semiaquatic life (40 CFR Part 131.11).[9]

Lastly, 10 CSR 20-7.031(4)(I)2 continues to require *both* a single dilution-based procedure and a multiple dilution-based procedure in the assessment of whole-effluent acute toxicity. The EPA strongly discourages the use of single dilution-based tests, which tend to produce highly variable results, and encourages instead the use of multiple dilution-based procedures.[10] This position also is reflected in the state's own effluent regulations, which stipulate, at 10 CSR 20-7.015(9)(L)2.A, that "WET tests shall be a multiple dilution series, static, non-renewable test to determine the degree at which forty-eight to ninety-six hour (48–96 hour) exposure to the effluent is acutely toxic to aquatic life expressed in species survival." 10 CSR 20-7.031(4)(I)2.B also contains a reference to the "LC_{50}." This reference appears to be in error, as the criterion maximum concentration should be set at 0.3 times the applicable acute toxicity unit (0.3 TU_a) pursuant to the EPA's long-standing guidance on zones of initial dilution.[11] The EPA strongly encourages the state to revise 10 CSR 20-7.031(4)(I)2, in a manner that (1) requires the use of a multiple dilution-based procedure in the development of WET permit limits and (2) provides for a consistent level of water quality protection based on the application of 0.3 TU_a at the edge of the zone of initial dilution.

IV. Assorted Revisions to the State's Specific Criteria Provisions

A. 10 CSR 20-7.031(5) addresses the application of specific (numeric) water quality criteria. The state has revised the first paragraph in this section in the following manner (bold text represents newly adopted language; strike-through text represents newly deleted language):

(5) Specific criteria. The specific criteria shall apply to ~~classified~~ waters ***contained in Tables G and H of this rule and the Missouri Use Designation Dataset.*** *Protection of drinking water supply is limited to surface waters designated for raw drinking water supply and aquifers.*

[9] Letter from Karen Flournoy, EPA, to Sara Parker Pauley, MDNR, dated October 22, 2014
[10] Letter from Karen Flournoy, EPA to John Hoke, MDNR, dated September 18, 2013
[11] *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001)

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Protection of whole body contact recreation is limited to ~~classified~~ waters designated for that use.

The above paragraph establishes that numeric water quality criteria apply to those waters of the state identified in MUDD and in tables G and H of the WQS. These waters are designated for CWA section 101(a)(2) uses and other uses, except where UAAs have demonstrated that such uses are unattainable under 40 CFR Part 131.10(g). The revised paragraph comports with 40 CFR 131.11 and is hereby approved by the EPA. In approving this paragraph, the EPA expects the state to expeditiously (1) expand and refine MUDD by assigning appropriate uses to wetlands and other waters currently lacking designated uses and (2) adopt criteria for such waters that are scientifically defensible and protective of the assigned uses.

B. 10 CSR 20-7.031(5)(A) has been revised in a manner that exempts certain waters from the application of chronic criteria. The first sentence in this provision reads as follows (bold text represents newly adopted language):

(A) The maximum chronic toxicity criteria in Tables A and B shall apply to waters designated for the indicated uses given in ***the Missouri Use Designation Dataset and*** *Tables G and H,* ***except for waters designated for Ephemeral Aquatic Habitat or where less stringent criteria have been developed following a use attainability analysis.***

The above sentence is inconsistent with other provisions in the state's WQS and with applicable federal regulations. Consider the following points:

- 10 CSR 20-7.031(5)(A) seemingly should have referenced the state's site-specific criteria provisions at 10 CSR 20-7.031(5)(S) rather than the term "use attainability analysis." The provisions at 10 CSR 20-7.031(5)(S) lend themselves to the development of alternative criteria by (1) identifying the circumstances under which site-specific criteria may be justifiable and (2) establishing the procedures and methods that must be followed when developing such criteria. The revised language at 10 CSR 20-7.031(5)(A) also emphasizes the development of "less stringent criteria." The state should bear in mind that, in certain instances, site-specific criteria may be more stringent than the criteria they supplant (see 10 CSR 20-7.031(5)(S)).

- Missouri has provided no scientific justification for the revised language at 10 CSR 20-7.031(5)(A) that categorically exempts ephemeral aquatic habitats from all chronic criteria. Chronic criteria typically are applied as four day averages with an allowable excursion frequency of once in three years.[2] In the absence of any supporting scientific evidence, the EPA believes it would be imprudent to assume that ephemeral streams in the state never flow for periods of four days or more in a three-year period, or that organisms inhabiting these streams never are exposed to waterborne pollutants for periods of four days or more in a three-year period.

  The state has established an EAH use category at 10 CSR 20-7.031(1)(C)1.D but has not developed and adopted numeric water quality criteria for this category or assigned EAH to any waters. It is anticipated that the state will eventually develop numeric criteria specifically

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for the EAH use, at which time it may wish to examine the applicability or non-applicability of four-day averaging periods and three-year recurrence intervals. Criteria ultimately adopted by the state must be based on a sound scientific rationale and must be protective of the EAH use (40 CFR Part 131.11). When submitting new or revised criteria to the EPA, the state must describe the methods and analyses used to develop the criteria (40 CFR Part 131.6(b)). The state also must provide information on any general policies affecting the application and implementation of the submitted criteria (40 CFR Part 131.6(f)).

Based on the above considerations, the EPA partially approves and partially disapproves the revised language at 10 CSR 20-7.031(5)(A): the revised language bearing on MUDD is approved because it comports with 40 CFR Part 131.11, whereas the revised language bearing on the EAH use and on UAAs is disapproved because it fails to comport with 40 CFR Parts 131.6 and 131.11. The approved portion of 10 CSR 20-7.031(5)(A) reads as follows (strike-through text represents disapproved language):

(A) The maximum chronic toxicity criteria in Tables A and B shall apply to waters designated for the indicated uses given in the Missouri Use Designation Dataset and Tables G and H~~; except for waters designated for Ephemeral Aquatic Habitat or where less stringent criteria have been developed following a use attainability analysis~~.

C. 10 CSR 20-7.031(5)(B)5 establishes a process for developing site-specific criteria for the human health/fish consumption use. This provision has been revised by the state in the following manner (bold text represents newly adopted language; strike-through text represents newly deleted language):

5. *Site-specific alternative criteria for human health-fish consumption may be allowed. Designation of these site-specific criteria must follow ~~the established variance request process~~* ***procedures set forth in U.S. Environmental Protection Agency's Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health, October 2000 (EPA-822-B-00-004), as published by the Office of Science and Technology, Office of Water, U.S. Environmental Protection Agency, Washington, DC 20460, which is hereby incorporated by reference and does not include any later amendments or additions. The department shall maintain a copy of the referenced document and shall make it available to the public for inspection and copying at no more than the actual cost of reproduction.***

The referenced document (EPA-822-B-00-004) presents detailed recommendations for the development of human health criteria, focusing on procedures used in the evaluation of cancer risks, other health-related risks, human exposure to pollutants, and pollutant bioaccumulation potential in fish. States are encouraged to follow the procedures described in this document when developing fish consumption-based criteria reflective of local (site-specific) conditions. The EPA approves the above-noted changes to 10 CSR 20-7.031(5)(B)5, because these changes are fully consistent with 40 CFR 131.11.

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D. 10 CSR 20-7.031(5)(R) addresses numeric biological criteria and has been revised by the state in the following manner (bold text represents newly adopted language; strike-through text represents newly deleted language):

(R) Biocriteria. The biological integrity of waters, as measured by lists or numeric ~~diversity~~ indices of benthic invertebrates, fish, algae, or other appropriate biological indicators, shall not be significantly different from reference waters. Waters ***targeted for numeric biological criteria assessment must be contained within the Missouri Use Designation Dataset and*** *shall be compared to reference waters of similar size,* ***scale within the stream network, habitat type, and aquatic*** *~~within an~~ ecoregion* ***type.*** *Reference water locations* ***for some aquatic habitat types*** *are listed in Table I.*

These revisions describe in greater detail the physical and geographical considerations made by the state in the selection of reference waters, and they clarify that Table I does not represent a comprehensive list of reference waters in Missouri. The revised language also requires that waters actually targeted for numeric biological assessment be contained in MUDD (i.e., designated beforehand for the protection and propagation of fish, shellfish and wildlife). This language comports with 40 CFR Part 131.11(b)(2) and is hereby approved by the EPA. However, the EPA again emphasizes that the state must expeditiously (1) expand and refine MUDD by assigning appropriate uses to wetlands and other waters currently lacking designated uses and (2) adopt criteria for these waters that are scientifically defensible and protective of the assigned uses.

E. 10 CSR 20-7.031(5)(S) addresses the development and application of site-specific water quality criteria in Missouri. The header and opening sentence of this subsection have been revised by the state in the following manner (bold text represents newly adopted language; strike-through text represents newly deleted language):

(S) Site-Specific Criteria for the Protection ***and Propagation of Fish, Shellfish and Wildlife*** *~~of Aquatic Life~~. When water quality criteria in this regulation are either underprotective or overprotective of water quality due to* ***factors influencing bioavailability, or*** *~~natural,~~ non-anthropogenic conditions for a given water body segment, a petitioner may request site-specific criteria.*

This revision appears to allow certain anthropogenic factors affecting bioavailability (e.g., human-induced increases in water hardness or dissolved organic carbon concentration; human-induced changes in pH or temperature) to be considered during the development and application of site-specific criteria. Provided that the considered anthropogenic factors comport with all applicable technology-based effluent limits, narrative and numeric water quality criteria, and antidegradation regulations and implementation policies, and provided that the resulting criteria are scientifically defensible and protective of the designated use, this revision is consistent with 40 CFR Part 131.11. The EPA approves the above-noted changes to 10 CSR 20-7.031(5)(S).

F. 10 CSR 20-7.031(5)(S)3 also addresses site-specific criteria and has been revised by the state in the following manner (bold text represents newly adopted language):

3. *Site-specific criteria shall protect all life stages of resident species and prevent acute and chronic toxicity in all parts of a water body* ***unless early life stages are determined absent.***

The intent of the newly adopted language is unclear. As worded, the revised sentence could be interpreted to mean that site-specific criteria are not required to be protective of resident species or preventative of acute and chronic toxicity where early life stages are determined absent. Any criterion developed pursuant to such an interpretation would not be protective of the aquatic habitat use and, therefore, would be inconsistent with 40 CFR Part 131.11. Based on this concern, the EPA disapproves the revised language at 10 CSR 20-7.031(5)(S)3. The state may wish to rewrite this provision in a manner acknowledging that site-specific criteria must be protective of those organisms and life stages that actually occur, or normally would be expected to occur, in the affected surface waters. This would include any organisms and life stage entering the waters on a seasonal or episodic basis.[12]

CONCLUDING REMARKS

The EPA appreciates Missouri's continuing efforts to protect and restore water quality and its overall commitment to the triennial WQS review and revision process. We look forward to working with the MDNR, the Commission and interested stakeholders on future WQS revisions. Should you have any questions or comments regarding today's actions, please contact John DeLashmit, Chief, Water Quality Management Branch, at (913) 551-7821.

Sincerely,

Karen A. Flournoy
Director
Water, Wetlands and Pesticides Division

cc: Mr. John Madras, MDNR
Mr. Corey Buffo, EPA HQ

[12] *Revised Deletion Process for the Site-Specific Recalculation Procedure for Aquatic Life Criteria* (EPA-823-R-13-001)

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