Presented below are water quality standards that are in effect for Clean Water Act purposes.

EPA is posting these standards as a convenience to users and has made a reasonable effort to assure their accuracy. Additionally, EPA has made a reasonable effort to identify parts of the standards that are not approved, disapproved, or are otherwise not in effect for Clean Water Act purposes.

Kansas
Department of Health and Environment

KANSAS SURFACE WATER QUALITY STANDARDS

Prepared by The Kansas Department of Health and Environment

Bureau of Water

November, 2022

Kansas
Department of Health and Environment

DATE: November 10, 2022

FROM: Dane Boring, Unit Chief, Policy Planning & Standards Unit

SUBJECT: Kansas Surface Water Quality Standards and Supporting Documents

The following pages contain a compilation of the most currently effective **Kansas Surface Water Quality Standards (KSWQS)** (K.A.R. 28-16-28b through 28-16-28h and 28-16-58), and links to several of the standards supporting documents. Provided supporting documents include the **Kansas Surface Water Quality Standards: Tables of Numeric Criteria**, the **Kansas Antidegradation Policy**, the **Kansas Implementation Procedures: Surface Water Quality Standards**, and the **Kansas Surface Water Quality Standards Variance Register**. The latest revision to **Kansas Surface Water Quality Standards**, K.A.R. 28-16-28b, K.A.R. 28-16-28e through 28-16-28h were published in the *Kansas Register* on March 10, 2022 and became effective on March 25, 2022. K.A.R. 28-16-28c and K.A.R 28-16-58 were published in the *Kansas Register* on March 5, 2015 and became effective on March 20, 2015. K.A.R 28-16-28d were published in the *Kansas Register* on February 8, 2018 and became effective on February 23, 2018.

There have been many style and editorial changes to the regulations. The major amendments to this set of regulations include:

- Adopting revised criteria for (methyl)mercury, endrin, 1,2-dichloropropane, 1,2,4-trichlorobenzene, and barium - human health criteria;
- Adopting revised criteria for cadmium chronic and dissolved oxygen - aquatic life criteria;
- Adopting a revised implementation procedure to calculate the highest attainable condition - A Surface Water Quality Standards Variance requirement;
- Adopting a revised rule referenced Kansas Eligibility Determination for Wastewater Lagoon Ammonia Variance.

The ***official*** regulations are published by the Kansas Secretary of State. However, due to publication period by the Secretary of State lagging official adoption of new regulations and for the sake of convenience in referencing the documents adopted by reference most frequently referred to, the Bureau of Water has taken the electronic versions of the amended regulations as submitted and approved by the Secretary of State and compiled the most current versions of all associated regulations and related documents. The copy of these regulations included in this document are an unofficial version compiled for use as a guide and may not be used as evidence in a court of law. Copies for this purpose must be obtained from the official state records, which are available through the Office of the Secretary of State, Capitol Building, 2nd Floor, Topeka, KS 66612.

The **Kansas Surface Water Quality Standards: Tables of Numeric Criteria** was created during the 2002 Triennial Review at the request of the Department of Administration. During the 2002 Triennial Review, KDHE separated the numeric criteria from the narrative criteria. The Department of Administration believed that with the addition of these new tables to K.A.R. 28-16-28e that it would make the review process very cumbersome and difficult to print in the Kansas Register. The Department of Administration states in their Policy and Procedures Manual that "agencies may wish to consider adopting a document by reference when the material is lengthy, highly complex, or technical, or when the materials cannot be readily adapted to the form, style and organization requirement for regulations." KDHE took this advice and created the Tables of Numeric Criteria, which are currently adopted by reference in K.A.R. 28-16-28e(e).

The **Kansas Antidegradation Policy** is a component of the Surface Water Quality Standards in the State's overall water quality program and is referenced in K.A.R. 28-16-28c(a). The intent of the antidegradation policy is to limit discharges and other activities that will negatively impact water quality, impair designated uses, or threaten to impair designated uses of surface waters. The antidegradation policy provides a baseline level of protection relative to established water quality criteria to all classified surface waters, and a higher level of protection to those waterbodies recognized as unique ecologically, highly valued for its resources, or having high water quality.

The **Kansas Implementation Procedures: Surface Water Quality Standards** are federally required and adopted by reference in K.A.R. 28-16-28b(ll). The Environmental Protection Agency (EPA) directs that the implementation procedures should address the mechanisms to be used by the State to ensure that standards are attained. The implementation procedures provide a uniform mechanism for interpreting Kansas Surface Water Quality Standards in their application to waters of the state.

The **Kansas Surface Water Quality Standards Variance Register**, K.A.R. 28-16-28h, is a clearinghouse for all surface water quality variances adopted by the State. Please refer to the official regulations and the Bureau of Water website to obtain the most recent version of the Kansas Surface Water Quality Standards Variance Register.

KANSAS SURFACE WATER QUALITY STANDARDS
November 10, 2022

Kansas Administrative Regulations (K.A.R.) Encompassing KSWQS:

- **28-16-28b. Definitions**
- **28-16-28c. General provisions**
- **28-16-28d. Surface water classification and use designation**
- **28-16-28e. Surface water quality criteria**
- **28-16-28f. Administration of surface water quality standards**
- **28-16-28g. Surface water register**
- **28-16-28h. Surface water variance register**
- **28-19-58. Definitions**

Documents Adopted by Reference in KSWQS

- **Kansas Surface Water Quality Standards – Tables of Numeric Criteria**
- **Kansas Implementation Procedures: Surface Water Quality Standards**
- **Kansas Antidegradation Policy**
- **Kansas Surface Water Quality Standards Variance Register**

Related Documents and Electronic Links

- **Kansas Surface Water Register**
- **Kansas Surface Water Quality Standards White Papers**
- **KSWQS Triennial Review Supporting Information**

Kansas Department of Health and Environment

Amended Regulation

Article 16. – SURFACE WATER QUALITY STANDARDS

28-16-28b. Definitions. As used in K.A.R. 28-16-28b through 28-16-28h, each of the following terms shall have the meaning specified in this regulation:

(a) "Alluvial aquifer" means the sediment that is associated with and deposited by a stream and that contains water capable of being produced from a well.

(b) "Alternate low flow" means a low flow value, which is an alternate to the 7Q10 flow, that is based seasonally, hydrologically, or biologically, or a low flow determined through a water assurance district. Wherever used in this regulation in the context of mixing zones, the term shall refer to a minimum amount of streamflow occurring immediately upstream of a wastewater discharge and available, in whole or in part, for dilution and assimilation of wastewater discharges.

(c) "Antidegradation" means the regulatory actions and measures taken to prevent or minimize the lowering of water quality in surface waters of the state, including those streams, lakes, and wetlands in which existing water quality exceeds the level required for maintenance and protection of the existing uses.

(d) "Artificial sources" means sources of pollution that result from human activities and that can be abated by construction of control structures, modification of operating practices, complete restraint of activities, or any combination of these methods.

(e) "Background concentration" means the concentration of any elemental parameter listed in tables 1a, 1b, 1c, and 1d of the "Kansas surface water quality standards: tables of

numeric criteria," which is adopted by reference in K.A.R. 28-16-28e, or any elemental substance meeting the definition of pollutant in this regulation, that occurs in a surface water immediately upstream of a point source or nonpoint source under consideration and is from natural sources. The list of background concentration determinations for classified waterbodies of the state is contained in table 1h of the "Kansas surface water quality standards: tables of numeric criteria."

(f) "Base flow" means that portion of a stream's flow contributed by sources of water other than precipitation runoff. Wherever used in this regulation in the context of stream classification, the term shall refer to a fair-weather flow sustained primarily by springs or groundwater seepage, wastewater discharges, irrigation return flows, releases from reservoirs, or any combination of these factors.

(g) "Bioaccumulation" means the accumulation of toxic substances in plant or animal tissue through either bioconcentration or biomagnification.

(h) "Bioassessment methods and procedures" means the use of biological methods of assessing surface water quality, including field investigations of aquatic organisms and laboratory or field aquatic toxicity tests.

(i) "Bioconcentration" means the concentration and incorporation of toxic substances into body tissues from ambient sources.

(j) "Biomagnification" means the transport of toxic substances through the food chain through successive cycles of eating and being eaten and through the subsequent accumulation and concentration of these substances in higher-order consumers and predators.

(k) "Biota" means the animal and plant life and other organisms of a given geographical region.

(l) “Carcinogenic” means having the property of inducing the production of cancerous cells in organisms.

(m) “Classified surface water” means any surface water or surface water segment that supports or, in the absence of artificial sources of pollution, would support one or more of the designated uses of surface water defined in K.A.R. 28-16-28d or K.S.A. 82a-2001, and amendments thereto, and that meets the criteria for classification in K.A.R. 28-16-28d.

(n) “Compliance schedule” means any provision in a discharge permit, license, or enforceable order issued by the department pursuant to the federal clean water act or K.S.A. 65-165 et seq., and amendments thereto, that, for the purposes of meeting water quality-based effluent limitations, technology-based limits, and effluent limitations determined by the secretary or specified in Kansas statutes and regulations, provides a specified period of time for the construction or renovation of a wastewater treatment facility and the completion of any related scientific or engineering studies, reports, plans, design specifications, or other submittals required by the department.

(o) “Condition of acute toxicity” means any concentration of a toxic substance that exceeds the applicable acute criterion for aquatic life support specified in K.A.R. 28-16-28e or, for substances not listed in K.A.R. 28-16-28e or for mixtures of toxic substances, any concentration that exceeds 0.3 acute toxic units (TU_a), where one TU_a is equal to 100 divided by the median lethal concentration (LC50). The concentration at which acute toxicity exists shall be determined through laboratory toxicity tests conducted in accordance with the EPA’s “methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms.”

(p) “Condition of chronic toxicity” means any concentration of a toxic substance that exceeds the applicable chronic criterion for aquatic life support specified in K.A.R. 28-16-28e or, for substances not listed in K.A.R. 28-16-28e or for mixtures of toxic substances, any concentration that exceeds 1.0 chronic toxic unit (TUc), where one TUc is equal to 100 divided by inhibition concentration 25 (IC25). The concentration at which chronic toxicity exists shall be determined through laboratory toxicity tests conducted in accordance with the EPA’s “short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms.”

(q) “Criterion” means any numerical element or narrative provision that represents an enforceable water quality condition specified in K.A.R. 28-16-28b through 28-16-28h.

(r) “Critical low flow” means the minimum amount of streamflow immediately upstream of a point source discharge that will be used to calculate the quantity of pollutants that the point source discharge may be permitted to discharge without exceeding water quality criteria specified in K.A.R. 28-16-28b through 28-16-28h. The critical low flow may be the 7Q10 flow or the alternate low flow as defined in this regulation.

(s) “Department” means Kansas department of health and environment.

(t) “Designated use” means any of the uses specifically attributed to surface waters of the state in K.A.R. 28-16-28d or K.S.A. 82a-2001, and amendments thereto.

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

(v) “Discharge” means the release of effluent, either directly or indirectly, into surface waters of the state.

(w) “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 treatment 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) "Discharger" means a person or facility that is responsible for the release of effluent into surface waters of the state.

(y) "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.

(z) "Ecological integrity" means the natural or unimpaired structure and functioning of an aquatic or terrestrial ecosystem.

(aa) "Effluent" means the sewage or other wastewater discharged from an artificial source.

(bb) "EPA" means United States environmental protection agency.

(cc) "*Escherichia coli*" means a subset of the coliform group that is part of the normal intestinal flora in humans and animals and is a direct indicator of fecal contamination in water.

(dd) "Exceptional state waters" means any of the surface waters or surface water segments that are of remarkable quality or of significant recreational or ecological value, are listed in the surface water register as defined in this regulation, and are afforded the level of water quality protection under the antidegradation provisions of K.A.R. 28-16-28c and the mixing zone provisions of K.A.R. 28-16-28c.

(ee) "Excursion from numeric criteria value" means the digression of a pollutant exceeding its numeric criteria value beyond the designated duration of digression.

(ff) “Existing use” means any of the designated uses described in K.A.R. 28-16-28d or K.S.A. 82a-2001, and amendments thereto, known to have occurred in, or to have been made of, a surface water or surface water segment on or after November 28, 1975.

(gg) “Federal clean water act” means the federal water pollution prevention and control act, 33 U.S.C. Section 1251 et seq., as in effect on January 14, 2019.

(hh) “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.

(ii) “General purpose waters” means any classified surface water that is not classified as an outstanding national resource water or an exceptional state water.

(jj) “Groundwater” means water located under the surface of the land that is or can be the source of supply for wells, springs, or seeps or that is held in aquifers or the soil profile.

(kk) “Highest attainable condition” and “HAC” mean the achievable goal of a variance, as specified in K.A.R. 28-16-28f(d), that reflects the modified designated use and criterion, designated use, or criterion that is applicable throughout the term of a variance.

(11) “Inhibition concentration 25” and “IC_{25}” mean a point estimate of the toxicant concentration that would cause a 25 percent reduction in a nonlethal biological measurement of the test organisms, including reproduction and growth.

(mm) “Interim criterion” means a temporary criterion.

(nn) “Interim designated use” means a temporary designated use.

(oo) “Kansas antidegradation policy,” dated August 6, 2001 and hereby adopted by reference, means the department’s written policy used to prevent or minimize the lowering of water quality in surface waters of the state.

(pp) "Kansas implementation procedures: surface water quality standards," including "section 4 appendix A," dated February 18, 2021 and hereby adopted by reference, means the department's written procedures used for carrying out specific provisions of surface water quality standards, available upon request from the department's division of environment.

(qq) "Maximum contaminant level" means any of the enforceable standards for finished drinking water quality specified in 40 C.F.R. 141.11, 141.13, and 141.61 through 141.66, as in effect on July 1, 2012.

(rr) "Median lethal concentration" means the concentration of a toxic substance or a mixture of toxic substances calculated to be lethal to 50 percent of the population of test organisms in an acute toxicity test.

(ss) "Microfibers per liter" and "µfibers/L" mean the number of microscopic particles with a length-to-width ratio of 3:1 or greater present in a volume of one liter.

(tt) "Microgram per liter" and "µg/L" mean the concentration of a substance at which one one-millionth of a gram (10^{-6} g) of the substance is present in a volume of one liter.

(uu) "Milligram per liter" and "mg/L" mean the concentration of a substance at which one one-thousandth of a gram (10^{-3} g) of the substance is present in a volume of one liter.

(vv) "Mixing zone" means the designated portion of a stream or lake where a discharge is incompletely mixed with the receiving surface water and where, in accordance with K.A.R. 28-16-28e, concentrations of certain pollutants may legally exceed chronic water quality criteria associated with the established designated uses that are applied in most other portions of the receiving surface water.

(ww) "Mutagenic" means having the property of directly or indirectly causing a mutation.

(xx) “Multiple-discharger variance” and “MDV” mean a term-limited variance for more than one discharger that is issued for a specified criterion or pollutant to achieve the highest attainable condition.

(yy) “Nonpoint source” means any activity that is not required to have a national pollutant discharge elimination system permit and that results in the release of pollutants to waters of the state. This release can result from precipitation runoff, aerial drift and deposition from the air, or the release of subsurface brine or other contaminated groundwaters to surface waters of the state.

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

(aaa) “Outstanding national resource water” means any of the surface waters or surface water segments of extraordinary recreational or ecological significance identified in the surface water register, as defined this regulation, and afforded the highest level of water quality protection under the antidegradation provisions and the mixing zone provisions of K.A.R. 28-16-28c.

(bbb) “pH” means the common logarithm of the reciprocal of the hydrogen ion concentration measured in moles per liter, expressed on a scale that ranges from zero to 14, with values less than seven being more acidic and values greater than seven being more alkaline.

(ccc) “Picocurie per liter” and “pCi/L” mean a volumetric unit of radioactivity equal to 2.22 nuclear transformations per minute per liter.

(ddd) “Point source” means any discernible, confined, and discrete conveyance from which pollutants are or could be discharged.

(eee) "Pollutant" means any physical, biological, or chemical conditions, substances, or combination of substances released into surface waters of the state that results in surface water pollution, as defined in this regulation.

(fff) "Pollutant minimization plan" and "PMP" mean a structured set of activities to improve processes and pollutant controls that prevent and reduce pollutant levels, including any cost-effective process for reducing pollutant levels, pollution prevention, treatment, best management practices, and other control mechanisms.

(ggg) "Potable water" means water that is suitable for drinking and cooking purposes in terms of both human health and aesthetic considerations.

(hhh) "Precipitation runoff" means the rainwater or the meltwater derived from snow, hail, sleet, or other forms of atmospheric precipitation that flows by gravity over the surface of the land and into streams, lakes, or wetlands.

(iii) "Presedimentation sludge" means a slurry or suspension of residual solid materials derived from an initial step in the production of potable water. This term shall include residual solids originating from the raw water supply used for industrial or other nonpotable water purposes, before the addition of any artificial materials not typically used in the production of potable water. The solid materials shall include sand, silt, and other easily settleable particles originating from the raw water supply.

(jjj) "Private surface water" means any freshwater reservoir or pond that is both located on and completely bordered by land under common private ownership.

(kkk) "Public swimming area" means either of the following:

(1) Any classified surface water that is posted for swimming by a federal, state, or local government that has jurisdiction over the land adjacent to that particular body of water; or

(2) any privately owned or leased body of water that is open and accessible to the public and is intended for swimming.

(lll) "Reconfiguration activities" means actions that beneficially reshape, remodel, or otherwise restructure the physical setting and characteristics of a surface water of the state.

(mmm) "Seven-day, ten-year low flow" and "7Q10 flow" mean the seven-day average low flow having a recurrence frequency of once in 10 years, as statistically determined from historical flow data. Where used in this regulation in the context of mixing zones, these terms shall refer to the minimum amount of streamflow occurring immediately upstream of wastewater discharge and available, in whole or in part, for dilution or assimilation of wastewater discharges.

(nnn) "Site-specific criterion" means any criterion applicable to a given classified surface water segment and developed for the protection of the designated uses of that segment alone.

(ooo) "Streamflow" means the volume of water moving past a stream cross-sectional plane per unit of time.

(ppp) "Surface water pollution" and "pollution" mean any of the following:

(1) Contamination or other alteration of the physical, chemical, or biological properties of the surface waters of the state, including changes in temperature, taste, odor, turbidity, or color of the waters;

(2) discharges of gaseous, liquid, solid, radioactive, microbiological, or other substances into surface waters in a manner that could create a nuisance or render these waters harmful, detrimental, or injurious to any of the following:

(A) Public health, safety, or welfare;

(B) domestic, industrial, agricultural, recreational, or other designated uses; or

(C) livestock, domestic animals, or native or naturalized plant or animal life; or

(3) any discharge that will or is likely to exceed state effluent limitations predicated upon technology-based effluent standards or water quality-based standards.

(qqq) "Surface water register" means a list of the state's major classified surface waters, including a listing of waters recognized as outstanding national resource waters or exceptional state waters, and the surface water use designations for each classified surface water, periodically updated and published by the department. The surface water register, published as the "Kansas surface water register," is adopted by reference in K.A.R. 28-16-28g.

(rrr) "Surface water segment" means a delineated portion of a stream, lake, or wetland.

(sss) "Surface waters" means the following:

(1) Streams, including rivers, creeks, brooks, sloughs, draws, arroyos, canals, springs, seeps, and cavern streams, and any alluvial aquifers associated with these surface waters;

(2) lakes, including oxbow lakes and other natural lakes and man-made reservoirs, lakes, and ponds; and

(3) wetlands, including swamps, marshes, bogs, and similar areas that are inundated or saturated by surface water or groundwater at a frequency and a duration that are sufficient to support, and under normal circumstances that do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

(ttt) "Surface waters of the state" means all surface waters occurring within the borders of the state of Kansas or forming a part of the border between Kansas and one of the adjoining states.

(uuu) “Teratogenic” means having the property of causing abnormalities that originate from impairment of an event that is typical in embryonic or fetal development.

(vvv) “Thirty-day, ten-year low flow” and “30Q10 flow” mean the 30-day average low flow having a recurrence frequency of once in 10 years, as statistically determined from historical flow data. Where used in this regulation in the 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.

(www) “Toxic substance” means any substance that produces deleterious physiological effects in humans, animals, or plants.

(xxx) “Turbidity” means the cloudiness of water as measured by optical methods of nephelometry and expressed in standard nephelometric units.

(yyy) “Use attainability analysis” means a study conducted or accepted by the department that is designed to determine whether or not a surface water or surface water segment supports, or is capable of supporting in the absence of artificial sources of pollution, one or more of the designated uses defined in K.S.A. 82a-2001, and amendments thereto.

(zzz) “Variance” means a time-limited designated use and criterion that reflects the highest attainable condition as an alternative to one or more of the criteria specified in K.A.R. 28-16-28e, as implemented by the department in accordance with K.A.R. 28-16-28f.

(aaaa) “Water-effect ratio” and “WER” mean the numerical toxicity, including median lethal concentration and inhibition concentration 25, of a chemical pollutant diluted in water from a given stream, lake, or wetland divided by the numerical toxicity of the same pollutant diluted in laboratory water.

(bbbb) “Water quality certification” means the department's written finding that a proposed action that impacts water quality will comply with the terms and conditions of the Kansas surface water quality standards.

(cccc) “Whole-effluent toxicity limitation” means any restriction imposed by the department on the overall acute or chronic toxicity of an effluent discharged to a surface water.

(dddd) “Zone of initial dilution” means the region of a surface water in the immediate vicinity of a discharge where acute and chronic criteria may be exceeded. (Authorized by K.S.A. 65-171d and 65-171m; implementing K.S.A. 65-165, 65- 171d, and 65-171m; effective May 1, 1986; amended Aug. 29, 1994; amended July 30, 1999; amended Nov. 3, 2000; amended Aug. 31, 2001; amended Jan. 3, 2003; amended Oct. 24, 2003; amended Jan. 28, 2005; amended March 20, 2015; amended Feb. 23, 2018; amended March 25, 2022.)

Kansas Department of Health and Environment

Amended Regulation

Article 16. – SURFACE WATER QUALITY STANDARDS

28-16-28c. General provisions. (a) Antidegradation.

(1) General purpose waters.

(A) Levels of water quality in surface waters of the state shall be maintained to protect the existing uses of those surface waters.

(B) For all surface waters of the state, if existing water quality is better than applicable water quality criteria established in K.A.R. 28-16-28b through 28-16-28g, that existing water quality shall be fully maintained and protected.

Water quality may be lowered only if the secretary finds, after full satisfaction of the intergovernmental coordination and public participation requirements on antidegradation contained in the "Kansas antidegradation policy," as adopted by reference in K.A.R. 28-16-28b, that a lowering of water quality is needed to allow for important social or economic development in the geographical area in which the waters are located.

In allowing the lowering of water quality, the maintenance and protection of existing uses shall be ensured, and the highest statutory and regulatory requirements for all new and existing point sources of pollution and all cost-effective and reasonable best management practices for nonpoint sources of pollution shall be achieved.

(2) Exceptional state waters. Wherever surface waters of the state constitute exceptional state waters, discharges shall be allowed only if existing uses and existing water quality are maintained and protected.

(3) Outstanding national resource waters. Wherever surface waters of the state constitute an outstanding national resource water, existing uses and existing water quality shall be maintained and protected. New or expanded discharges shall not be allowed into outstanding national resource waters.

(4) Threatened or endangered species. No degradation of surface water quality by artificial sources of pollution shall be allowed if the degradation will result in harmful effects on populations of any threatened or endangered species of aquatic or semiaquatic life or terrestrial wildlife or its critical habitat as determined by the secretary of the department of wildlife, parks, and tourism pursuant to K.S.A. 32-960, and amendments thereto, K.A.R. 115-15-3, or the federal endangered species act, 16 U.S.C. Section 1532 et seq., as in effect on July 1, 2012.

(5) Temporary discharges. Temporary sources of pollution meeting the requirements of subsection (d) of this regulation and K.A.R. 28-16-28e, producing only ephemeral surface water quality degradation not harmful to existing uses, may be allowed by the department.

(6) Thermal discharges. Implementation of these antidegradation provisions for thermal discharges shall be consistent with the requirements of 33 U.S.C. Section 1326, as in effect on July 1, 2012.

(7) Implementation. Implementation of these antidegradation provisions shall be consistent with the "Kansas antidegradation policy," available upon request from the department.

(b) Mixing zones.

(1) General limitations. Mixing zones shall not extend across public drinking water intakes, stream tributary mouths, or swimming or boat ramp areas, nor shall mixing zones exist in locations that preclude the normal upstream or downstream movement or migration of aquatic organisms. Mixing zones associated with separate discharges shall not overlap unless a

department-approved demonstration indicates that the overlapping will not result in a violation of the general water quality criteria specified in K.A.R. 28-16-28e or in an impairment of the existing uses of the receiving surface water. The zone of initial dilution for a mixing zone shall comprise, in terms of volume, not more than 10 percent of the mixing zone.

(2) Discharges into classified 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.

(3) Effluent-dominated streams. If the ratio of the receiving stream critical low flow to the discharge design flow is less than 3:1, then the mixing zone shall be the cross-sectional area or the volumetric flow of the stream during critical low flow conditions, as measured immediately upstream of the discharge during the critical low flow.

(4) Applications. Mixing zones shall be applied in accordance with paragraphs (b)(7) and (b)(8), based on the classification and designated uses of a stream segment for individual pollutants. For surface waters classified as outstanding national resource waters or exceptional state waters, or designated as special aquatic life use waters, mixing zones for specific discharges may be allowed by the secretary in accordance with paragraphs (b)(6), (b)(7), and (b)(8)(A). Mixing zones also may be allowed if there are no aquatic life criteria for an individual pollutant.

(5) Restrictions. 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) shall be reserved by the secretary wherever site conditions preclude the rapid dispersion and dilution of

effluent within the receiving surface water or if, in the judgment 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.

(6) Outstanding national resource waters. Mixing zones may be allowed by the secretary for existing permitted discharges in surface waters re-designated as outstanding national resource waters in the "Kansas surface water register" pursuant to K.A.R. 28-16-28g but shall be evaluated on an individual permit basis to prevent the degradation of the outstanding national resource waters.

(7) Exceptional state waters. If the ratio of the receiving stream critical low flow to the discharge design flow is equal to or greater than 3:1, the mixing zone shall not exceed 25 percent of the cross-sectional area or volumetric flow of the receiving stream during critical low flow conditions, measured immediately upstream of the discharge during the critical low flow.

(8) General purpose waters.

(A) Special aquatic life use waters. If the ratio of the receiving stream critical low flow to the discharge design flow is equal to or greater than 3:1, the mixing zone shall not exceed 25 percent of the cross-sectional area or volumetric flow of the receiving stream during critical low flow conditions, measured immediately upstream of the discharge during the critical low flow.

(B) Expected aquatic life use waters. If the ratio of the receiving stream critical low flow to the discharge design flow is equal to or greater than 3:1, the mixing zone shall not exceed 50 percent of the cross-sectional area or volumetric flow of the receiving stream during critical low flow conditions, measured immediately upstream of the discharge during the critical low flow.

(C) Restricted aquatic life use waters. If the ratio of the receiving stream critical low flow to the discharge design flow is equal to or greater than 3:1, the mixing zone shall not exceed

100 percent of the cross-sectional area or volumetric flow of the receiving stream during critical low flow conditions, measured immediately upstream of the discharge during the critical low flow.

(D) Recreational uses. Mixing zones for classified surface waters designated for recreational uses may be allowed by the secretary on an individual permit basis in accordance with paragraph (b)(10).

(9) Alternate low flows. Alternate low flows may be utilized by the department as the critical low flow in the calculation of the mixing zone cross-sectional area or volumetric flow for specific water quality criteria.

(A) The 30Q10 flow for ammonia or the guaranteed minimum flow provided by a water assurance district, if applicable, shall be used by the department in the calculation of the mixing zone cross-sectional area or volumetric flow.

(B) Other alternate low flows, with a specific recurrence frequency and averaging period, shall be considered by the department if those flows will not result in excursions above aquatic life criteria more frequently than once every three years.

(C) Each proposed alternate low flow shall be subject to approval by the secretary.

(10) Alternate or site-specific mixing zones. Alternate mixing zones employing specific linear distances for mixing zones or alternate stream dilution volumes or cross-sectional areas, or both, may be allowed by the secretary. Site-specific mixing zones may be allowed if data generated from a site-specific study supports the use of an alternate mixing zone, but maintains a zone of passage for aquatic life.

(11) Discharges into classified lakes. Mixing zones shall not extend into any lake classified as an outstanding national resource water or exceptional state water, or designated as a

special aquatic life use water according to K.A.R. 28-16-28d. Mixing zones in lakes designated as expected aquatic life use water or restricted aquatic life use waters may be allowed by the department if the mixing zones do not extend farther than 50 meters from the point of effluent discharge or do not comprise more than one percent of the total volume of the receiving lake as measured at the conservation pool.

(12) Discharges into classified ponds. Mixing zones shall not extend into any classified pond.

(13) Discharges into classified wetlands. Mixing zones shall not extend into any classified wetland.

(c) Special conditions. The following special conditions shall not remove the obligation to design, build, or use pollution control structures or methods to control point sources and nonpoint sources:

(1) Low flow. Any classified stream segment may be exempted by the secretary from the application of some or all of the numeric surface water criteria specified in K.A.R. 28-16-28e if streamflow is less than the critical low flow.

(2) Effluent-created flow.

(A) For any current classified stream segment in which continuous flow is sustained primarily through the discharge of treated effluent and the segment does not otherwise meet the requirements of a classified stream in K.A.R. 28-16-28d, the discharger shall provide treatment in accordance with the federal secondary treatment regulation, 40 C.F.R. 133.102, dated July 1, 2012.

(B) This discharge shall not violate the general surface water quality criteria listed in K.A.R. 28-16-28e or impair any of the existing or attained designated uses of a downstream classified stream segment.

(C) If a use attainability analysis demonstrates that the designated uses of a surface water segment are not attainable, then the new use designations for effluent-created flow shall be adopted as specified in K.A.R. 28-16-28d and approved by the EPA before serving as a basis for limitations in any new, reissued, or modified permit.

(d) Treatment requirements.

(1) All effluent shall receive appropriate minimum levels of treatment in accordance with 40 C.F.R. 122.44, dated July 1, 2012.

(2) Effluent shall receive a higher level of treatment than that stipulated in paragraph (d)(1) of this regulation, if the department determines that this higher level of treatment is needed to fully comply with the terms and conditions of subsection (a) of this regulation or K.A.R. 28-16-28e.

(e) Analytical testing. All methods of sample collection, preservation, and analysis used in applying K.A.R. 28-16-28b through 28-16-28g shall be in accordance with those methods prescribed by the department.

(f) Application of standards to privately owned reservoirs or ponds. The application of water quality standards to privately owned reservoirs or ponds shall be subject to the provisions of K.S.A. 65-171d, and amendments thereto. (Authorized by K.S.A. 2014 Supp. 65-171d, K.S.A. 2014 Supp. 82a-2010, and K.S.A. 65-171m; implementing K.S.A. 2014 Supp. 82a-2002, 82a-2003, 82a-2004, and 82a-2005; effective May 1, 1986; amended, T-87-8, May 1, 1986; amended May 1, 1987; amended Aug. 29, 1994; amended July 30, 1999; amended Aug. 31, 2001; amended Jan. 3, 2003; amended Jan. 28, 2005; amended March 20, 2015.

Kansas Department of Health and Environment

Amended Regulation

Article 16. – SURFACE WATER QUALITY STANDARDS

28-16-28d. Surface water classification and use designation. (a) Surface water classification. Surface waters shall be classified as follows:

(1) Classified stream segments shall be those stream segments defined in K.S.A. 2017 Supp. 82a-2001, and amendments thereto.

(2) Classified surface waters other than classified stream segments shall be defined as follows:

(A) Classified lakes shall be all lakes owned by federal, state, county, or municipal authorities and all privately owned lakes that serve as public drinking water supplies or that are open to the general public for primary or secondary contact recreation.

(B) Classified wetlands shall be the following:

(i) All wetlands owned by federal, state, county, or municipal authorities;

(ii) all privately owned wetlands open to the general public for hunting, trapping, or other forms of secondary contact recreation; and

(iii) all wetlands classified as outstanding national resource waters or exceptional state waters, or designated as special aquatic life use waters according to subsection (d).

Wetlands created for the purpose of wastewater treatment shall not be considered classified wetlands.

(C) Classified ponds shall be all ponds owned by federal, state, county, or municipal authorities and all privately owned ponds that impound water from a classified stream segment

as defined in paragraph (a)(1).

(b) Designated uses of classified surface waters other than classified stream segments. The designated uses of classified surface waters other than classified stream segments shall be defined as follows:

(1) "Agricultural water supply use" means the use of classified surface waters other than classified stream segments for agricultural purposes, including the following:

(A) "Irrigation," which means the withdrawal of classified surface waters other than classified stream segments for application onto land; and

(B) "livestock watering," which means the provision of classified surface waters other than classified stream segments to livestock for consumption.

(2) "Aquatic life support use" means the use of classified surface waters other than classified stream segments for the maintenance of the ecological integrity of lakes, wetlands, and ponds, including the sustained growth and propagation of native aquatic life; naturalized, important, recreational aquatic life; and indigenous or migratory semiaquatic or terrestrial wildlife directly or indirectly dependent on classified surface waters other than classified stream segments for survival.

(A) "Special aquatic life use waters" means either classified surface waters other than classified stream segments that contain combinations of habitat types and indigenous biota not found commonly in the state or classified surface waters other than classified stream segments that contain representative populations of threatened or endangered species.

(B) "Expected aquatic life use waters" means classified surface waters other than classified stream segments containing habitat types and indigenous biota commonly found or expected in the state.

(C) "Restricted aquatic life use waters" means classified surface waters other than classified stream segments containing indigenous biota limited in abundance or diversity by the physical quality or availability of habitat, due to natural deficiencies or artificial modifications, compared to more suitable habitats in adjacent waters.

(3) "Domestic water supply use" means the use of classified surface waters other than classified stream segments, after appropriate treatment, for the production of potable water.

(4) "Food procurement use" means the use of classified surface waters other than classified stream segments for obtaining edible forms of aquatic or semiaquatic life for human consumption.

(5) "Groundwater recharge use" means the use of classified surface waters other than classified stream segments for replenishing fresh or usable groundwater resources. This use may involve the infiltration and percolation of classified surface waters other than classified stream segments through sediments and soils or the direct injection of classified surface waters other than classified stream segments into underground aquifers.

(6) "Industrial water supply use" means the use of classified surface waters other than classified stream segments for nonpotable purposes by industry, including withdrawals for cooling or process water.

(7) "Recreational use" means the use of classified surface waters other than classified stream segments for primary contact recreation or secondary contact recreation.

(A) "Primary contact recreational use for classified surface waters other than classified stream segments" means the use of classified surface waters other than classified stream segments for recreation on and after April 1 through October 31 of each year, during which a person is immersed to the extent that some inadvertent ingestion of water is probable. This use

shall include boating, mussel harvesting, swimming, skin diving, waterskiing, and windsurfing.

(i) "Primary contact recreational use: swimming beach" shall apply to those classified surface waters other than classified stream segments that have posted public swimming areas. These waters shall present a risk of human illness that is no greater than 0.8 percent.

(ii) "Primary contact recreational use: public access" shall apply to those classified surface waters other than classified stream segments where full body contact can occur and that are, by law or written permission of the landowner, open to and accessible by the public. These waters shall present a risk of human illness that is no greater than 1.0 percent.

(iii) "Primary contact recreational use: restricted access" shall apply to those classified surface waters other than classified stream segments where full body contact can occur and that are not open to and accessible by the public under Kansas law. These waters shall present a risk of human illness that is no greater than 1.2 percent.

(B) "Secondary contact recreational use for classified surface waters other than classified stream segments" means recreation during which the ingestion of classified surface waters other than classified stream segments is not probable. This use shall include wading, fishing, trapping, and hunting.

(i) "Secondary contact recreational use: public access" shall apply to classified surface waters other than classified stream segments where the surface water is, by law or written permission of the landowner, open to and accessible by the public.

(ii) "Secondary contact recreational use: restricted access" shall apply to classified surface waters other than classified stream segments where the surface water is not open to and accessible by the public under Kansas law.

(c) Designated uses of classified stream segments. The designated uses of classified stream segments shall be those defined in K.S.A. 2017 Supp. 82a-2001, and amendments thereto.

(d) Assignment of uses to surface waters.

(1) (A) Classified surface waters shall be designated for uses based upon the results of use attainability analyses conducted in accordance with K.S.A. 2017 Supp. 82a-2005, and amendments thereto. The provisions of the federal water quality standards regulation, 40 C.F.R. 131.10(g), as adopted by reference in paragraph (d)(1)(B), shall be followed.

(B) 40 C.F.R. 131.10(g), dated July 1, 2016, is hereby adopted by reference, except that the phrase "federal clean water" shall be inserted before the word "act."

(2) 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.

(3) The use designations for classified streams, lakes, wetlands, and ponds not listed in the surface water register shall be determined by the secretary on a case-by-case basis in accordance with paragraph (d)(1). (Authorized by K.S.A. 2017 Supp. 65-171d, 82a-2005, and 82a-2010; implementing K.S.A. 2017 Supp. 65-171d, 82a-2002, 82a-2003, 82a-2004, and 82a-2005; effective May 1, 1986; amended, T-87-8, May 1, 1986; amended May 1, 1987; amended Aug. 29, 1994; amended July 30, 1999; amended Aug. 31, 2001; amended Jan. 3, 2003; amended Jan. 23, 2004; amended Jan. 28, 2005; amended March 20, 2015; amended Feb. 23, 2018.)

Kansas Department of Health and Environment

Amended Regulation

Article 16. – SURFACE WATER QUALITY STANDARDS

28-16-28e. Surface water quality criteria. (a) Criteria development guidance. The development of surface water quality criteria for substances not listed in these standards shall be guided by water quality criteria published by the EPA. If the department finds that the criteria listed in this regulation are underprotective or overprotective for a given surface water segment, appropriate site-specific criteria may be developed and applied by the department, in accordance with K.A.R. 28-16-28f, using bioassessment methods or other related scientific procedures, including those procedures consistent with the EPA's "water quality standards handbook," second edition, as published in August 1994, or other department-approved methods.

(b) General criteria for surface waters. The following criteria shall apply to all surface waters, regardless of classification:

(1) Surface waters shall be free, at all times, from the harmful effects of substances that originate from artificial sources of pollution and that produce any public health hazard, nuisance condition, or impairment of a designated use.

(2) Hazardous materials derived from artificial sources, including toxic substances, radioactive isotopes, and infectious microorganisms derived from point sources or nonpoint sources, shall not occur in surface waters at concentrations or in combinations that jeopardize the public health or the survival or well-being of livestock, domestic animals, terrestrial wildlife, or aquatic or semiaquatic life.

(3) Surface waters shall be free of all discarded solid materials, including trash, garbage, rubbish, offal, grass clippings, discarded building or construction materials, car bodies, tires, wire, and other unwanted or discarded materials. The placement of stone and concrete rubble for bank stabilization shall be acceptable to the department if all other required permits are obtained before placement.

(4) Surface waters shall be free of floating debris, scum, foam, froth, and other floating materials directly or indirectly attributable to artificial sources of pollution.

(5) Oil and grease from artificial sources shall not cause any visible film or sheen to form upon the surface of the water or upon submerged substrate or adjoining shorelines, nor shall these materials cause a sludge or emulsion to be deposited beneath the surface of the water or upon the adjoining shorelines.

(6) Surface waters shall be free of deposits of sludge or fine solids attributable to artificial sources of pollution.

(7) Taste-producing and odor-producing substances from artificial sources shall not occur in surface waters at concentrations that interfere with the production of potable water by conventional water treatment processes, that impart an unpalatable flavor to edible aquatic or semiaquatic life or terrestrial wildlife, or that result in noticeable odors in the vicinity of surface waters.

(8) The natural appearance of surface waters shall not be altered by the addition of color-producing or turbidity-producing substances from artificial sources.

(9) In stream segments where background concentrations of naturally occurring substances, including chlorides and sulfates, exceed the water quality criteria listed in table 1a of the "Kansas surface water quality standards: tables of numeric criteria," as adopted by reference

in subsection (e), the existing water quality shall be maintained, and the newly established numeric criteria shall be the background concentration. Background concentrations shall be established using the methods outlined in the "Kansas implementation procedures: surface water quality standards," as adopted by reference in K.A.R. 28-16-28b, and available upon request from the department.

(c) Application of criteria for designated uses of surface waters.

(1) The numeric criteria in tables 1a, 1b, 1c, and 1d of the "Kansas surface water quality standards: tables of numeric criteria" shall not apply if the critical low flow is less than 0.03 cubic meter per second (1.0 cubic foot per second) for waters designated as expected aquatic life use waters and restricted aquatic life use waters, unless studies conducted or approved by the department show that water present during periods of no flow, or flow below critical low flow, provides important refuges for aquatic life and permits biological recolonization of intermittently flowing segments.

(2) The numeric criteria in tables 1a, 1b, 1c, and 1d of the "Kansas surface water quality standards: tables of numeric criteria" shall not apply if the critical low flow is less than 0.003 cubic meter per second (0.1 cubic foot per second) for waters designated as special aquatic life use waters, unless studies conducted or approved by the department show that water present during periods of no flow, or flow below critical low flow, provides important refuges for aquatic life and permits biological recolonization of intermittently flowing segments.

(d) Criteria for designated uses of surface waters. The following criteria shall apply to all classified surface waters for the indicated designated uses:

(1) Agricultural water supply use. The water quality criteria for irrigation and livestock watering specified in table 1a of the "Kansas surface water quality standards: tables of numeric criteria" shall not be exceeded outside of mixing zones due to artificial sources of pollution.

(2) Aquatic life support use.

(A) Nutrients. The introduction of plant nutrients into streams, lakes, or wetlands from artificial sources shall be controlled to prevent the accelerated succession or replacement of aquatic biota or the production of undesirable quantities or kinds of aquatic life.

(B) Suspended solids. Suspended solids added to surface waters by artificial sources shall not interfere with the behavior, reproduction, physical habitat, or other factors related to the survival and propagation of aquatic or semiaquatic life or terrestrial wildlife. In the application of this provision, suspended solids associated with discharges of presedimentation sludge from water treatment facilities shall be deemed noninjurious to aquatic and semiaquatic life and terrestrial wildlife if these discharges do not violate the requirements of paragraphs (b)(6) and (8) and paragraph (d)(2)(D).

(C) Temperature.

(i) Heat from artificial sources shall not be added to a surface water in excess of the amount that will raise the temperature of the water beyond the mixing zone more than 3^{o} C above natural conditions. Additionally, a discharge to a receiving water shall not lower the temperature of the water beyond the mixing zone more than 3^{o} C below natural conditions. The normal daily and seasonal temperature variations occurring within a surface water before the addition of heated or cooled water from artificial sources shall be maintained.

(ii) Temperature criteria applicable to industrial cooling water recycling reservoirs that meet the requirements for classification specified in K.A.R. 28-16-28d shall be established by the secretary on a case-by-case basis to protect the public health, safety, or the environment.

(D) Toxic substances.

(i) Conditions of acute toxicity shall not occur in classified surface waters outside of zones of initial dilution, nor shall conditions of chronic toxicity occur in classified surface waters

outside of mixing zones.

(ii) Acute criteria for the aquatic life support use specified in tables 1a, 1b, and 1c of the "Kansas surface water quality standards: tables of numeric criteria" shall apply beyond the zone of initial dilution. Chronic criteria for the aquatic life support use specified in tables 1a, 1b, and 1d of the "Kansas surface water quality standards: tables of numeric criteria" shall apply beyond the mixing zone.

(iii) If a discharge contains a toxic substance that lacks any published criteria for the aquatic life support use, or if a discharge contains a mixture of toxic substances capable of additive or synergistic interactions, bioassessment methods and procedures shall be specified by the department to establish whole-effluent toxicity limitations that are consistent with paragraph (d)(2)(D)(i).

(3) Domestic water supply use.

(A) Except as provided in paragraph (d)(3)(B), the criteria listed in table 1a of the "Kansas surface water quality standards: tables of numeric criteria" for domestic water supply use shall not be exceeded at any point of domestic water supply diversion.

(B) In stream segments where background concentrations of naturally occurring substances, including chlorides and sulfates, exceed the domestic water supply criteria listed in table 1a of the "Kansas surface water quality standards: tables of numeric criteria," due to intrusion of mineralized groundwater, the existing water quality shall be maintained, and the newly established numeric criteria for domestic water supply shall be the background concentration. Background concentrations shall be established using the methods outlined in the "Kansas implementation procedures: surface water quality standards," which is adopted in K.A.R 28-16-28b.

(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, maximum contaminant levels for toxic, carcinogenic, teratogenic, or mutagenic substances specified in 40 C.F.R. 141.11, 141.13, and 141.61 through 141.66, as in effect on July 1, 2012, shall be deemed nonharmful.

(D) The introduction of plant nutrients into surface waters designated for domestic water supply use shall be controlled to prevent interference with the production of drinking water.

(4) Food procurement use.

(A) Criteria listed in table 1a of the "Kansas surface water quality standards: tables of numeric criteria" for food procurement use shall not be exceeded outside of a mixing zone due to any artificial source of pollution.

(B) Substances that can bioaccumulate in the tissues of edible aquatic or semiaquatic life or wildlife through bioconcentration or biomagnification shall be limited in surface waters to concentrations that result in no harm to human consumers of these tissues. For bioaccumulative carcinogens, surface water concentrations corresponding to a cancer risk level of less than 0.000001 (10^{-6}) in human consumers of aquatic or semiaquatic life or wildlife shall be deemed nonharmful by the department and adopted as food procurement criteria. Average rates of tissue consumption and lifetime exposure shall be assumed by the department in the estimation of the cancer risk level.

(5) Groundwater recharge use. In surface waters designated for the groundwater recharge use, water quality shall be such that, at a minimum, degradation of groundwater quality does not occur. Degradation shall include any statistically significant increase in the concentration of any

chemical or radiological contaminant or infectious microorganism in groundwater resulting from surface water infiltration or injection.

(6) Industrial water supply use. Surface water quality criteria for industrial water supplies shall be determined by the secretary on a case-by-case basis to protect the public health, safety, or the environment.

(7) Recreational use.

(A) General. The introduction of plant nutrients into surface waters designated for primary or secondary contact recreational use shall be controlled to prevent the development of objectionable concentrations of algae or algal by-products or nuisance growths of submersed, floating, or emergent aquatic vegetation.

(B) Primary contact recreation for classified surface waters other than classified stream segments. A single sample maximum or a geometric mean of at least five samples collected during separate 24-hour periods within a 30-day period shall not exceed the criteria in table 1j of the "Kansas surface water quality standards: tables of numeric criteria" beyond the mixing zone.

(C) Secondary contact recreational use for classified surface waters other than classified stream segments. A single sample maximum or a geometric mean of at least five samples collected during separate 24-hour periods within a 30-day period shall not exceed the criteria in table 1j of the "Kansas surface water quality standards: tables of numeric criteria" beyond the mixing zone.

(D) Primary contact recreation for classified stream segments. At least five samples shall be collected during separate 24-hour periods within a 30-day period. A geometric mean analysis of these samples shall not exceed the criteria in table 1i of the "Kansas surface water quality standards: tables of numeric criteria" beyond the mixing zone.

(E) Secondary contact recreation for classified stream segments. The following criteria

shall be in effect from January 1 through December 31 of each year:

(i) At least five samples shall be collected during separate 24-hour periods within a 30-day period.

(ii) A geometric mean analysis of the samples specified in paragraph (d)(7)(E)(i) shall not exceed the criteria in table 1i of the "Kansas surface water quality standards: tables of numeric criteria" beyond the mixing zone.

(F) Wastewater disinfection. Wastewater effluent shall be disinfected if the department determines that the discharge of nondisinfected wastewater constitutes an actual or potential threat to public health. Situations that constitute an actual or potential threat to public health shall include instances in which there is a reasonable potential for the discharge to exceed the applicable criteria supporting the assigned recreational use designation or if a water body is known or likely to be used for either of the following:

(i) Primary or secondary contact recreation; or

(ii) any domestic water supply.

(8) Multiple uses. If a classified stream segment or classified surface water other than a classified stream segment is designated for more than one designated use according to K.A.R. 28-16-28d, the water quality of the classified stream segment or classified surface water other than a classified stream segment shall meet the most stringent of the applicable water quality criteria.

(e) Tables. The numeric criteria for the designated uses of classified surface waters shall be the numeric criteria specified in the department's "Kansas surface water quality standards: tables of numeric criteria," dated March 2, 2021, which is hereby adopted by reference. (Authorized by K.S.A. 65-171d, 65-171m, and 82a-2010; implementing K.S.A. 65-171d, 65-171m, 82a-2002, 82a-2003, 82a-2004, and 82a-2010; effective May 1, 1986; amended, T-87-8,

May 1, 1986; amended May 1, 1987; amended Aug. 29, 1994; amended July 30, 1999; amended Nov. 3, 2000; amended Aug. 31, 2001; amended Jan. 3, 2003; amended Oct. 24, 2003; amended Jan. 28, 2005; amended March 20, 2015; amended Feb. 23, 2018; amended March 25, 2022.)

Kansas Department of Health and Environment

Amended Regulation

Article 16. – SURFACE WATER QUALITY STANDARDS

28-16-28f. Administration of surface water quality standards. (a) Application of modified surface water quality standards. A modification to the surface water quality standards, the surface water register, or both, shall have no effect on the requirements of any existing enforceable discharge permit issued under K.S.A. 65-165, and amendments thereto, unless the discharge fails to meet the requirements of the permit or the secretary determines that continuation of the discharge will result in a potential or actual public health hazard or in irreversible water use impairments.

(b) Water quality certification. No action identified in this subsection shall be taken unless the department has issued a water quality certification for the following:

(1) Any action requiring a federal license or permit pursuant to the federal clean water act;

(2) any action subject to the permitting provisions of K.S.A. 65-165, and amendments thereto;

(3) any water development project subject to the water projects environmental coordination act, K.S.A. 82a-325 et seq., and amendments thereto; and

(4) any action undertaken by any Kansas state agency that has a potential water quality impact.

(c) Compliance schedules.

(1)Except as provided in paragraph (c)(2), compliance schedules contained in any

discharge permit or license issued by the department pursuant to the federal clean water act or K.S.A. 65-165, and amendments thereto, shall not extend more than five years beyond the date of permit issuance.

(2) Compliance schedules extending past the date of permit expiration may be granted if it is demonstrated that the strict application of paragraph (c)(1) is not feasible due to construction scheduling constraints or other technical limitations.

(d) Variances.

(1) A variance establishing an interim designated use and interim criterion may be permitted and adopted into this article of the department's regulations at the next systematic review or subsequent triennial review and after a public hearing consistent with 40 C.F.R. 131.20(b), as in effect on July 1, 2016, if upon written request by any person, as defined in K.S.A. 65-170a and amendments thereto, the secretary finds that the attainment of the designated use and criterion is not feasible because one of the following conditions is met:

(A) One of the factors listed in 40 C.F.R. 131.10(g), as adopted by reference in K.A.R. 28-16-28d, exists.

(B) Actions necessary to facilitate lake, wetland, or stream restoration through dam removal or other significant reconfiguration activities preclude attainment of the designated use and criterion while the actions are being implemented.

(2) Each variance shall be issued and evaluated using methods outlined in the "Kansas implementation procedures: surface water quality standards," as adopted in K.A.R. 28-16-28b.

(3) Adoption and implementation of each variance shall be in accordance with 40 C.F.R. 131.14, as in effect on July 1, 2016 and hereby adopted by reference, except that 131.14(a)(2), 131.14(a)(4), 131.14(b)(1)(ii), and 131.14(b)(2)(i)(A) shall be excluded.

(4) Each variance shall have a designated term limit and reflect the highest attainable

condition during the specified term. A variance may be applied to individual or multiple dischargers or surface water bodies.

(5) Each variance shall have requirements and a time limitation demonstrating the intent that progress be made toward the attainment of the underlying designated use and criterion.

(A) Each requirement shall be designed to achieve the highest attainable condition of the surface water segment applicable throughout the term of the variance. A specified requirement shall not result in lowering the currently attained ambient water quality, unless a variance is necessary for physical reconfiguration activities intended for surface water segment restoration. The highest attainable condition of each affected surface water segment as a quantifiable expression shall be specified as one of the following:

(i) The highest attainable interim criterion;

(ii) the interim effluent condition that reflects the greatest pollutant reduction achievable; or

(iii) the interim criterion or effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the variance is adopted.

(B) If the quantifiable expression identified in paragraph (d)(5)(A)(iii) is selected, a pollutant minimization plan shall be adopted and implemented by the discharger if no additional feasible pollutant control technology is identified.

(6) Each Kansas surface water quality standard not specifically addressed in a variance shall remain applicable.

(7) Each person requesting a variance shall provide evidence that a designated use and criterion, or a designated use or criterion, addressed by the variance cannot be achieved solely by the implementation of technology-based effluent limits.

(8) Each variance request shall include supporting documentation that demonstrates all of

the following:

(A) Attaining the designated use and criterion is not feasible throughout the term of the variance because of one of the factors cited in paragraphs (d)(1)(A) and (B).

(B) The term of the variance is only as long as necessary to achieve the highest attainable condition.

(C) The highest attainable condition of the affected surface water segment is as defined in paragraph (d)(5)(A).

(9) A discharger that impacts water quality shall not be granted a variance from requirements of K.A.R. 28-16-28c or 28-16-28e.

(10) Specific eligibility requirements may be included in a multiple-discharger variance as an alternative to identifying the specific dischargers at the time of adoption of the variance. Each discharger shall meet the eligibility requirements in the applicable section of the "Kansas surface water quality standards variance register," as adopted by reference in K.A.R. 28-16-28h, to participate in a multiple-discharger variance.

(e) Site-specific criteria. Site-specific criteria shall be established using the methods outlined in the "Kansas implementation procedures: surface water quality standards," as adopted by reference in K.A.R. 28-16-28b.

(f) Enforcement. Each person deemed by the department to be responsible for a violation of the Kansas surface water quality standards caused by an artificial source shall be required by the department to initiate corrective actions that restore the designated uses of the affected surface water or surface water segment impaired by the violation and provide for the return of the original surface water quality conditions. (Authorized by K.S.A. 65-171d and 65-171m; implementing K.S.A. 65-164, 65-171d, and 65-171m; effective May 1, 1986; amended Aug. 29, 1994; amended July 30, 1999; amended Jan. 28, 2005; amended March 20, 2015; amended Feb. 23, 2018; amended March 25, 2022.)

Kansas Department of Health and Environment

Amended Regulation

Article 16. – SURFACE WATER QUALITY STANDARDS

28-16-28g. Surface water register. The classification and use designations of surface waters of the state shall be those identified in the department's "Kansas surface water register," dated February 18, 2021, which is hereby adopted by reference. (Authorized by K.S.A. 82a-2005 and 82a-2010; implementing K.S.A. 82a-2001, 82a-2002, 82a-2003, 82a- 2004, and 82a-2005; effective Jan. 28, 2005; amended May 20, 2005; amended Sept. 15, 2006; amended May 25, 2007; amended June 6, 2008; amended Feb. 26, 2010; amended Aug. 5, 2011; amended July 7, 2014; amended March 25, 2022.)

Kansas Department of Health and Environment

Amended Regulation

Article 16. – SURFACE WATER QUALITY STANDARDS

28-16-28h. Surface water variance register. The variances approved by the secretary shall be those identified in the department's "Kansas surface water quality standards variance register," dated December 30, 2020, which is hereby adopted by reference. (Authorized by K.S.A. 65-171d; implementing K.S.A. 65-171d and 65-171m; effective Feb. 23, 2018; amended March 25, 2022.

Kansas Department of Health and Environment

Amended Regulation

Article 16. – SURFACE WATER QUALITY STANDARDS

28-16-58. Definitions. As used in K.A.R. 28-16-57a through 28-16-63, each of the following terms shall have the meaning specified in this regulation: (a)(1) "Administrator" means administrator of the United States environmental protection agency (EPA).

(2) "Application" means all documents required by the division of environment in the Kansas department of health and environment that are necessary for obtaining a permit.

(3) "Department" and "KDHE" mean Kansas department of health and environment.

(4) "Director" means director of the division of environment, KDHE.

(5) "Division" means division of environment, KDHE.

(6) "Draft permit" means a permit that has not been issued as a final action of the secretary.

(7) "EPA" means United States environmental protection agency.

(8) "Kansas implementation procedures: wastewater permitting" means the procedures dated July 1, 2014 and written and used by the department for the development of national pollutant discharge elimination system permit limitations, available upon request from the division.

(9) "Minimum standards of design, construction, and maintenance" means effluent standards, effluent limitations, pretreatment standards, other performance standards, and other standards of design, construction, and maintenance for wastewater control facilities published by the department in 1978 as "minimum standards of design for water pollution control facilities."

(10) “Municipal system” means a system under the jurisdiction of a city, county, township, district, or other governmental unit.

(11) “National pollutant discharge elimination system” and “NPDES” mean the national system for the issuance of permits under 33 U.S.C. Section 1342 and shall include any state or interstate program that has been approved by the administrator, in whole or in part, pursuant to 33 U.S.C. Section 1342.

(12) “Refuse act application” means an application for a permit under 33 U.S.C. Section 407, commonly known as the refuse act, of 33 U.S.C. Chapter 9, “protection of navigable waters and of harbor and river improvements generally.”

(13) “Regional administrator” means the regional administrator for region VII of the EPA.

(14) “Secretary” means secretary of KDHE.

(15) “Water quality standards” means all water quality standards, as specified in K.A.R. 28-16-28b through K.A.R. 28-16-28g, to which a discharge is subject.

(16) “Waters of the state” means all surface and subsurface waters occurring within the borders of the state or forming part of the border between Kansas and one of the adjoining states.

(b) The definitions of the following terms contained in 33 U.S.C. Section 1362, as amended July 29, 2008 and hereby adopted by reference, shall be applicable to the following terms as used in K.A.R. 28-16-57a through K.A.R. 28-16-63, unless the context requires otherwise:

(1) “Biological monitoring”;

(2) “effluent limitations”;

(3) “municipality”;

(4) “person”;

(5) “state”; and

(6) “toxic pollutant.” (Authorized by K.S.A. 2014 Supp. 65-171d; implementing K.S.A. 65-165, K.S.A. 65-166, and K.S.A. 2014 Supp. 65-171d; effective, E-74-32, June 14, 1974; effective May 1, 1975; amended May 1, 1987; amended Aug. 31, 2001; amended Jan. 28, 2005; amended March 20, 2015.)

KANSAS SURFACE WATER QUALITY STANDARDS

Tables of Numeric Criteria

Kansas
Department of Health and Environment

Prepared by The Kansas Department of Health and Environment

Bureau of Water

March 2, 2021

Kansas Surface Water Quality Standards

Tables of Numeric Criteria

Table 1a. Aquatic Life, Agriculture, And Public Health Designated Uses Numeric Criteria

PARAMETER	CAS NUMBER	Use Category					
		AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
		ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
RADIONUCLIDES (pCi/L)							
beta / photon emitters	a	a	a	a	a	a	50
gross alpha particles including radium-226,but not radon or uranium	a	a	a	a	a	a	15
radium 226 and 228 combined	a	a	a	a	a	a	5
strontium 90	a	a	a	a	a	a	8
tritium	a	a	a	a	a	a	20,000
METALS (µg/L)							
antimony, total	7440360	88	30	a	a	640	6
arsenic, total	7440382	340	150	200	100	20.5	10
arsenic (III)	a	360	50	a	a	0.14	0.018
arsenic (V)	a	850	48	a	a	a	a
barium, total	7440393	a	a	a	a	a	1,000
beryllium, total	7440417	a	a	a	a	a	4
boron, total	7440428	a	a	5,000	750	a	a
cadmium, total	7440439	table 1b	table 1b	20	10	170	5
chromium, total	7440473	a	40	1,000	100	a	100
chromium (III)	16065831	table 1b	table 1b	a	a	3,433,000	50
chromium (VI)	18540299	16	11	a	a	3,400	50
copper, total	7440508	BLM[d]	BLM[d]	500	200	a	1,000
lead, total	7439921	table 1b	table 1b	100	5,000	a	15
mercury, total	7439976	1.4	0.77	10	a	0.146[e]	2[e]
nickel, total	7440020	table 1b	table 1b	500	200	4,600	610
selenium, total	7782492	20	5	50	20	4,200	50
selenium, (V)	a	11.2	a	a	a	a	a
silver, total	7440224	table 1b	a	a	a	a	100
thallium, total	7440280	1,400	40	a	a	6.3[b]	2
zinc, total	7440666	table 1b	table 1b	25,000	2,000	26,000	5,000
OTHER INORGANIC SUBSTANCES (µg/L)							
ammonia	7664417	table 1c	table 1d	a	a	a	a
asbestos (fibers>10µm) (million-fibers/L)	12001295	a	a	a	a	a	7
chloride	16887006	860,000	c	a	a	a	250,000
chlorine, total residual	7782505	19	11	a	a	a	a
cyanide (free)	57125	22	5.2	a	a	220,000	200
fluoride	16984488	a	a	2,000	1,000	a	2,000
nitrate (as N)	14797558	a	a	a	a	a	10,000
nitrite + nitrate (as N)	a	a	a	100,000	a	a	10,000
sulfate	14808798	a	a	1,000,000	a	a	250,000

Table 1a. Aquatic Life, Agriculture, And Public Health Designated Uses Numeric Criteria

PARAMETER	CAS NUMBER	Use Category: AQUATIC LIFE ACUTE	AQUATIC LIFE CHRONIC	AGRICULTURE LIVESTOCK	AGRICULTURE IRRIGATION	PUBLIC HEALTH FOOD PROCUREMENT	PUBLIC HEALTH DOMESTIC WATER SUPPLY
ORGANIC SUBSTANCES (µg/L) (EXCEPT PESTICIDES)							
A. Halogenated Ethers.....							
chloroalkyl ethers, total	a	238,000	a	a	a	a	a
bis(2-chloroethyl) ether	111444	238,000	a	a	a	0.53	0.03
2-chloroethyl vinyl ether	110758	360	120	a	a	a	a
bis(2-chloroisopropyl) ether	108601	238,000	a	a	a	65,000	1400
bis(chloromethyl) ether	542881	238,000	a	a	a	0.00029	0.0001
chloromethyl methyl ether	107302	238,000	a	a	a	0.00184	a
4,4-dibromodiphenyl ether	2050477	360	120	a	a	a	a
halogenated ethers, total	a	360	122	a	a	a	a
hexabromodiphenyl ether	36483600	360	120	a	a	a	a
nonabromodiphenyl ether	63936561	360	120	a	a	a	a
pentabromodiphenyl ether	32534819	360	120	a	a	a	a
tetrabromodiphenyl ether	40088479	360	120	a	a	a	a
tribromodiphenyl ether	49690940	360	120	a	a	a	a
B. Halogenated Aliphatic Hydrocarbons.....							
Chlorinated ethanes							
1,2-dichloroethane	107062	18,000	2,000	a	a	99[b]	0.38[b]
hexachloroethane	67721	980	540	a	a	3.3	1.9[b]
pentachloroethane	76017	7,240	1,100	a	a	a	a
1,1,1,2-tetrachloroethane	630206	9,320	a	a	a	a	a
1,1,2,2-tetrachloroethane	79345	9,320	2,400	a	a	4	0.17
tetrachloroethanes, total	a	9,320	a	a	a	a	a
1,1,1-trichloroethane	71556	18,000	a	a	a	173,077	200
1,1,2-trichloroethane	79005	18,000	9,400	a	a	16	0.6[b]
Chlorinated ethenes							
chlorinated ethylenes, total	a	11,600	a	a	a	a	a
chloroethylene (vinyl chloride)	75014	a	a	a	a	2.4	2
1,1-dichloroethylene	75354	11,600	a	a	a	7,100	7
cis-1,2-dichloroethylene	156592	11,600	a	a	a	a	70
trans-1,2-dichloroethylene	156605	11,600	a	a	a	10,000	100
tetrachloroethylene (PCE)	127184	5,280	840	a	a	3.3	0.8[b]
trichloroethylene (TCE)	79016	45,000	21,900	a	a	30	2.7[b]
Chlorinated propanes/propenes							
1,2-dichloropropane	78875	23,000	5,700	9	a	15	0.5
1,3-dichloropropene	542756	6,060	244	a	a	14.1	10[b]
Halogenated methanes							
bromochloromethane	74975	11,000	a	a	a	15.7	a
bromodichloromethane (dichlorobromomethane)	75274	11,000	a	a	a	17	0.55
bromotrichloromethane	75627	11,000	a	a	a	15.7	a
bis(2-chloroethoxy)methane	111911	11,000	a	a	a	15.7	a

Table 1a. Aquatic Life, Agriculture, And Public Health Designated Uses Numeric Criteria

PARAMETER	CAS NUMBER	Use Category					
		AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
		ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
dibromochloromethane (chlorodibromomethane)	124481	11,000	a	a	a	13	0.4
dibromodichloromethane	594183	11,000	a	a	a	15.7	a
dichlorodifluoromethane	75718	11,000	a	a	a	15.7	a
dichloromethane (methylene chloride)	75092	11,000	a	a	a	590	5
halogenated methanes, total	a	11,000	a	a	a	15.7	100
tetrachloromethane (carbon tetrachloride)	56235	35,200	a	a	a	4.4[b]	0.25[b]
tribromochloromethane	594150	11,000	a	a	a	15.7	a
tribromomethane (bromoform)	75252	11,000	a	a	a	140	4.3
trichlorofluoromethane	75694	11,000	a	a	a	15.7	a
trichloromethane (chloroform)	67663	28,900	1,240	a	a	470	5.7
Other halogenated aliphatic hydrocarbons							
hexachlorobutadiene	87683	90	9.3	a	a	18	0.44
hexachlorocyclopentadiene	77474	7	5.2	a	a	1,100	50
C. Monocyclic Aromatic Hydrocarbons except Phenols and Phthalates.....							
Benzenes							
aminobenzene (aniline)	62533	14	6.7	a	a	a	a
benzene	71432	5,300	a	a	a	51	1.2[b]
ethylbenzene	100414	32,000	a	a	a	2,100	700
nitrobenzene	98953	27,000	a	a	a	690	17
vinylbenzene (styrene)	100425	a	a	a	a	a	100
Chlorinated benzenes							
chlorobenzene	108907	250	50	a	a	1,600	100
dichlorobenzenes, total	25321226	1,120	763	a	a	2,600	a
1,2-dichlorobenzene (o-dichlorobenzene)	95501	1,120	763	a	a	1,300	600
1,3-dichlorobenzene (m-dichlorobenzene)	541731	1,120	763	a	a	960	400[b]
1,4-dichlorobenzene (p-dichlorobenzene)	106467	a	a	a	a	190	75
hexachlorobenzene	118741	6	3.7	a	a	0.00029	0.00075[b]
other chlorinated benzenes, total	a	250	50	a	a	a	a
pentachlorobenzene	608935	250	50	a	a	1.5	1.4
1,2,4,5-tetrachlorobenzene	95943	250	50	a	a	1.1	0.97
1,2,4-trichlorobenzene	120821	250	a	a	a	70	0.071
Toluenes and xylenes							
2,4-dinitrotoluene	121142	330	230	a	a	3.4	0.11
dinitrotoluenes, total	25321146	330	230	a	a	9.1	a
toluene	108883	17,500	a	a	a	15,000	1,000
xylenes, total	1330207	a	a	a	a	a	10,000

Table 1a. Aquatic Life, Agriculture, And Public Health Designated Uses Numeric Criteria

PARAMETER	CAS NUMBER	Use Category					
		AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
		ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
D. Nitrogen Compounds Except Monocyclic Aromatics.....							
acrylonitrile	107131	7,550	2,600	a	a	0.25	0.059[b]
benzidine	92875	2,500	a	a	a	0.0002	0.00012[b]
3,3-dichlorobenzidine	91941	a	a	a	a	0.028	0.04[b]
1,2-diphenylhydrazine	122667	270	a	a	a	0.2	0.04[b]
nitrosamines, total	a	5,850	a	a	a	1.24	0.0008
N-nitrosodibutylamine	924163	5,850	a	a	a	0.22	0.0063
N-nitrosodiethanolamine	1116547	5,850	a	a	a	1.24	a
N-nitrosodiethylamine	55185	5,850	a	a	a	1.24	0.0008
N-nitrosodimethylamine	62759	5,850	a	a	a	3	0.00069
N-nitrosodiphenylamine	86306	5,850	a	a	a	6	5[b]
N-nitrosodi-n-propylamine	621647	a	a	a	a	0.51	0.005
N-nitrosopyrrolidine	930552	5,850	a	a	a	34	0.016
E. Phenolic Compounds.....							
2,4-dimethyl phenol	105679	1,300	530	a	a	850	380
2,4-dinitrophenol	51285	a	a	a	a	5,300	69
nitrophenols, total	a	230	150	a	a	a	a
phenol	108952	10,200	2,560	a	a	860,000	10,000
Chlorinated phenols							
2-chlorophenol	95578	4,380	2,000	a	a	150	81
3-chlorophenol	108430	a	a	a	a	29,000	a
2,4-dichlorophenol	120832	2,020	365	a	a	790[b]	93[b]
3-methyl-4-chlorophenol	59507	30	a	a	a	a	a
2,4,5-trichlorophenol	95954	100	63	a	a	3,600	1,800
2,4,6-trichlorophenol	88062	a	970	a	a	2.4	2.1[b]
F. Phthalate Esters							
butylbenzyl phthalate	85687	a	a	a	a	1,900	1,500
dibutyl phthalate (di-n-butyl phthalate)	84742	940	3	a	a	4,500	2,000
diethyl phthalate	84662	a	a	a	a	44,000	17,000
dimethyl phthalate	131113	940	3	a	a	1,100,000	270,000
bis(2-ethylhexyl) phthalate (DEHP)	117817	400	360	a	a	5.9[b]	1.8[b]
phthalates, total	a	940	3	a	a	a	a
G. Polynuclear Aromatic Hydrocarbons (PAHs)……							
acenaphthene	83329	1,700	520	a	a	990	670
acenaphthylene	208968	a	a	a	a	0.0311	a
anthracene	120127	a	a	a	a	40,000	9,600[b]
benzo(a)anthracene	56553	a	a	a	a	0.018	0.0038
benzo(a)pyrene	50328	a	a	a	a	0.018	0.0028[b]
benzo(b)fluoranthene	205992	a	a	a	a	0.018	0.0038
benzo(g,h,i)perylene	191242	a	a	a	a	0.0311	a
benzo(k)fluoranthene	207089	a	a	a	a	0.018	0.0038
2-chloronaphthalene	91587	a	a	a	a	1,600	1,000

Table 1a. Aquatic Life, Agriculture, And Public Health Designated Uses Numeric Criteria

PARAMETER	CAS NUMBER	Use Category					
		AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
		ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
chrysene	218019	a	a	a	a	0.018	0.0038
dibenzo(a,h)anthracene	53703	a	a	a	a	0.018	0.0038
fluoranthene	206440	3,980	a	a	a	370[b]	300[b]
fluorene	86737	a	a	a	a	5,300	1,300[b]
indeno(1,2,3-cd)pyrene	193395	a	a	a	a	0.018	0.0038
naphthalene	91203	2,300	620	a	a	a	a
phenanthrene	85018	30	6.3	a	a	0.0311	a
pyrene	129000	a	a	a	a	4,000	960[b]
Polynuclear Aromatic Hydrocarbons, total (PAHs)	a	a	a	a	a	0.0311	0.2
H. Other Organics (Except Pesticides).....							
di(2-ethylhexyl) adipate	103231	a	a	a	a	a	400
isophorone	78591	117,000	a	a	a	960	35
polychlorinated biphenyls, total (PCBs)	a	2	0.014	a	a	0.000064	0.00017[b]
2,3,7,8-TCDD (dioxin)	1746016	0.01	0.00001	a	a	5.00E-09	1.3E-8[b]
PESTICIDES (µg/L)							
acrolein	107028	68	21	a	a	290	190
acrylamide	79061	a	a	a	a	a	0.01
alachlor (Lasso)	15972608	760	76	100	a	a	2
aldicarb	116063	a	a	a	a	a	3
aldicarb sulfone	1646884	a	a	a	a	a	2
aldicarb sulfoxide	1646873	a	a	a	a	a	3
aldrin	309002	3	0.001	1	a	0.00005	0.00013[b]
atrazine (Aatrex)	1912249	170	3	a	a	a	3
bromomethane (methyl bromide)	74839	11,000	a	a	a	1,500	47
bromoxynil (MCPA)	1689845	a	a	20	a	a	a
carbaryl (Sevin)	63252	a	0.02	100	a	a	a
carbofuran (Furadan)	1563662	a	a	100	a	a	40
chlordane	57749	2.4	0.0043	3	a	0.00081	0.00057[b]
chlorpyrifos	2921882	0.083	0.041	100	a	a	a
2,4-D	94757	a	a	a	a	a	70
dacthal (DCPA)	1861321	a	14,300	a	a	a	a
dalapon	75990	a	110	a	a	a	200
4,4-DDD (p,p=-DDD)	72548	a	a	a	a	0.00031	0.00031
4,4-DDE (p,p=-DDE)	72559	1,050	a	a	a	0.00022	0.00022
DDT, total	50293	1.1	0.001	50	a	0.00022	0.00022
diazinon (spectracide)	333415	0.17	0.17	100	a	a	a
dibromochloropropane (DBCP)	96128	a	a	a	a	15.7	0.2
1,2-dibromoethane	106934	a	a	a	a	a	0.05
dieldrin	60571	0.24	0.056	1	a	0.000054	0.00014[b]
4,6-dinitro-o-cresol	534521	a	a	a	a	280	13
dinoseb (DNBP)	88857	a	a	a	a	a	7

Table 1a. Aquatic Life, Agriculture, And Public Health Designated Uses Numeric Criteria

PARAMETER	CAS NUMBER	Use Category					
		AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
		ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
diquat	85007	a	a	a	a	a	20
disulfoton (Di-syston)	298044	a	a	100	a	a	a
endosulfan, total	115297	0.22	0.056	a	a	159	a
alpha-endosulfan	959998	0.22	0.056	a	a	89	62
beta-endosulfan	33213659	0.22	0.056	a	a	89	62
endosulfan sulfate	1031078	a	a	a	a	89	62
endothall	145733	a	a	a	a	a	100
endrin	72208	0.086	0.036	0.5	a	0.06	0.03
endrin aldehyde	7421934	a	a	a	a	0.3	0.76[b]
epichlorohydrin	106898	a	a	a	a	a	4
fenchlorfos (Ronnel)	299843	a	a	100	a	a	a
glyphosate (Roundup)	1071836	a	a	a	a	a	700
guthion	86500	a	0.01	100	a	a	a
heptachlor	76448	0.52	0.0038	0.1	a	0.000079	0.00021[b]
heptachlor epoxide	1024573	0.52	0.0038	0.1	a	0.00011[b]	0.00010[b]
hexachlorocyclohexane (HCH or BHC)	61876	100	a	a	a	0.0414	0.0123
alpha-HCH (alpha-BHC)	319846	100	a	a	a	0.0049	0.0039[b]
beta-HCH (beta-BHC)	319857	100	a	a	a	0.046[b]	0.014[b]
delta-HCH (delta-BHC)	319868	100	a	a	a	a	a
gamma-HCH (gamma-BHC, lindane)	58899	0.95	0.08	5	a	1.8	0.2
technical-HCH (technical-BHC)	608731	a	a	a	a	0.0414	a
malathion	121755	a	0.1	100	a	a	a
methoxychlor	72435	a	0.03	1,000	a	a	40
methyl parathion	298000	a	a	100	a	a	a
metribuzin (Sencor)	21087649	a	100	a	a	a	a
mirex	2385855	a	0.001	a	a	0.000097	a
oxamyl (Vydate)	23135220	a	0.001	a	a	a	200
parathion	56382	0.065	0.013	100	a	a	a
pentachloronitrobenzene	82688	250	50	a	a	a	a
pentachlorophenol (PCP)	87865	table 1b	table 1b	a	a	3	0.28[b]
picloram (Tordon)	1918021	a	a	a	a	a	500
propachlor (Ramrod)	1918167	a	8	a	a		a
simazine (Princep)	122349	a	a	10	a	a	4
2,4,5-T	93765	a	a	2	a	a	a
tributyltin (TBT)	56359	0.46	0.072	a	a	a	a
toxaphene	8001352	0.73	0.0002	5	a	0.00028	0.00073[b]
2,4,5-TP (Silvex)	93721	a	a	a	a	a	50

a - Not available

b - US EPA has promulgated this criterion for Kansas under the Code of Federal Regulations, Title 40, part 131.36.

c - Criterion under investigation

d - 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.

e – The mercury criterion for the Public Health uses shall use the methylmercury fish tissue criterion of 0.3 mg/kg.

Table 1b. Hardness-Dependent Aquatic Life Support Criteria

Formulae for calculation of hardness-dependent aquatic life support criteria for chromium III and total cadmium, total lead, total nickel, total silver and total zinc and pH-dependent aquatic life support criteria for pentachlorophenol. A WER value of 1.0 is applied in the hardness-dependent equations for total metals unless a site-specific WER has been determined and adopted by the department in accordance with K.A.R. 28-16-28e(a) and K.A.R. 28-16-28f(f). Hardness values in metal formulae are entered in units of mg/L as $CaCO_3$. Pentachlorophenol formulae apply only over the pH range 6.5-8.5.

CADMIUM (ug/L):
acute criterion = WER[EXP[(1.0166(LN(hardness)))-3.924]]
chronic criterion = WER[EXP[(0.7977(LN(hardness)))-3.909]]

CHROMIUM III (ug/L):
acute criterion = WER[EXP[(0.819*(LN(hardness)))+3.7256]]
chronic criterion = WER[EXP[(0.819*(LN(hardness)))+0.6848]]

LEAD (ug/L):
acute criterion = WER[EXP[(1.273*(LN(hardness)))-1.460]]
chronic criterion = WER[EXP[(1.273*(LN(hardness)))-4.705]]

NICKEL (ug/L):
acute criterion = WER[EXP[(0.846*(LN(hardness)))+2.255]]
chronic criterion = WER[EXP[(0.846*(LN(hardness)))+0.0584]]

PENTACHLOROPHENOL (ug/L):
acute criterion = EXP[(1.005*pH)-4.830]
chronic criterion = EXP[(1.005*pH)-5.290]

SILVER (ug/L):
acute criterion = WER[EXP[(1.72*(LN(hardness)))-6.59]]

ZINC (ug/L):
acute criterion = WER[EXP[(0.8473*(LN(hardness)))+0.884]]
chronic criterion = WER[EXP[(0.8473*(LN(hardness)))+0.884]]

Table 1c. pH- and Temperature-Dependent Values Aquatic Life Criteria For Total Ammonia Acute Criterion

Total ammonia as N, mg/L.

pH	Temperature, °C																				
	0-10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	51.0	48.0	44.0	41.0	37.0	34.0	32.0	29.0	27.0	25.0	23.0	21.0	19.0	18.0	16.0	15.0	14.0	13.0	12.0	11.0	9.9
6.6	49.0	46.0	42.0	39.0	36.0	33.0	30.0	28.0	26.0	24.0	22.0	20.0	18.0	17.0	16.0	14.0	13.0	12.0	11.0	10.0	9.5
6.7	46.0	44.0	40.0	37.0	34.0	31.0	29.0	27.0	24.0	22.0	21.0	19.0	18.0	16.0	15.0	14.0	13.0	12.0	11.0	9.8	9.0
6.8	44.0	41.0	38.0	35.0	32.0	30.0	27.0	25.0	23.0	21.0	20.0	18.0	17.0	15.0	14.0	13.0	12.0	11.0	10.0	9.2	8.5
6.9	41.0	38.0	35.0	32.0	30.0	28.0	25.0	23.0	21.0	20.0	18.0	17.0	15.0	14.0	13.0	12.0	11.0	10.0	9.4	8.6	7.9
7.0	38.0	35.0	33.0	30.0	28.0	25.0	23.0	21.0	20.0	18.0	**17.0**	15.0	14.0	13.0	12.0	11.0	10.0	9.3	8.5	7.9	7.3
7.1	34.0	32.0	30.0	27.0	25.0	23.0	21.0	20.0	18.0	17.0	15.0	14.0	13.0	12.0	11.0	10.0	9.3	8.5	7.9	7.2	6.7
7.2	31.0	29.0	27.0	25.0	23.0	21.0	19.0	18.0	16.0	15.0	14.0	13.0	12.0	11.0	9.8	9.1	8.3	7.7	7.1	6.5	6.0
7.3	27.0	26.0	24.0	22.0	20.0	18.0	17.0	16.0	14.0	13.0	12.0	11.0	10.0	9.5	8.7	8.0	7.4	6.8	6.3	5.8	5.3
7.4	24.0	22.0	21.0	19.0	18.0	16.0	15.0	14.0	13.0	12.0	11.0	9.8	9.0	8.3	7.7	7.0	6.5	6.0	5.5	5.1	4.7
7.5	21.0	19.0	18.0	17.0	15.0	14.0	13.0	12.0	11.0	10.0	9.2	8.5	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.4	4.0
7.6	18.0	17.0	15.0	14.0	13.0	12.0	11.0	10.0	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5
7.7	15.0	14.0	13.0	12.0	11.0	10.0	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5	3.2	2.9
7.8	13.0	12.0	11.0	10.0	9.3	8.5	7.9	7.2	6.7	6.1	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.2	2.9	2.7	2.5
7.9	11.0	9.9	9.1	8.4	7.7	7.1	6.6	6.0	5.6	5.1	4.7	4.3	4.0	3.7	3.4	3.1	2.9	2.6	2.4	2.2	2.1
8.0	8.8	8.2	7.6	7.0	6.4	5.9	5.4	5.0	4.6	4.2	3.9	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.0	1.9	1.7
8.1	7.2	6.8	6.3	5.8	5.3	4.9	4.5	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4
8.2	6.0	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2
8.3	4.9	4.6	4.3	3.9	3.6	3.3	3.1	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.96
8.4	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79
8.5	3.3	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	0.98	0.90	0.83	0.77	0.71	0.65
8.6	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.5	1.3	1.2	1.1	1.0	0.96	0.88	0.81	0.75	0.69	0.63	0.58	0.54
8.7	2.3	2.2	2.0	1.8	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.94	0.87	0.80	0.74	0.68	0.62	0.57	0.53	0.49	0.45
8.8	1.9	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37
8.9	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.85	0.79	0.72	0.67	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.32
9.0	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37	0.34	0.32	0.29	0.27

a. For interpolation between values presented in the table, criterion for aquatic life criteria for total ammonia acute criterion (CMC) is to be calculated using the following formula:

$$0.7249 \times \left(\frac{0.0114}{1+10^{7.204-pH}} + \frac{1.6181}{1+10^{pH-7.204}}\right) \times MIN\left(51.93, 23.12 \times 10^{0.036\times(20-T)}\right)$$

Table 1d. pH- and Temperature-Dependent Values Aquatic Life Criteria For Total Ammonia Chronic Criterion

Total ammonia as N, mg/L.

pH	Temperature, °C																							
	0-7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	4.9	4.6	4.3	4.1	3.8	3.6	3.3	3.1	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.5	1.4	1.3	1.2	1.1
6.6	4.8	4.5	4.3	4.0	3.8	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1
6.7	4.8	4.5	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1
6.8	4.6	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1
6.9	4.5	4.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0
7.0	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.2	2.0	**1.9**	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	0.99
7.1	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95
7.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.90
7.3	3.8	3.5	3.3	3.1	2.9	2.7	2.6	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.97	0.91	0.85
7.4	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.90	0.85	0.79
7.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.83	0.78	0.73
7.6	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.1	0.98	0.92	0.86	0.81	0.76	0.71	0.67
7.7	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.60
7.8	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53
7.9	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.50	0.47
8.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.60	0.56	0.53	0.50	0.44	0.44	0.41
8.1	1.5	1.5	1.4	1.3	1.2	1.1	1.1	0.99	0.92	0.87	0.81	0.76	0.71	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.40	0.38	0.35
8.2	1.3	1.2	1.2	1.1	1.0	0.96	0.90	0.84	0.79	0.74	0.70	0.65	0.61	0.57	0.54	0.50	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.30
8.3	1.1	1.1	0.99	0.93	0.87	0.82	0.76	0.72	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.40	0.38	0.35	0.33	0.31	0.29	0.27	0.26
8.4	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.50	0.47	0.44	0.41	0.39	0.36	0.34	0.32	0.30	0.28	0.26	0.25	0.23	0.22
8.5	0.80	0.75	0.71	0.67	0.62	0.58	0.55	0.51	0.48	0.45	0.42	0.40	0.37	0.35	0.33	0.31	0.29	0.27	0.25	0.24	0.22	0.21	0.20	0.18
8.6	0.68	0.64	0.60	0.56	0.53	0.49	0.46	0.43	0.41	0.38	0.36	0.33	0.31	0.29	0.28	0.26	0.24	0.23	0.21	0.20	0.19	0.18	0.16	0.15
8.7	0.57	0.54	0.51	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.30	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13
8.8	0.49	0.46	0.43	0.40	0.38	0.35	0.33	0.31	0.29	0.27	0.26	0.24	0.23	0.21	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.13	0.12	0.11
8.9	0.42	0.39	0.37	0.34	0.32	0.30	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.10	0.09
9.0	0.36	0.34	0.32	0.30	0.28	0.26	0.24	0.23	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.11	0.10	0.09	0.09	0.08

a. For interpolation between values presented in the table, criterion for total ammonia chronic criterion (CCC) is calculated using the following formula:

$$0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) \times \left(2.126 \times 10^{0.028\times(20-MAX(T,7))}\right)$$

Table 1g. Temperature, Dissolved Oxygen, And pH Numeric Aquatic Life Criteria.

Non-Thermally Stratified Surface Waters

Aquatic Life Use	Dissolved Oxygen (DO)	pH	Temperature
Special	5.0 mg/L[a]	6.5-8.5[b]	32°C[c]
Expected	5.0 mg/L[a]	6.5-8.5[b]	32°C[c]
Restricted	5.0 mg/L[a]	6.5-8.5[b]	32°C[c]

Thermally Stratified[a] Lakes or Reservoirs

Aquatic Life Use	Dissolved Oxygen (DO)		pH	Temperature
	Epilimnion[a]	Metalimnion[a]		
Special	5.0 mg/L[a]	4.0 mg/L[a]	6.5-8.5[b]	32°C[c]
Expected	5.0 mg/L[a]	4.0 mg/L[a]	6.5-8.5[b]	32°C[c]
Restricted	5.0 mg/L[a]	4.0 mg/L[a]	6.5-8.5[b]	32°C[c]

a - (1) The concentration of dissolved oxygen in surface waters shall not be lowered by the influence of artificial sources of pollution. (2) Dissolved oxygen concentrations may be lower than criteria in the bottom measurement from a measured profile reaching full depth in lakes or reservoirs. (3) For thermally stratified lakes and reservoirs, narrative criteria specified in K.A.R 28-16-28b through 28-16-28h still apply to all depths. (4) Thermally stratified refers to lakes or reservoirs naturally experiencing a change in the temperature at different depths where warmer, less dense waters are at the surface and colder, more dense waters are at the bottom. Specifically, the epilimnion is the warmer, less dense, upper layer of water, and the metalimnion is the zone of transition from the epilimnion at the surface and colder, more dense, bottom water.

b - pH range outside the zone of initial dilution.

c - (1) Beyond the zone of initial dilution a discharge shall not elevate the temperature of a receiving surface water above this temperature, except as provided in paragraph 28-16-28e(d)(2)(C)(ii). (2) Additional requirements in paragraph 28-16-28e(d)(2)(C)(i).

Table 1h. Natural Background Concentrations

BASIN	HUC 8	SEGMENT / LAKE NUMBER	WATERBODY	POLLUTANT	NATURAL BACKGROUND CONCENTRATION (mg/L)
Cimarron	11040006	1	Cimarron River	Chloride	1,010
Cimarron	11040007	1	Crooked Creek	Chloride	1,200
Cimarron	11040008	2	Bluff Creek	Sulfate	350
Cimarron	11040008	5	Cimarron River	Chloride	900
Cimarron	11040008	5	Cimarron River	Sulfate	465
Kansas Lower Republican	10250017	29	Buffalo Creek	Chloride	590
Kansas Lower Republican	10270701	6	Kansas River	Chloride	275
Kansas Lower Republican	10270101	6	Kansas River	Sulfate	300
Lower Arkansas	11030009	1	Rattlesnake Creek above the Little Salt Marsh in Quivira National Wildlife Refuge	Chloride	1,400
Lower Arkansas	11030009	1	Rattlesnake Creek below the Little Salt Marsh in Quivira National Wildlife Refuge	Chloride	3,660
Lower Arkansas	11030009	1	Rattlesnake Creek above and below the Little Salt Marsh in Quivira National Wildlife Refuge	Sulfate	455
Lower Arkansas	11030010	1	Arkansas River	Chloride	620
Lower Arkansas	11030010	3	Arkansas River	Chloride	650
Lower Arkansas	11030010	4	Arkansas River	Chloride	650
Lower Arkansas	11030010	6	Peace Creek	Chloride	1,800
Lower Arkansas	11030010	7	Salt Creek	Chloride	1,300
Lower Arkansas	11030011	1	Cow Creek near Willowbrook	Chloride	300
Lower Arkansas	11030011	2	Little Cow Creek	Chloride	300
Lower Arkansas	11030011	3	Cow Creek near Lyons	Chloride	460
Lower Arkansas	11030011	1755	Cow Creek	Chloride	300
Lower Arkansas	11030013	1	Arkansas River	Chloride	345
Lower Arkansas	11030013	2	Arkansas River	Chloride	265
Lower Arkansas	11030013	3	Arkansas River	Chloride	385
Lower Arkansas	11030013	3	Arkansas River	Sulfate	350
Lower Arkansas	11030013	LM014201	Slate Creek W.A. Watershed	Chloride	27,590

Table 1h. Natural Background Concentrations

BASIN	HUC 8	SEGMENT / LAKE NUMBER	WATERBODY	POLLUTANT	NATURAL BACKGROUND CONCENTRATION (mg/L)
Lower Arkansas	11030013	LM014201	Slate Creek W.A. Watershed	Sulfate	2,500
Lower Arkansas	11030015	3	Ninnescha River, South Folk	Chloride	265
Lower Arkansas	11060002	4	Arkansas River, Salt Folk	Chloride	305
Lower Arkansas	11060002	4	Arkansas River, Salt Folk	Sulfate	730
Lower Arkansas	11060002	7	Mule Creek	Sulfate	310
Lower Arkansas	11060003	2	Medicine Lodge River	Sulfate	450
Lower Arkansas	11060003	6	Medicine Lodge River	Sulfate	525
Lower Arkansas	11060003	8	Medicine Lodge River	Sulfate	300
Lower Arkansas	11060003	27	Soldier Creek	Sulfate	300
Neosho	11070202	5	Clear Creek	Sulfate	290
Neosho	11070202	16	French Creek	Sulfate	1,045
Neosho	11070202	17	Cottonwood River, South	Sulfate	840
Neosho	11070202	21	Doyle Creek	Sulfate	370
Neosho	11070205	LM035901	Mined Land Lake 12	Sulfate	1,000
Neosho	11070205	LM036801	Mined Land Lake 22	Sulfate	1,000
Neosho	11070205	LM036901	Mined Land Lake 23	Sulfate	1,000
Neosho	11070205	LM037301	Mined Land Lake 27	Sulfate	1,000
Neosho	11070205	LM037601	Mined Land Lake 30	Sulfate	1,000
Neosho	11070205	LM038841	Mined Land Lake W.A.	Sulfate	1,000
Neosho	11070205	LM048201	Mined Land Lake 17	Sulfate	1,000
Neosho	11070205	LM048401	Mined Land Lake 44	Sulfate	1,000
Neosho	11070207	LM047601	Mined Land Lake 6	Sulfate	1,000
Neosho	11070207	LM047801	Mined Land Lake 7	Sulfate	1,000
Smoky Hill-Saline	10260003	9	Smoky Hill River	Sulfate	500
Smoky Hill-Saline	10260003	17	Smoky Hill River	Sulfate	700
Smoky Hill-Saline	10260003	21	Smoky Hill River	Sulfate	700
Smoky Hill-Saline	10260003	LM013001	Cedar Bluff Lake	Sulfate	452
Smoky Hill-Saline	10260006	5	Smoky Hill River	Chloride	435

Table 1h. Natural Background Concentrations

BASIN	HUC 8	SEGMENT / LAKE NUMBER	WATERBODY	POLLUTANT	NATURAL BACKGROUND CONCENTRATION (mg/L)
Smoky Hill-Saline	10260006	9	Smoky Hill River	Chloride	625
Smoky Hill-Saline	10260006	15	Smoky Hill River	Chloride	820
Smoky Hill-Saline	10260006	15	Smoky Hill River	Sulfate	411
Smoky Hill-Saline	10260006	21	Smoky Hill River	Sulfate	464
Smoky Hill-Saline	10260008	3	Chapman Creek	Sulfate	370
Smoky Hill-Saline	10260008	6	Smoky Hill River	Chloride	265
Smoky Hill-Saline	10260008	6	Smoky Hill River	Sulfate	325
Smoky Hill-Saline	10260008	8	Mud Creek	Sulfate	400
Smoky Hill-Saline	10260008	18	Gypsum Creek	Sulfate	325
Smoky Hill-Saline	10260008	25	Holland Creek	Sulfate	1,200
Smoky Hill-Saline	10260008	28	Turkey Creek	Sulfate	1,200
Smoky Hill-Saline	10260008	35	Carry Creek	Sulfate	400
Smoky Hill-Saline	10260009	5	Paradise Creek	Chloride	860
Smoky Hill-Saline	10260009	5	Paradise Creek	Sulfate	630
Smoky Hill-Saline	10260009	8	Saline River	Chloride	860
Smoky Hill-Saline	10260009	8	Saline River	Sulfate	500 or 780 *
Smoky Hill-Saline	10260009	9	Saline River	Sulfate	390
Smoky Hill-Saline	10260009	LM014001	Wilson Lake	Chloride	680
Smoky Hill-Saline	10260009	LM014001	Wilson Lake	Sulfate	480
Smoky Hill-Saline	10260010	1	Saline River	Chloride	300
Smoky Hill-Saline	10260010	1	Saline River	Sulfate	375
Smoky Hill-Saline	10260010	3	Saline River	Chloride	370
Smoky Hill-Saline	10260010	3	Saline River	Sulfate	390

Table 1h. Natural Background Concentrations

BASIN	HUC 8	SEGMENT / LAKE NUMBER	WATERBODY	POLLUTANT	NATURAL BACKGROUND CONCENTRATION (mg/L)
Smoky Hill-Saline	10260010	10	Wolf Creek	Chloride	390
Smoky Hill-Saline	10260010	10	Wolf Creek	Selenium	7**
Smoky Hill-Saline	10260010	10	Wolf Creek	Sulfate	450
Smoky Hill-Saline	10260010	14	Bullfoot Creek	Sulfate	300
Smoky Hill-Saline	10260010	17	Elkhorn Creek	Sulfate	425
Solomon	10260012	2	Oak Creek	Selenium	12
Solomon	10260012	10	Beaver Creek	Selenium	16
Solomon	10260012	23	Deer Creek	Selenium	9
Solomon	10260014	18	Kill Creek	Selenium	9
Solomon	10260014	18	Kill Creek	Sulfate	540
Solomon	10260014	19	Covert Creek	Selenium	6
Solomon	10260014	19	Covert Creek	Sulfate	610
Solomon	10260014	20	Twin Creek	Selenium	12
Solomon	10260014	20	Twin Creek	Sulfate	730
Solomon	10260014	21	Carr Creek	Selenium	8
Solomon	10260014	21	Carr Creek	Sulfate	690
Solomon	10260015	1	Solomon River	Chloride	370
Solomon	10260015	12	Solomon River	Chloride	400
Solomon	10260015	18	Limestone Creek	Selenium	6.6
Solomon	10260015	18	Limestone Creek	Sulfate	300 **
Solomon	10260015	27	Salt Creek	Chloride	650
Solomon	10260015	27	Salt Creek	Sulfate	310
Upper Arkansas	11030001	1	Arkansas River	Sulfate	1,875
Upper Arkansas	11030001	3	Arkansas River	Selenium	7 or 10 ***
Upper Arkansas	11030001	9	Arkansas River	Selenium	7 or 10 ***
Upper Arkansas	11030003	1	Arkansas River	Selenium	7 or 10 ***
Upper Arkansas	11030003	1	Arkansas River	Sulfate	350
Upper Arkansas	11030004	1	Arkansas River	Sulfate	1,000
Upper Arkansas	11030004	10	Arkansas River	Fluoride	1.45
Upper Arkansas	11030004	10	Arkansas River	Sulfate	550

Table 1h. Natural Background Concentrations

BASIN	HUC 8	SEGMENT / LAKE NUMBER	WATERBODY	POLLUTANT	NATURAL BACKGROUND CONCENTRATION (mg/L)
Upper Arkansas	11030004	11	Arkansas River	Sulfate	350
Upper Republican	10250001	1	Arikaree River	Selenium	9
Upper Republican	10250003	2	Republican River, South Fork	Fluoride	1.45
Upper Republican	10250003	9	Republican River, South Fork	Fluoride	1.20
Walnut	11030017	18	Whitewater River	Sulfate	390
Walnut	11030018	30	Eightmile Creek	Sulfate	520

* 780 mg/L applies when stream flows are above the normal flow

** Only applies when stream flows are above the median (50 percentile) flow

*** From April to October, 7 mg/L applies; from November to March, 10 mg/L applies.

Table 1i. *Escherichia coli* Criteria For Classified Stream Segments

Use	**Colony Forming Units (CFUs)/100mL**	
Primary Contact Recreation	Geometric Mean Apr. 1 – Oct. 31	Geometric Mean Nov. 1 – Mar. 31
Class A	160	2358
Class B	262	2358
Class C	427	3843
Secondary Contact Recreation	Geometric Mean Jan. 1 – Dec. 31	
Class a	2358	
Class b	3843	

Table 1j. *Escherichia coli* Criteria For Classified Surface Waters Other Than Classified Stream Segments

Use	**Colony Forming Units (CFUs)/100mL**			
Primary Contact Recreation	Geometric Mean Apr. 1 – Oct. 31	Geometric Mean Nov. 1 – Mar. 31	Single Sample Maximum Apr. 1 – Oct. 31	Single Sample Maximum Nov. 1 – Mar. 31
Swimming Beach	160	800	732	3655
Public Access	262	1310	1198	6580
Restricted Access	427	2135	1950	9760
Secondary Contact Recreation	Geometric Mean Jan. 1 – Dec. 31		Single Sample Maximum Jan. 1 – Dec. 31	
Public Access	2135		9760	
Restricted Access	2135		9760	

Table 1k. Chlorophyll-a Criteria For Lakes Or Reservoirs With Active[a] Or Reserve[b] Domestic Water Supply Use

	Lakes or Reservoirs with Domestic Water Supply Use
Chlorophyll-a	The lesser value[c] of 10 µg/L or long-term average[d]

a. These lakes or reservoirs are currently being used as domestic water supply sources.

b. These lakes or reservoirs are not currently being used as domestic or public water supply sources, but they are listed as backup supplies by municipalities and other public water suppliers, or the active water rights for water supply uses are still being held by the municipalities and other public water suppliers.

c. Running average of a minimum of 4 samples over a 12-year period. For any lake or reservoir with insufficient data, the criterion is set at 10 µg/L until a long-term average can be calculated, and the new criterion will be the lesser value of 10 µg/L or the long-term average.

Table 1l. Current Lakes Or Reservoirs Serving As Active Or Reserve Domestic Water Supply

Lake Number	Register Name (with Local Name)
LM050001	Alma City Lake
LM040001	Augusta City Lake
LM041601	Augusta Santa Fe Lake
LM032001	Banner Creek Lake
LM031001	Big Hill Lake (Pearson-Skubitz Big Hill Lake)
LM046401	Blue Mound City Lake
LM043901	Bone Creek Lake
LM046201	Bronson City Lake
LM072601	Caney City Lake (Timber Hill Lake)
LM013001	Cedar Bluff Lake
LM044101	Cedar Creek Reservoir
LM040701	Cedar Valley Lake
LM073701	Centralia Lake
LM017001	Cheney Lake
LM030001	Clinton Lake
LM043001	Council Grove City Lake
LM022001	Council Grove Lake
LM051301	Critzer Lake
LM064901	Crystal Lake
LM071701	Edna City Lake
LM033001	El Dorado Lake
LM025001	Elk City Lake
LM040201	Eureka Lake (Eureka Old City Lake)
LM023001	Fall River Lake
LM045001	Fort Scott City Lake
LM040401	Gardner City Lake
LM040601	Garnet North City Lake
LM040801	Harveyville Lake (Harveyville City Lake)
LM069701	Herington City Lake
LM047201	Herington Reservoir
LM035001	Hillsdale Lake
LM073901	Jetmore Lake
LM026001	John Redmond Lake
LM016001	Kanopolis Lake
LM043401	Lake Kahola
LM041201	Lebo City Lake
Not Assigned	Linn Valley Lake

Table 1l. Current Lakes Or Reservoirs Serving As Active Or Reserve Domestic Water Supply

Lake Number	Register Name (with Local Name)
LM065701	Louisburg Old Lake
LM043801	Louisburg SFL (Louisburg Middle Creek SFL)
LM065901	Lyndon City Lake
LM051801	Madison City Lake
LM020001	Marion Lake
LM027001	Melvern Lake
LM019001	Milford Lake
LM051001	Miola Lake (Lake Miola)
LM013601	Mission Lake
LM071901	Moline Reservoir
LM051401	Mound City Lake
LM048701	Murray Gill Lake (Quivira Boy Scout Lake)
LM049901	New Alma City Lake
LM061301	New Olathe Lake
LM053801	New Yates Center Lake (Yates Center Reservoir)
LM010001	Norton Lake (Sebelius Lake)
LM066101	Osage City Reservoir
LM053901	Otis Creek Lake (Eureka)
LM066301	Parker City Lake
LM041401	Parsons Lake
LM029001	Perry Lake
LM044201	Pleasanton Reservoir (Pleasanton City Lake East)
LM012701	Polk Daniels Lake (Elk Co. SFL)
LM028001	Pomona Lake
LM073001	Pony Creek Lake
LM061901	Prairie Lake
LM066601	Prescott City Lake
LM022501	Quarry Lake
LM046801	Richmond City Lake
LM011501	Sabetha City Lake
LM072001	Sedan City South Lake
LM072101	Severy City Lake
LM073501	Spring Hill City Lake
LM051201	Strowbridge Reservoir (Carbondale East Lake)
LM049601	Thayer New City Lake
LM069101	Timber Lake
LM024001	Toronto Lake
LM021001	Tuttle Creek Lake

Table 1l. Current Lakes Or Reservoirs Serving As Active Or Reserve Domestic Water Supply

Lake Number	Register Name (with Local Name)
LM042001	Wabaunsee Co. Lake
LM018001	Waconda Lake
LM042201	Wellington Lake (Wellington Old City Lake)
LM042301	Wellington New City Lake
LM050801	Winfield City Lake
LM074401	Xenia Lake
LM069201	Yates Center Reservoir (South Owl Lake)

KANSAS IMPLEMENTATION PROCEDURES

Surface Water Quality Standards

Prepared by Kansas Department of Health and Environment
Watershed Planning, Monitoring, and Assessment Section/Bureau of Water
Division of Environment

February 18, 2021

Table of Contents

These written procedures provide a uniform mechanism for interpreting Kansas Surface Water Quality Standards in waters of the state.

1 SURFACE WATER CLASSIFICATION

All ponds owned by federal, state, county, or municipal authorities and all privately owned ponds that impound water from a classified stream segment are classified ponds and a portion of those ponds are listed in the Kansas Surface Water Register.

Applicable Regulations: 28-16-28d(a)

1.1 CLASSIFIED STREAM SEGMENTS

Classified stream segments are all stream segments that:

1) Are waters of the state as defined in subsection (a) of K.S.A. 65-161, and amendments thereto, and waters described in subsection (d) of K.S.A. 65-171d, and amendments thereto, and

2) Meet one of the following criteria:

   a. Stream segments indicated on the federal environmental protection agency's Reach File 1 (RF1) (1982) and have the most recently available 10-year median flow of equal to or in excess of 1 cubic foot per second (cfs) based on data collected and evaluated by the United States Geological Survey. In the absence of measured stream segment flow data, calculations of flow conducted by extrapolation methods provided by the United States Geological Survey may be used.

   or

   b. Stream Segments not indicated on RF1 and have the most recently available 10-year median flow of equal to or in excess of 1 cubic foot per second based on data collected and evaluated by the United States Geological Survey or in the absence of stream segment flow data, calculations of flow conducted by extrapolation methods provided by the United States Geological Survey may be used.

   or

   c. Stream segments actually inhabited by threatened or endangered aquatic species listed in rules and regulations promulgated by the Kansas Department of Wildlife and Parks or the United States Fish and Wildlife Service. The Kansas Department of Wildlife and Parks and the United States Fish and Wildlife Service will be consulted in order to determine the presence of threatened and endangered species.

   or

d. Stream segments where scientific studies conducted by the department show that pooling of water during periods of flow below 1 cfs provides important refuges for aquatic life and permits biological recolonization during periods of intermittent flow.

or

e. Stream segments at the point of, and downstream from the point of discharge from a facility permitted under the National Pollutant Discharge Elimination System (NPDES). Note: confined animal feeding operations (CAFOs) are not permitted to have a continuous discharge. Therefore, this provision does not apply to NPDES-permitted CAFOs as defined in K.S.A. 65-171d, and amendments thereto.

A schematic depiction of the process is provided in Figure 1on the following page.

1.2 CLASSIFIED LAKES AND RESERVOIRS

All lakes managed by federal, state, county, or municipal entities and those private lakes and reservoirs used for public drinking water supply or open to the general public for secondary contact recreation, are classified lakes and reservoirs, a portion of those lakes and reservoirs are listed in the Kansas Surface Water Register.

1.3 CLASSIFIED WETLANDS

All wetlands managed by federal, state, county, or municipal entities, those wetlands classified as outstanding national resource waters, exceptional state waters, or designated as special aquatic life use waters, are classified wetlands and a portion of those wetlands are listed in the Kansas Surface Water Register. Those privately owned wetlands open to the general public for hunting, trapping, or other secondary contact recreational activities are also classified wetlands. Artificially created wetlands for wastewater treatment are not considered classified wetlands.

1.4 CLASSIFIED PONDS

All ponds owned by federal, state, county, or municipal authorities and all privately owned ponds that impound water from a classified stream segment are classified ponds and a portion of those ponds are listed in the Kansas Surface Water Register.

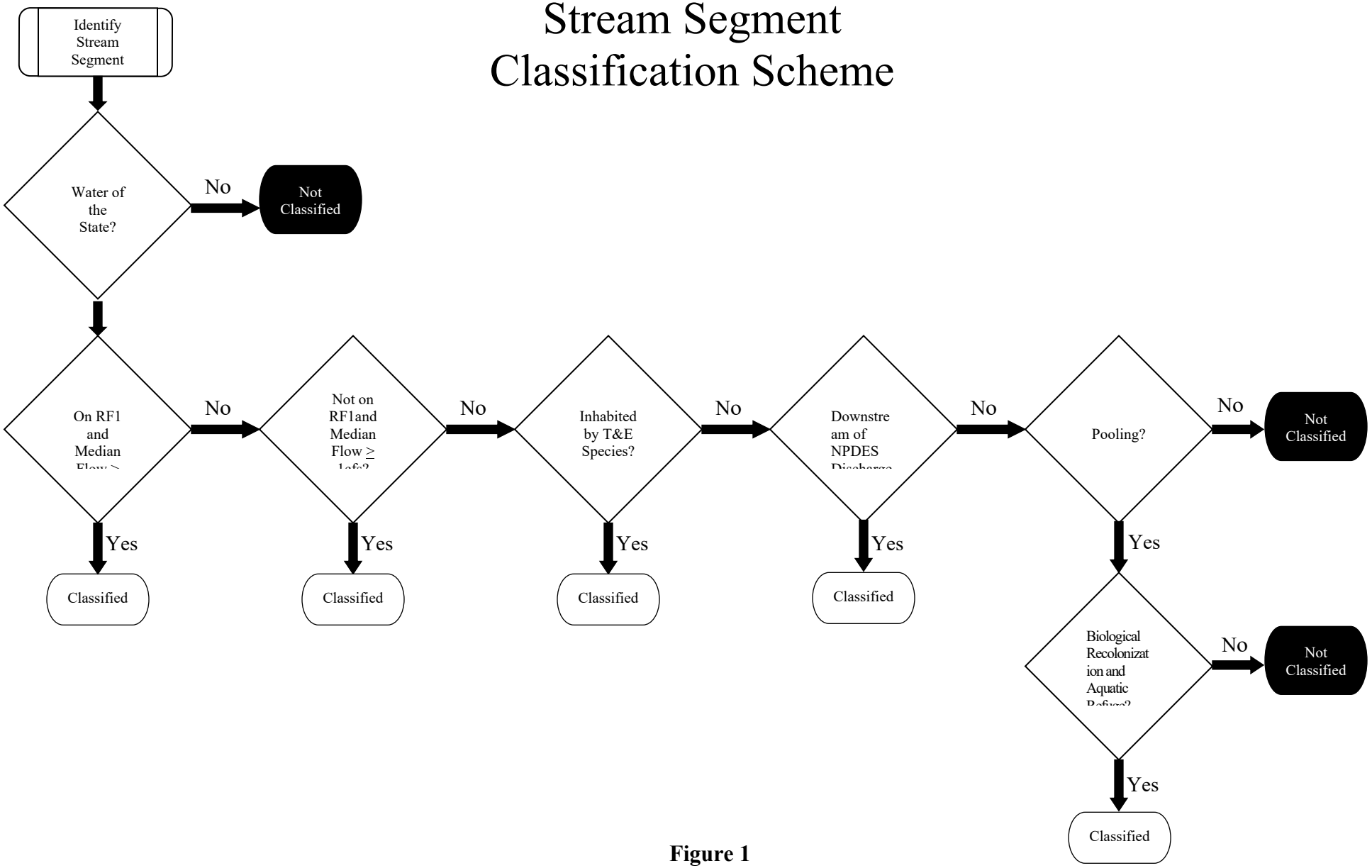
Stream Segment Classification Scheme
Identify Stream Segment
Water of the State?
No
Not Classified
On RF1 and Median
No
Not on RF1and Median Flow ≥
No
Inhabited by T&E Species?
No
Downstre am of NPDES
No
Pooling?
No
Not Classified
Yes
Classified
Yes
Classified
Yes
Classified
Yes
Classified
Yes
Biological Recolonizat ion and Aquatic
No
Not Classified
Yes
Classified

Figure 1

2 DESIGNATED USES

Applicable Regulations: K.A.R. 28-16-28d(b)
K.A.R. 28-16-28d(c)

The Department will assign designated uses to state surface waters by conducting a use attainability analysis following the standardized procedures. Another party, following the Department's standardized procedure, may also conduct a use attainability analysis. If conducted by another party, the use attainability analysis must be submitted to the Department for review and approval.

2.1 AGRICULTURAL WATER SUPPLY USE

Surface waters used for agricultural purposes.

2.1.1 Livestock watering.

Surface waters may be used for consumption of water by livestock.

2.1.2 Irrigation.

Surface waters may be withdrawn and used for application onto cropland.

2.2 AQUATIC LIFE SUPPORT USE

Waters used for the maintenance of the ecological integrity of streams, lakes and wetlands including the aquatic, semi-aquatic, or terrestrial species dependent on surface water for survival

2.2.1 Special Aquatic Life Use.

Surface waters that contain unique habitats or biota that are not commonly found in the state. Surface waters that contain populations of threatened or endangered species will be designated as special aquatic life use waters listed in rules and regulations by the Kansas Department of Wildlife and Parks or the United States Fish and Wildlife Service. The Kansas Department of Wildlife and Parks and the United States Fish and Wildlife Service will be consulted in order to determine the presence of threatened and endangered species.

If the receiving stream is designated as a special aquatic life use water, the permit limits derived will maintain existing uses and where attained, designated uses.

If the receiving surface water is designated by the State as critical habitat for threatened or endangered species, the permit limits derived will maintain water quality considered acceptable for continued propagation of the species and maintenance of its habitat.

2.2.2 Expected Aquatic Life Use.

Surface waters that contain habitats or biota found commonly in the state.

2.2.3 Restricted Aquatic Life Use.

Surface waters that contain biota in limited abundance or diversity due to the physical quality or availability of habitat compared to more productive habitats in adjacent waters.

2.3 DOMESTIC WATER SUPPLY USE

Surface waters that are used, after appropriate treatment, for a potable water resource. As used in these regulations, "point of diversion" is the location of a surface water intake structure used for domestic water supply or at the point of water removal from the alluvial aquifer by a well utilizing "groundwater under the influence of surface water" as defined under K.A.R. 28-15-11(cc).

2.4 FOOD PROCUREMENT USE

Surface waters that are used for obtaining edible aquatic or semi-aquatic life for human consumption.

2.5 GROUNDWATER RECHARGE USE

Surface waters used for replenishing useable groundwater resources.

2.6 RECREATIONAL USE

Surface water used for primary or secondary contact recreation.

2.6.1 Primary Contact Recreation.

Primary contact recreational use is evaluated differently for each of two main categories of waters: 1) classified surface waters other than classified stream segments, and 2) classified stream segments. For each category, the determining factor for primary contact recreation is body immersion in the water to the extent that some inadvertent ingestion of water is probable.

The primary contact recreation season is from April 1 through October 31 of each year.

2.6.1.1 Classified Surface Waters Other Than Classified Stream Segments.

Uses supported in this category include boating, mussel harvesting, swimming, skin diving, water skiing, and wind surfing. The three subcategories of primary contact recreational use for classified surface waters other than classified streams segments are:

1) “Primary contact recreational use: swimming beach” applies to those classified surface waters other than classified stream segments that have posted public swimming areas. During the non-recreational season, the secondary contact recreational use: public access criteria will apply.

2) “Primary contact recreational use: public access” applies to those classified surface waters other than classified stream segments where full body contact may occur and is by law or written permission of the landowner open to and accessible by the public. During the non-recreational season, the secondary contact recreational use: public access criteria will apply.

3) “Primary contact recreational use: restricted access” applies to those classified surface waters other than classified stream segments where full body contact may occur and is not open to and accessible by the public under Kansas law. During the non-recreational season, the secondary contact recreational use: restricted access criteria will apply.

2.6.1.2 Classified Stream Segments.

The three subcategories of primary contact recreational use for classified stream segments are:

1) "Primary contact recreational use: class A" applies to those classified stream segments that have been designated as public swimming areas. Uses supported in this category include activities such as; kayaking, mussel harvesting, swimming, skin diving, water skiing, and wind surfing. During the non-recreational season, the secondary contact recreational use: class A criteria will apply.

2) "Primary contact recreational use: class B" applies to classified stream segments where moderate full body contact from activities that include kayaking, mussel harvesting, swimming, skin diving, water skiing, and wind surfing shall occur. A classified stream segment under this classification must be by law or written permission of the landowner open to and accessible by the public. During the non-recreational season, the secondary contact recreational use: class A criteria will apply.

3) "Primary contact recreational use: class C" applies to classified stream segments supporting boating, mussel harvesting, swimming, skin diving, water skiing, wind surfing, wading, or fishing and has infrequent full body contact under Kansas's law, a classified stream segment in this classification is not open to and accessible by the public. During the non-recreational season, the secondary contact recreational use: class B criteria will apply.

2.6.2 Secondary Contact Recreational Use.

There are two categories for secondary contact recreational use: 1) classified surface waters other than classified stream segments and 2) classified stream segments. The determining factor for secondary contact recreational use is a lack of body immersion to the extent ingestion of surface water is not probable.

The secondary contact recreational use standards apply year round to surface waters designated for secondary contact recreational use.

2.6.2.1 Classified Surface Waters Other Than Classified Stream Segments.

This use shall include wading, fishing, trapping, and hunting. The two subcategories of secondary contact recreational use for classified surface waters other than classified streams segments are:

1) "Secondary contact recreational use: public access" applies to classified surface waters other than a classified stream segments that are by law or written permission of the landowner open to and accessible by the public.

2) "Secondary contact recreational use: restricted access" applies to classified surface waters other than a classified stream segments that by law are not open to and accessible by the public.

2.6.2.2 Classified Stream Segments.

Secondary contact recreational uses for classified stream segments are capable of supporting the recreational activities of wading, fishing, canoeing, motor boating, rafting or other types of boating. There two classes of secondary contact recreational use for classified stream segments "Secondary contact recreational use: class A" applies to classified stream segments that are by law or written permission of the landowner open to and accessible by the public.

1) "Secondary contact recreational use: class A" applies to classified stream segments that are by law or written permission of the landowner open to and accessible by the public.

2) "Secondary contact recreational use: class B" applies to classified stream segments that by law are not open to and accessible by the public.

If opposite sides of a classified stream segment have differing public access status, the designated use of the entire classified stream segment will be the assigned the highest attainable recreational use. Assignment of the higher use, however, does not grant de facto public access to both sides of such segment.

Neither primary nor secondary contact recreational use designations will apply to stream segments where the natural, ephemeral, intermittent or low flow conditions or water levels prevent primary or secondary recreational activities.

3 CRITERIA

3.1 BACKGROUND CONCENTRATIONS

Applicable regulation: K.A.R. 28-16-28e(b)(9)
K.A.R. 28-16-28e(d)(3)(B)

In surface waters where naturally occurring concentrations of elemental substances such as chlorides or sulfates exceed the numeric criteria given in Tables 1a, 1b, and 1c in the Kansas Surface Water Quality Standards: Tables of Numeric Criteria, the newly established numeric criteria will be the background concentration in the receiving water. Background concentrations applied as criteria will be determined only for those substances incorporated into surface waters that are released from geologic deposits and formations as a result of erosional processes or groundwater intrusions.

The background concentration of a receiving water may be established using data from STORET or data from other data bases with adequate and documented quality assurance procedures acceptable to KDHE. The background concentration will be determined using existing instream chemical parameter measurements and stream flow measurements. In instances where background concentration is approximately proportional to the flow, the background concentration will be determined using the mean concentration of instream measurements. Only those measurements gathered when stream flow is at or below 50th percentile of all stream flow values will be used to determine background concentrations. A minimum of five data points will be required to make a background concentration determination. If sufficient data is not available, then the background concentration will be established through monitoring. Samples will be collected in upstream areas representative of the receiving water, including various habitat types, and unaffected by the discharge being permitted, or other identifiable anthropogenic influences. Samples from streams will be collected as close as possible to low flow conditions. Samples from lakes will be collected outside of the regulatory mixing zone. The mean of at least five concentration observations is required to establish the background concentration. Hardness and pH data will also be gathered if the criterion is hardness or pH dependent. In instances where background concentration is not proportional to flow, a scientifically based analysis approved by the department will be required.

3.2 SITE-SPECIFIC CRITERIA

Applicable regulation: K.A.R. 28-16-28f(e)

A site-specific criteria determination can change the water quality aquatic life criteria for a parameter(s) in a given stream segment. A change in criteria based on a site-specific determination will not be granted to allow technology-based limits to be exceeded. The discharger requesting a site-specific determination from

the criteria set via K.A.R. 28-16-28e must specifically state, in writing to KDHE, the parameters for which a site-specific determination is being sought. The request must include the scope, content and time frame for a study to gather data in support of the site-specific determination being requested. The site-specific determination study must be conducted in accordance with one of the three methods outlined in USEPA's Interim Guidance on Determination and Use of Water Effect Ratios for Metals, EPA-823-B-94-001, or other acceptable methods (background concentration determination or winter time ammonia criteria). The study may also provide supporting data establishing the chemical, physical and biological condition of the receiving water, including the number, diversity, and health of the biological resources in the stream. Studies to make a site-specific determination may also use guidelines provided in EPA's Technical Support Document for Water Quality-based Toxics Control.

To conduct a site-specific determination study, KDHE will require persons skilled in developing the necessary information needed to make a determination conduct the study. Such skills will include appropriate techniques for conducting the approved EPA methods and relevant biological studies. KDHE approval of the scope, content, and time frame of the study is required.

KDHE will conduct a forum for the public to participate in the establishment of site-specific aquatic life criteria. KDHE will invite interested parties, regional experts, and the general public to assist in the construction of the scope and content of any studies used for support or development of site-specific criteria. The public will also be invited to comment on proposed criteria through the public notice process and if deemed necessary, through a public hearing.

Normally, KDHE will allow 12 months to gather the necessary data and three additional months to assimilate and present the report. This time frame may be extended or reduced based upon the complexity of the study; weather induced delays and other contingencies outside the control of the discharger. During this time, monitoring requirements will be placed in the permit for the parameters, which will be affected by the site-specific determination. The requirements in the original permit issued prior to allowing the site-specific criteria study will remain in effect until the permit is renewed or until a final decision is made on the site-specific criteria request.

The decision and appropriate permit modifications will be public noticed and subject to review and appeal. If the request to change the site-specific criteria is not granted and the permitee is unable to meet the required limitations, the permit will be modified with a schedule of compliance.

3.3 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.

3.4 BIOTIC LIGAND MODEL FOR AQUATIC LIFE COPPER CRITERIA PERMIT LIMITATIONS

Applicable regulation: K.A.R. 28-16-28e(e) and Kansas Surface Water Quality Standards Tables of Numeric Criteria 1a

In March 2015, KDHE adopted by reference the Biotic Ligand Model to calculate the copper aquatic life ambient freshwater quality criteria.

The Biotic Ligand Model (BLM) is a tool used in aquatic toxicology that examines the bioavailability of metals in the aquatic environment and the affinity of these metals to accumulate on gill surfaces of organisms. BLM depends on the site-specific water quality including such parameters as pH, temperature, and dissolved organic carbon (DOC). In this model, lethal accumulation values (accumulation of metal ion the gill surface, in the case of fish, that cause mortality in 50% of the population) are used to be predictive of lethal concentration values that are more universal for aquatic toxicology and the development of standards.

The point of the model is to provide an easy way to estimate how WQC values should respond to changes in water chemistry variables such as DOC, pH, alkalinity, Ca, Na, etc. This capability enhances analyst's ability to develop water quality criteria that are consistent with the level of protection that is intended by the water quality standards (WQS).

Datasets will be comprised with a minimum of 12 samples to be analyzed for the parameters listed in Table 1 of this section, with one exception, when using KDHE instream monitoring data total organic carbon (TOC) will be included versus DOC. When TOC is included in the data set it will be converted to DOC prior to inputting the value(s) into the BLM by a multiplication factor of 0.7482. When selecting the dataset to be modeled to generate site-specific copper criteria limitations it will be determined if KDHE's instream chemistry monitoring station data is to be used (Data from the ENVI database), or if the NPDES permittee EDMR/DMR specific data is to be used and compared to or in conjunction with KDHE's data. When there is insufficient instream monitoring station data to calculate BLM copper criteria limitations the NPDES permittee will be requested to conduct at least 12 months of monitoring to collect data for the parameters listed in Table 1:

Table 1: BLM Parameters

- Temperature	- Sodium
- pH	- Potassium
- Copper	- Sulfate
- Dissolved organic carbon (DOC)	- Chloride
- Humic acid*	- Alkalinity, and
- Calcium	- Sulfide*
- Magnesium	

*Default values identified in the BLM manual may be used, such as 10% for humic acid and 1.0^{-10} for sulfide.

Once data has been inputted into the model and run an Instantaneous Cu WQC Report will be generated. This report will include the Criterion Maximum Concentration (CMC otherwise known as the Acute Criteria) and Chronic Continuous Concentration (CCC otherwise known as the Chronic Criteria).

4 WATER QUALITY STANDARDS VARIANCES

Applicable Regulations: K.A.R. 28-16-28b
K.A.R. 28-16-28f(d) through K.A.R. 28-16-28h

4.1 BACKGROUND

In August 2015, the Environmental Protection Agency (EPA) published 40 C.F.R. 131.14, implementing its authority under the Clean Water Act (CWA) section 101(a) and 303(c)(2) to establish requirements for water quality standard (WQS) variances. A WQS variance is a flexible mechanism of water quality protection that may be requested by an individual or group of dischargers who believe they cannot meet their current permit limit and are also uncertain whether the permit limit can ultimately be achieved. Variances establish time limited designated use and criterion, that reflects the highest attainable condition as an alternative to one or more of the criteria of K.A.R. 28-16-28e for the purposes of developing National Pollutant Discharge Elimination System (NPDES) permit limits where the underlying designated use and criterion cannot currently be met due to one of the factors cited in K.A.R. 28-16-28f(d)(1). The process of adopting WQS variance will be done according to K.AR. 28-16-28b, K.A.R. 28-16-28f(d) and K.A.R. 28-16-28h, which adopts in part 40 C.F.R. 131.14.

The Kansas Department of Health and Environment (KDHE), the permitting authority for the state of Kansas, may adopt time-limited WQS variances for a designated use and criterion reflecting the highest attainable condition (HAC) applicable throughout the term of the WQS variance, pursuant to K.A.R. 28-16-28b(sss) and 28-16-28f(d). A WQS variance does not exempt the discharger from the requirement to comply with all other applicable technology-based effluent limitations (TBELs) or water quality-based effluent limitations (WQBELs) outside of the parameters specified in the variance. WQS variances may be adopted for a single discharger, multiple dischargers, or a water body or waterbody segment(s). Each WQS variance is considered to be a WQS and is subject to the requirements of the public participation process referenced in 40 CFR 131.14 and referenced in K.A.R. 28-16-28f(d) and defined in 40 C.F.R. 131.20.

A WQS variance may be appropriate when a facility has opportunities to improve water quality, but the timeframe is uncertain as to when the criteria will be consistently met. A WQS variance will not be adopted if the underlying designated use and criterion of the proposed WQS variance can be achieved by implementing technology-based effluent limits.

WQS variances and requests for subsequent WQS variances are initially reviewed by the KDHE Bureau of Water (BOW). If KDHE BOW supports the proposed WQS variance, it is then subject to public review and comment during the public notice process, and a public hearing as a change to the WQS. KDHE BOW will address any public comments prior to submittal to U.S. EPA Region 7 for final approval. Once EPA Region 7 has granted final approval of the WQS variance, NPDES permit(s) with the WQS variance can

be issued. Each WQS variance is granted for the minimum time needed as to achieve compliance with the applicable highest attainable condition as determined by KDHE.

4.2 VARIANCE REQUEST REQUIREMENTS

All Variances: Person(s) requesting a WQS variance shall meet at least one of the factors included in K.A.R. 28-16-28f(d)(1).

As part of the WQS variance application or request, the requestor is to demonstrate they have assessed and considered the following factors:

- Technology-based controls are insufficient to meet WQBELs derived to meet the underlying designated use and criteria at issue in the variance,
- Ensure there is no jeopardy to threatened or endangered species,
- Ensure there is no unreasonable risk to human health, and
- Ensure the highest attainable condition applicable throughout the term of the variance does not result in any lowering of currently attained ambient water quality, consistent with 131.14(b)(1)(ii).

Multiple-discharger Variances: When requesting a variance for greater than one (multiple) dischargers, specific eligibility requirements may be specified in a WQS variance, as an alternative to identifying qualified dischargers at the time of adoption of a WQS variance for multiple dischargers. The receiving waterbodies must be included in the request.

4.3 SUBMISSION REQUIREMENTS

WQS variance requests from a discharger(s) will include an application that will be reviewed by KDHE. WQS variance requests shall include the following information, provided by KDHE or the applicant, for consideration:

4.3.1 Variance submissions to EPA**.**

WQS variance submission per 40 C.F.R. 131.14(b) shall include:

1) The pollutant(s) or water quality criterion, and the water body/waterbody segment(s) to which the WQS variance applies.

2) The specific discharger subject to the WQS variance. (K.A.R. 28-16-28f(d) and 40 C.F.R. 131.14(b)(1))

3) All the applicable requirements that represent the HAC of the water body or waterbody segment throughout the term of the WQS variance.

4) Provide a quantitative expression of the HAC of the water body or waterbody segment receiving the discharge. Determine if the variance is for a discharger(s)-specific or applied to a water body or waterbody segment then select the appropriate quantifiable expression described below:

a. A quantifiable expression for discharger(s)-specific sites will be stated as one of the options listed in this section. (40 C.F.R. 131.14(b)(1)(ii)(A)(1-3))

- The highest attainable interim criterion; or
- The interim effluent condition that reflects the greatest pollution reduction achievable; or
- If no additional feasible pollutant control technology can be identified, the interim criterion or interim effluent condition that reflects the greatest pollutant reduction achievable with the optimization of pollutant control technologies installed at the time the WQS variance is adopted, and the adoption and implementation of a pollutant minimization plan (PMP).

b. A quantifiable expression for a water body or waterbody segment will be stated as one of the options listed in this section. (40 C.F.R. 131.14(b)(1)(ii)(B)(1-2))

- The highest attainable interim use and interim criterion; or
- If no additional feasible pollutant control technology can be identified, the interim use and interim criterion that reflect the greatest pollutant reduction achievable with the pollutant control technologies installed at the time of adoption of a WQS variance, and the adoption and implementation of a PMP.

5) A statement providing that the requirements of the WQS variance are derived from the HAC identified at the time of the adoption of the WQS variance, or a subsequent HAC identified during any reevaluation, whichever is more stringent. (40 C.F.R. 131.14(b)(1)(iii))

6) The term of the WQS variance. Term limits may be documented to expire on a specific date or as an interval of time after EPA-approval. (40 C.F.R. 131.14(b)(1)(iv))

7) A provision specifying the schedule for the reevaluation(s) using all existing and readily available information and associated public input process for a WQS variance with a term greater than five years. Reevaluations will occur no less frequently than every five years after EPA approval of the WQS variance. (40 C.F.R. 131.14(b)(1)(v))

   Upon the completion of the reevaluation the results will be submitted to EPA within 30 days.

8) A provision that the WQS variance will no longer be the applicable water quality standard for purposes of the Federal Clean Water Act if a reevaluation consistent with the frequency specified in the WQS variance is not conducted or the results are not submitted to EPA, unless and until the reevaluation is conducted and the results are submitted to EPA. (40 C.F.R. 131.14(b)(1)(vi))

4.3.2 Supporting Documentation.

Compile the appropriate supporting documentation for the type of variance being requested as required for the submission packet. Supporting documentation shall include:

1) Indicate if the designated use is a Federal Clean Water Act 101(a)(2) use or a non-101(a)(2) use. Based on the designated use determination include the appropriate documentation as defined in this section. Federal Clean Water Act 101(a)(2) use(s) include those uses which provide for the protection and propagation of fish, shellfish, wildlife and recreation in and on the water.

a. For 101(a)(2) use(s) (40 C.F.R. 131.14(b)(2)(i)(A)):

i. Document one of the factors listed in K.A.R. 28-16-28f(d)(1), is met, or

ii. List the actions necessary to facilitate lake, wetland, or stream restoration through dam removal or other significant reconfiguration activities that preclude attainment of the designated use and criterion while the actions are being implemented.

b. For Non-101(a)(2) use(s) (40 C.F.R. 131.14(b)(2)(i)(B)) provide justification and demonstration that the use and value of the water for those uses listed in 40 CFR 131.10(a) appropriately supports the WQS variance and term.

2) Submit documentation demonstrating the term of the WQS variance is only as long as necessary to achieve the HAC. Such documentation will justify the term of the WQS variance by describing the pollutant control activities to achieve the HAC, including those activities identified through an associated PMP, which are to serve as milestones for the WQS variance.

3) A WQS variance for a water body or waterbody segment requires additional supporting documentation per 40 C.F.R. 131.14(b)(2)(i)(B)(iii), that identify and document any cost-effective and reasonable BMPs for nonpoint source controls related to the pollutant(s) or water quality parameter(s) and water body or waterbody segment(s) specified in the WQS variance that could be implemented to make progress towards attaining the underlying designated use and criterion.

4.3.3 Submitting the WQS variance Package to EPA Region 7 Office.

WQS variances are to be certified by the Attorney General prior to submittal to EPA Region 7. Necessary supporting documentation as defined in section 4.3.2 of this procedure will be submitted along with the WQS variance.

4.4 REEVALUATIONS

WQS variances that exceed five years will be reevaluated according to the reevaluation schedule identified in the variance. The purpose of the reevaluation is to ensure that the highest attainable condition is reflected throughout the term of the variance. When a more stringent attainable condition is identified that condition will become the applicable interim WQS without additional action. Upon permit reissuance, the WQBEL will be based on the newly identified interim condition consistent with the NPDES permitting process. If the reevaluation identifies a condition less stringent than the highest attainable condition, the WQS variance will be revised and submitted to EPA for approval consistent with the Clean Water Act requirements.

Additionally, the reevaluation period allows the department to consider and evaluate changes in technology, operation or design of the existing wastewater treatment system to further optimize the treatment of wastewater and reduce the discharge of the pollutant(s) subject to the WQS variance. Incorporation of these changes will be made within the context of the permit holder's capacity to financially implement those changes and the applicability of the change to the current system of the permit holder. Such changes may include, but are not limited to:

1) Opportunity to irrigate the treated effluent onto adjacent agricultural, commercial or recreational land, thereby reducing or eliminating the discharge of effluent.

2) Employing controlled discharge operations to alter the flow and volume of effluent discharges during critical and favorable conditions in the receiving waters.

3) Review piping flow path to maximize the detention time of wastewater within the treatment system and construct improvements as appropriate.

4) Schedule desludging of the treatment system to restore retention and functionality in the treatment system.

5) Shield wastewater from exposure to sunlight as appropriate to support treatment capability on detained wastewater.

6) Construct alternative discharge structures that opportunistically access wastewaters of differing quality.

7) Construction of additional treatment cells, basins, raceways or polishing wetlands to enhance biological treatment or eliminate discharge of wastewater.

8) Construction of aeration, chemical feeds or other capacity for treating influent sewage and initiating biological removal of pollutants from the final discharging wastewater.

Other emerging technology as applicable to reduce the concentration and loads of pollutants from wastewater.

4.5 SUBSEQUENT VARIANCES

If necessary, a subsequent WQS variance may be adopted when water quality goals have not been attained within the term of the original variance or as special circumstance dictate. Subsequent variances will follow the same variance submittal process for a new variance as defined in section 2 and 3 of this procedure. (K.A.R. 28-16-28f(d) and 40 CFR 131.14(b)(1)(iv))

When requesting a subsequent WQS variance for a water body or waterbody segment, documentation detailing the extent of best management practices (BMP) implementation for nonpoint source controls to address the pollutant(s) subject to the initial WQS variance and the resulting water quality improvements is to be compiled for the submission packet and approval. (40 CFR 131.14(b)(2)(iii)(B))

4.6 IMPLEMENTING WQS VARIANCES IN NPDES PERMITS

A WQS variance serves as the applicable water quality standard for implementing NPDES permitting requirements pursuant to 40 C.F.R. 122.44(d) for the term of the WQS variance. Any limitations and requirements necessary to implement the WQS variance shall be included as enforceable conditions of the NPDES permit (40 C.F.R. 131.14(c)). Each NPDES permit and its conditions involving the variance will be subject to public notification and opportunity for comment as typical through the department's permitting process.

Discharger-specific and multiple-discharger WQS variances will be detailed in the Kansas Variance Register per K.A.R. 28-16-28h and will be publicly accessible on the KDHE BOW Water Quality Standards website. The Kansas Variance Register will include a narrative and listing section for each approved variance adopted by Kansas. During the permit renewal process if it is found that a facility no longer requires the use of a WQS variance, the permit will be written to reflect the most current applicable criteria.

Where a permittee cannot immediately meet the WQBEL derived from the terms of a WQS variance, a permit compliance schedule or order may be issued so the permittee can remain in compliance with the NPDES permit.

Calculating the HAC alternative effluent limitations will be dependent upon the criteria included in the variance as documented and adopted in the Kansas Surface Water Quality Standards Variance Register.

4.6.1 Multiple-discharger Wastewater Lagoon Ammonia Variance

The methods used to calculate HAC alternate effluent limitations for the *Multiple-discharger Wastewater Lagoon Ammonia Variance*, approved for implementation on May 7, 2018, can be found in Section 4 Appendix A of this document.

SECTION 4 APPENDIX A

PROCEDURE to CALCULATE the HIGHEST ATTAINABLE EFFLUENT CONDITION UNDER the KANSAS AMMONIA MULTIPLE DISCHARGER VARIANCE – ALTERNATIVE AMMONIA LIMITS

Procedures for Determining a Permittee's Ability to Meet the 2013 Ammonia Criteria and for Calculating a Highest Attainable Effluent Condition

An Addendum to the "Kansas Eligibility Determination for Wastewater Lagoon Variances" – April, 2017, Edited May, 2020

The following procedures detail the steps used to determine an NPDES permittee's ability to comply with limits developed using the 2013 NH_3 ammonia criteria and the subsequent calculation of an alternative ammonia effluent limit if compliance is not possible. A permittee must also undergo the economic eligibility determination before a decision regarding inclusion in the ammonia multiple discharger variance (MDV) will be made. The highest attainable effluent condition is unique to each NPDES permit and can be used as the numeric limit for ammonia for compliance purposes. Additionally, combined with the pollutant minimization plan, the highest attainable effluent condition is considered the highest attainable condition (HAC) for ammonia in the permittee's discharge, hence, both will be assessed to determine compliance with the conditions of the ammonia MDV.

1. Determining a permittee's eligibility for an alternative effluent limit for ammonia.

    a. Permit writer submits a request for water quality (WQ) review for a discharging lagoon facility that includes request for 2013 NH_3 criteria/HAC assessment.

    b. Monthly limits for NH_3 are developed for the lagoon facility using 2013 NH_3 Criteria.

    c. Facility's NH_3 discharge monitoring report (DMR) data is pulled for the 2008-current period of record.

        i. If fewer than 10 NH_3 DMR results, including < RL but excluding No Discharge (ND) results, are available, the WQ certification memo will reflect a Monitor Only determination for the NH_3 limit.

            1. A Monitor Only determination indicates there is not yet enough data to determine eligibility for inclusion in the NH_3 MDV.

            2. A Monitor Only determination means the facility is not eligible for the NH_3 MDV pending a recheck during the next permit renewal for the facility.

            3. The facility's dataset will be assessed as part of the next renewal and, if sufficient at that time, a determination may be made concerning inclusion in the NH_3 MDV.

    d. Compare the DMR dataset against the monthly limits developed using 2013 NH_3 criteria.

        i. If the comparison results in more than 1 violation (i.e., reported sample concentration exceeds the applicable NH_3 limit) within a 5-year period, an alternate ammonia criterion reflecting the highest attainable effluent condition should be calculated.

2. Calculating the highest attainable effluent condition that will serve as the alternative effluent ammonia limit in the facility's NPDES permit.

a. Conduct an outlier test on the facility's NH_3 DMR dataset (2008-current).
    i. Determine 25th and 75th percentile values of the dataset and calculate the difference between them.
    ii. Multiply the difference between the 25th and 75th percentile values by 3 and round to 1 decimal place.
    iii. If a DMR data point is greater than the resulting value it is considered a significant outlier.
    iv. Generally, 1 outlier may be routinely removed from a dataset.
    v. Removing more than 1 outlier is allowable but should only be considered when there is other, supporting, information available.
    vi. Outliers are considered violations when they exceed the criterion and will be counted as such when determining a permittee's eligibility for an alternative effluent limit for ammonia, step 1. d. above.

b. Calculate the Alternative Effluent Ammonia Limit:
    i. Calculate the 99th percentile value of the facility's DMR dataset (after removal of outliers).
        1. The "PERCENTILE.INC" function in MS Excel may be used.
        2. Utilizing best professional judgement (BPJ) evaluate the appropriateness of the 99th percentile value as the alternative effluent ammonia limit for the respective facility.
        3. Reflect the resulting value as the alternative effluent ammonia limit in the water quality certification memo to the permit writer.

c. Calculate the Alternative Effluent Ammonia Limit:
    i. Calculate the 99th percentile value of the facility's DMR dataset (after removal of outliers).
        1. The "PERCENTILE.INC" function in MS Excel may be used.
            a. =
        2. Utilizing best professional judgement (BPJ) evaluate the appropriateness of the 99th percentile value as the alternative effluent ammonia limit for the respective facility. Some things to consider:
            a. Is it appropriately stringent?
            b. How does it compare against the monthly 2013 NH_3 limits developed for the facility?
            c. To account for changes in performance, should the alterative effluent limit be calculated from a limited dataset, i.e., most recent 5 years?
        3. Reflect the resulting value as the alternative effluent ammonia limit in the water quality certification memo to the permit writer.

KANSAS ANTIDEGRADATION POLICY

Prepared by The Kansas Department of Health and Environment

Bureau of Water

August 6, 2001

Antidegradation Policy
State of Kansas
August 6, 2001

EPA's water quality standards regulations require States to adopt and implement an antidegradation policy containing the minimum requirements for such a policy. The antidegradation policy is a component of the Surface Water Quality Standards in the State's overall water quality program. [See K.A.R. 28-16-28c(a)]

The intent of the antidegradation policy is to limit discharges and other activities that will negatively impact water quality, impair designated uses, or threaten to impair designated uses of surface waters. The antidegradation policy provides a baseline level of protection relative to established water quality criteria to all classified surface waters, and a higher level of protection to those waterbodies recognized as unique ecologically, highly valued for its resources, or having high water quality.

The federal antidegradation guidance presents three tiers for maintaining and protecting water quality and designated uses:

1. The first tier (Tier 1) provides a "floor" which protects existing uses. Water quality must be preserved to protect and maintain those existing uses. Activities that would lower water quality below levels necessary to maintain existing uses are prohibited.

2. The second tier (Tier 2) provides protection to high quality waters where water quality exceeds the criteria associated with the assigned designated uses. Limited water quality degradation is allowed in high quality waters where the degradation is necessary to accommodate important social or economic development, but only if designated uses are still maintained and the highest statutory and regulatory requirements for all point sources of pollution and all cost effective and reasonable best management practices for nonpoint sources of pollution are achieved. Public participation is required before allowing a lowering of water quality.

3. The third tier (Tier 3) provides special protection for Outstanding Resource Waters, such as those waters in National and State Parks, wildlife refuges, outstanding fisheries, and other waters of unique recreational or ecological value. Although activities that may create temporary reductions in water quality are allowed, any activities that would permanently lower water quality of these surface waters is forbidden.

Kansas provides protection to classified surface waters equivalent to the three tiers listed above in the Outstanding National Resource Water (Tier 3) and General Purpose Water (Tier 1 or Tier 2) classifications described below. Additionally, Kansas provides a level of protection frequently referred to as Tier 2½, to waters classified as Exceptional State Waters, also described below.
During development of a new national pollutant discharge elimination system (NPDES) permit, or when considering an increase in treatment capacity or discharge volume, or the discharge of additional pollutants to an existing permit, the Department will determine effluent limitations to maintain both the

existing water quality conditions and also those necessary to maintain existing uses and achieve stream designated uses.

For Tier 2 waters, the Department will also evaluate potential nonpoint sources of pollution in the same surface water segment as the point source discharge. The evaluation will determine whether nonpoint sources have the potential to contribute the same pollutants to the surface water segment as the point source discharge. If potential exists, cost effective and reasonable best management practices (BMPs) will be identified for those nonpoint sources of pollution for which statutory or regulatory requirements require compliance with water quality standards (i.e. non-NPDES animal feeding operations, on-site wastewater treatment, etc.). Where the identified BMPs are not in place, the regulatory authority responsible for enforcement of the BMPs will be notified and a written schedule for implementation of the BMPs requested.

Current statutes and regulations addressing nonpoint source pollution include:

1. K.S.A. 2-2438a et seq. - addresses proper pesticide use. Note: discharge of pesticides from point sources is rare in Kansas. Since a discharge of a pesticide from a new or expanded point source into a Tier II water is requisite to initiate a antidegradation review, it is equally rare that a review will involve an evaluation of pesticide application.

2. K.A.R. 28-18-1 et seq. - addresses requirements for livestock production which have a potential to pollute.

3. K.A.R. 28-5-1 et seq. - addresses proper on-site wastewater treatment.

Outstanding National Resource Water

If the receiving surface water is classified as an Outstanding National Resource Water (ONRW), new or expanded discharges will not be allowed (Tier 3 waters).

Exceptional State Water

If the receiving surface water is classified as an Exceptional State Water, the permit limits derived must provide protection to existing uses and existing water quality (Tier 2 ½ waters). Designated uses must be protected and maintained once a designated use is realized. Permit limits for discharges to Exceptional State Waters will typically require maintenance of existing water quality. Existing water quality may be lowered only if the Department determines that there is an important social or economic need to lower existing water quality, as demonstrated through the guidelines provided in EPA's guidance document "Interim Economic Guidance for Water Quality Standards, March 1995" (EPA-823-b-95-002).

General Purpose Water

If the receiving surface water is classified as a General Purpose Water, the permit limits derived must provide protection of existing uses (Tier 1 and Tier 2 waters). Where existing water quality in General Purpose Waters exceeds water quality criteria set forth in the regulations, the existing water quality will

be maintained and protected (Tier 2 waters). Existing water quality may be lowered only if the Department determines that there is an important social or economic need to lower existing water quality, as demonstrated through the guidelines provided in EPA's guidance document "Interim Economic Guidance for Water Quality Standards, March 1995" (EPA-823-b-95-002).

However, if after satisfaction of public participation and intergovernmental coordination requirements, a determination is made by the Department, based on important economic and social development of the area, degradation of existing water quality conditions in exceptional state waters or general purpose waters is acceptable and will maintain existing and attained designated uses, the lower water quality will be allowed.

If a determination is made by the Department that a lowering of water quality is acceptable but will not preserve water quality conditions necessary to maintain designated uses, then KDHE may initiate a process for changing the designation as stated in K.A.R. 28-16-28d(c)(1).
However, pursuant to K.A.R. 28-16-28d(c)(1), existing uses may not be removed unless they are replaced by uses requiring more stringent criteria.

When measurable surface water quality degradation is considered, the following statement will be included in the permit public notice:

"This permit will allow a measurable increase in certain pollutant parameters above existing water quality, but not above concentrations necessary to maintain existing and designated uses (and if applicable ... and to protect designated critical habitat for threatened and endangered species)."

Public comment is invited during the permit public notice period for reconsideration or support of the Department action. In the event of significant public interest or concern, KDHE will conduct a public hearing on the proposed permitting action.

Certain activities, such as the construction, installation or maintenance of roads, bridges, pipelines, water intakes, dikes, levees or dams, may entail a temporary and localized lowering of surface water quality that would not, under normal circumstances, pose a significant long-term risk to the existing or designated uses of the impacted surface water. Such activities may be allowed by KDHE provided reasonable precautions (i.e., pollution control practices) are taken to minimize the impact of the activities on surface water quality.

Where an intentional or unintentional release of pollutants from a point source results in contamination or potential contamination of an alluvial aquifer that threatens to preclude attainment of the designated use of the alluvial aquifer or its associated surface water, the antidegradation provisions of the Kansas Surface Water Quality Standards shall apply.

Any new or expanded source of pollution subject to the interagency review provisions of the Kansas Environmental Coordination Act or Section 404 of the Federal Clean Water Act and requiring a permit, license, or certification from KDHE to discharge wastewater must undergo a formal certification review by KDHE. The certification will ensure that (1) the source of pollution will not violate any of the terms or conditions of the Kansas Surface Water Quality Standards or the Federal Clean Water Act and (2) all

applicable minimum standards of design and minimum pollution control practices are used to minimize the impact of the pollution source on surface water quality.

KDHE may allow a new or expanded source of thermal pollution to discharge into a classified surface water provided that (1) the source of thermal pollution meets all applicable technological effluent limitations and minimum standards of design, (2) the discharge will not violate any of the aquatic life support criteria of K.A.R. 28-16-28e(c)(2), and (3) any lowering of surface water quality resulting from the discharge is, in the judgement of the Director, necessary for the accommodation of important social and economic growth in the geographical vicinity of the discharge. KDHE will not allow any thermal pollution to discharge into any outstanding national resource water or to result in any harmful effects on populations of threatened or endangered species or critical habitat, as defined in the Federal Endangered Species Act (PL 93-205) as amended through October 7, 1988, or in K.S.A. 1991 Supp. 32-960 and K.A.R. 115-15-3.

Surface waters classified as Outstanding National Resource Waters are waters deemed, by the department or the public, to have high recreational or ecological value. These waters are generally located in national or state parks, federal or state game reserves, or are waters that are ecologically unique. KDHE classifies these waters as ONRWs to protect the extraordinary and uncommon nature of the ecosystems. KDHE acknowledges that there may be certain waters in the state that are deserving of this classification but have not yet been given the classification. KDHE encourages the public to take the opportunity to nominate waters it believes are deserving of the ONRW classification.

If the public believes there are certain waters that are deserving of reclassification, then the person(s) must contact KDHE in writing requesting the surface water be reclassified an ONRW. The request should state the exact location of the surface water and the resource, unique ecosystem, or special circumstances that justify the reclassification. KDHE will evaluate all available data and information to determine the chemical, physical, and biological integrity of the nominated surface water. Additional studies may be required before KDHE is able to determine if the surface water should be classified as an ONRW.

If KDHE concludes that a nominated surface water is deserving of the ONRW classification, then the public will have an opportunity to comment on the reclassification during a Public Notice period and, if enough interest or concern is raised, a public hearing will be conducted.

KANSAS SURFACE WATER QUALITY STANDARDS
VARIANCE REGISTER

Prepared by Kansas Department of Health and Environment
Watershed Planning, Monitoring, and Assessment Section Bureau of Water
Division of Environment

December 30, 2020

KANSAS SURFACE WATER QUALITY STANDARDS VARIANCE REGISTER

SECTION ONE

This consolidated list has been established per K.A.R. 28-16-28h and includes the water quality standards (WQS) variances that have been adopted by the State of Kansas and approved by the Environmental Protection Agency. Because WQS variances will vary by request this list is divided in sections based on the variance name and initial approval date. Sections will include narrative language and listing information for each approved WQS variance. The Kansas Variance Register is updated as new variances are approved or during routine permit renewal cycles, which is dependent on the type of WQS variance being implemented.

Abbreviations and Symbols:

HUC	= hydrologic unit code	a	= Secondary contact recreation stream segment is by law or written permission of the landowner open to and accessible by the public
NPDES	= National Pollutant Discharge Elimination System	b	= Secondary contact recreation stream segment is not open to and accessible by the public under Kansas law
HAC	= Highest Attainable Condition	DS	= designated for domestic water supply use
SEG	= stream segment	FP	= designated for food procurement use
AL	= designated for aquatic life	GR	= designated for ground water recharge
S	= special aquatic life use	IW	= designated for industrial water supply use
E	= expected aquatic life use water	IR	= designated for irrigation use
R	= restricted aquatic life use water	LW	= designated for livestock watering use
CR	= designated for contact recreational use	i	= individual variance
A	= Primary contact recreation stream segment is designated public swimming area	m	= multiple discharger variance
B	= Primary contact recreation stream segment is by law or written permission of the landowner open to and accessible by the public	*	= signifies a 101(a)(2) use (no asterisk signifies a non-101(a)(2) use)
C	= Primary contact recreation stream segment is not open to and accessible by the public under Kansas law	**	= no or inadequate data to calculate HAC, monitoring is recommended

The "Receiving Water Body" column of listings will be populated with the hydrologic unit code and segment number or the lake project number as identified in the "Kansas Surface Water Register" adopted by reference in K.A.R. 28-16-28g.

KANSAS SURFACE WATER QUALITY STANDARDS VARIANCE REGISTER

SECTION TWO

Variance Name: Multiple-Discharger Wastewater Lagoon Ammonia Variance

Prepared: January 8, 2021

Process Description:

The following municipal dischargers, referred to as discharger from this point forward, have been shown to be eligible, based on K.A.R. 28-16-28f(d), to receive a water quality standard variance to the numeric ammonia criteria, identified by K.A.R. 28-16-28e(c), as an alternative condition serving as the basis for the operating limit within their NPDES wastewater permits. The requirements of the numeric ammonia criteria WQS variance are either the HAC identified at the time of the adoption of this variance or the HAC later identified during any reevaluation, whichever is more stringent. The interim effluent condition shall be derived as outlined in Section 4 Appendix A of the Kansas Implementation Procedures for Surface Water Quality Standards, dated December 30, 2020. This reflects the greatest pollution reduction achievable with current pollution control technologies installed when this variance is adopted along with the adoption and implementation of the Pollutant Minimization Plan (PMP) for each discharger, thus the HAC. The HAC will be included as the permit limitations in NPDES permits of the variance recipients. Compliance with the HAC will ensure no lowering of water quality throughout the 20 year term of the variance. Reevaluation and assessment of compliance and eligibility will occur for each discharger on a five-year cycle commensurate with the reissuance of their NPDES permit during the term of the variance, including opportunity for public input through the NPDES permitting process. The term of this variance begins upon the receipt of the approval letter from EPA.

Eligibility to employ the variance to the numeric ammonia criteria will be determined through existing financial data analyzed by the department utilizing the procedures outlined in the Kansas Department of Health and Environment "Kansas Eligibility Determination for Wastewater Lagoon Variance - Ammonia", dated January 8, 2021, which is hereby adopted by reference. The department has confirmed the existing use by the discharger of a multi-cell wastewater lagoon system for secondary treatment. Additionally, the department has considered the growth or decline over the past ten years of the population served by the discharger's wastewater collection and treatment system. The following dischargers are found to be eligible for the ammonia variance because installing technology required to meet effluent limits based on Kansas' ammonia criteria, would result in substantial and widespread economic and social impact. During the permit renewal process, eligible dischargers will be subject to the HAC, otherwise known as the alternate NPDES permit limitation, upon confirmation of eligibility for the *Multiple-Discharger Wastewater Lagoon Ammonia Variance*.

Recipients of a variance to the numeric ammonia criteria will abide by a Pollutant Minimization Plan, issued by the department. The Pollutant Minimization Plan will include requirements that the discharger will:

1) retain a certified operator as required by regulations;
2) provide reasonable and adequate maintenance of the existing wastewater treatment lagoon system;
3) maintain operation and performance of the existing lagoon system to comply with secondary treatment limitations;
4) does not allow industrial strength wastewater containing high concentrations of nitrogen to enter the existing lagoon system through the collection system or otherwise;
5) monitor the depth of accumulated sludge in each lagoon cell;
6) plan for expansion of the lagoon system should population and its associated pollutant loading approach the rated design capacity of the existing lagoon system.

The department will evaluate the capacity of each discharger receiving a variance to incorporate any additional elements into their PMP, see the "Kansas Implementation Procedures: Surface Water Quality Standard" the Water Quality Standards Variance section, that further optimize their treatment of wastewater to further reduce discharged ammonia prior to the reissuance of the Discharger's NPDES permit.

Failure to reevaluate compliance and eligibility of the discharger prior to the reissuance of the discharger's NPDES permit will result in effluent limits for ammonia based on the numeric ammonia criteria, within the Kansas regulations, for the next permit limits for ammonia imposed on the discharger.

The reevaluation of the variance to the ammonia criteria shall be conducted every five years after the date of approval throughout the term of the variance. The reevaluation will use all existing and readily available information and will be made available to the public for input for up to 60 days after the completion of the reevaluation. In addition, the public will have every opportunity to provide public comment during each permit's renewal process. The variance to the ammonia criteria will no longer be the applicable water quality standard if:

1) a reevaluation of the variance is not performed during a specified five year review period; or
2) the results of the reevaluation are not submitted to United States Environmental Protection Agency (USEPA) within 30 day of completion.

When such incidents occur the current ammonia criteria listed in the "Kansas Surface Water Quality Standards: Tables of Numeric Criteria," as adopted by K.A.R. 28-16-28e(e), will be the applicable water quality standard until the reevaluation is completed and submitted to the USEPA.

Multiple-Discharger Wastewater Lagoon Ammonia Variance Register Discharger List

Discharger	NPDES Permit Number	KS Permit Number	Receiving Water Body			Highest Attainable Interim Effluent Limit - Unit mg/L (May be seasonal)	Economic Eligibility Assessment Score - Preliminary Screener †	Economic Eligibility Assessment Score - Secondary Screener ◊	Date Variance Went into Effect for the Permit	Multiple-discharger Variance Reevaluation Date
			HUC8	Segment or Lake Project Name Code	Text Name of Receiving Water Body					
Altamont, City of	KS0045918	M-NE01-OO01	11070205	27	Deer Creek via Unnamed Tributary	4.5	2.05	2.50	1-Jul-18	1-Jul-23
Americus, City of	KS0047406	M-NE02-OO01	11070201	5	Allen Creek via Troublesome Creek via Pester Creek	7.5	2.93	2.20	1-Jul-18	1-Jul-23
Arma, City of	KS0045926	M-NE03-OO01	11070207	27	First Cow Creek via Unnamed Tributary	9.9	3.13	2.40	1-Jul-18	1-Jul-23

Discharger	NPDES Permit Number	KS Permit Number	Receiving Water Body			Highest Attainable Interim Effluent Limit - Unit mg/L (May be seasonal)	Economic Eligibility Assessment Score - Preliminary Screener †	Economic Eligibility Assessment Score - Secondary Screener ◊	Date Variance Went into Effect for the Permit	Multiple-discharger Variance Reevaluation Date
			HUC8	Segment or Lake Project Name Code	Text Name of Receiving Water Body					
Chetopa, City of	KS0031135	M-NE13-OO01	11070205	28	Neosho River via Town Creek	7.8	3.29	1.80	1-Jul-18	1-Jul-23
Girard, City of	KS0022551	M-NE31-OO01	11070205	44	Lightning Creek via Thunderbolt Creek	15.5	2.26	1.80	1-Jul-18	1-Jul-23
Highland, City of	KS0047457	M-MO09-OO01	10240005	339	Missouri River via Mission Creek	9.6	2.49	2.20	1-Jul-18	1-Jul-23
Marion, City of	KS0051691	M-NE45-OO01	11070202	3	Cottonwood River	8.7	2.42	1.80	1-Jul-18	1-Jul-23
Seneca, City of	KS0047538	M-MO19-OO01	10240007	16	South Fork Big Nemaha	8.9	2.4	2.40	1-Jul-18	1-Jul-23
St. Paul, City of	KS0084174	M-NE59-OO02	11070205	LM053401	Neosho River via Flat Rock Creek via KDWP&T Neosho Wildlife Area	3.2	2.86	1.83	1-Jul-18	1-Jul-23
Strong City, City of	KS0031178	M-NE63-OO01	11070203	19	Cottonwood River via Fox Creek	8.8	4.46	NA	1-Jul-18	1-Jul-23
Galena, City of	KS0048135	M-NE28-OO01	11070207	3	Spring River via Unnamed Tributary	15.1	2.05	2.20	1-Jan-19	1-Jan-24
Burlingame, City of	KS0024694	M-MC07-OO01	10290101	80	Dragoon Creek via Switzler Creek	7.7	3.99	1.80	1-Apr-19	1-Apr-24
Mulberry, City of	KS0087467	M-MC27-OO01	10290104	324	Cox Creek via Unnamed Tributary	15.2	5.65	NA	1-Apr-19	1-Apr-24
Pomona, City of	KS0029068	M-MC36-OO01	10290101	18	Marais Des Cygnes River	11.7	3.31	2.00	1-Apr-19	1-Apr-24

Discharger	NPDES Permit Number	KS Permit Number	Receiving Water Body			Highest Attainable Interim Effluent Limit - Unit mg/L (May be seasonal)	Economic Eligibility Assessment Score - Preliminary Screener †	Economic Eligibility Assessment Score - Secondary Screener ◊	Date Variance Went into Effect for the Permit	Multiple-discharger Variance Reevaluation Date
			HUC8	Segment or Lake Project Name Code	Text Name of Receiving Water Body					
Hillsdale Improvement Dist	KS0081396	M-MC60-OO01	10290102	25	Ten Mile Creek	13.2	3.47	2.20	1-Jul-19	1-Jul-24
Melvern, City of	KS0046027	M-MC23-OO01	10290101	42	Marais Des Cygnes River via Frog Creek via Unnamed Tributary	3.6	4.97	NA	1-Jul-19	1-Jul-24
Moran, City of	KS0047490	M-MC25-OO01	10290104	12	Marmaton River via Unnamed Tributary	6.3	4.23	NA	1-Jul-19	1-Jul-24
Mound City, City of	KS0047503	M-MC26-OO01	10290102	33	Little Sugar Creek	12.3	3.67	1.83	1-Jul-19	1-Jul-24
Natoma, City of	KS0031160	M-SA10-OO01	10260009	7	Saline River via Paradise Creek	13.7	4.48	NA	1-Jul-19	1-Jul-24
Pleasanton, City of	KS0116653	M-MC35-OO01	10290102	46	Marais Des Cygnes River via Muddy Creek	15.4	3.54	1.80	1-Jul-19	1-Jul-24
Princeton, City of	KS0093891	M-MC38-OO01	10290101	50	Marais Des Cygnes River via Middle Creek	27.8	4.13	NA	1-Jul-19	1-Jul-24
Scranton, City of	KS0031283	M-MC44-OO01	10290101	27	Dragoon Creek via Unnamed Tributary	15.6	2.87	2.20	1-Jul-19	1-Jul-24
Eskridge, City of	KS0046400	M-MC09-OO01	10290101	27	Dragoon Creek	7.5	4.38	NA	1-Oct-19	1-Oct-24
Osage City, City of	KS0022675	M-MC29-OO01	10290101	29	Salt Creek	14.3	2.01	2.00	1-Oct-19	1-Oct-24

Discharger	NPDES Permit Number	KS Permit Number	Receiving Water Body			Highest Attainable Interim Effluent Limit - Unit mg/L (May be seasonal)	Economic Eligibility Assessment Score - Preliminary Screener †	Economic Eligibility Assessment Score - Secondary Screener ◊	Date Variance Went into Effect for the Permit	Multiple-discharger Variance Reevaluation Date
			HUC8	Segment or Lake Project Name Code	Text Name of Receiving Water Body					
Williamsburg, City of	KS0093203	M-MC50-OO02	10290101	1589	Marais des Cygnes River via Tequa Creek via East Branch Tequa Creek via Mill Creek	20.4	4.51	NA	1-Nov-19	1-Nov-24
Lane, City of	KS0081515	M-MC19-OO01	10290101	51	Pottawatomie Creek via Unnamed Tributary	19.1	5.15	NA	1-Dec-19	1-Dec-24
Rantoul, City of	KS0048119	M-MC40-OO01	10290101	3	Marais des Cygnes River via Unnamed Tributary	9.1	6.20	NA	1-Jan-20	1-Jan-25
Oberlin, City of	KS0098655	M-UR17-OO02	10250011	4	Sappa Creek	5.2	2.63	2.00	1-Jan-20	1-Jan-25
Smith Center, City of	KS0098221	M-SO38-OO02	10260012	10	Beaver Creek via Unnamed Tributary	10.7	2.81	2.00	1-Jan-20	1-Jan-25
Overbrook, City of	KS0046451	M-MC32-OO01	10290101	LM028001	Pomona Lake via Valley Brook Creek via Unnamed Tributary	12.4	2.52	2.00	1-Jan-20	1-Jan-25
Corning, City of	KS0081141	M-KS94-OO01	10270102	18	Vermillion Creek via Unnamed Tributary	13.1	4.71	NA	1-Apr-20	1-Apr-25
Courtland, City of	KS0083399	M-LR09-OO01	10250017	45	Republican River via Beaver Creek via Unnamed Tributary	22.5	5.11	NA	1-Apr-20	1-Apr-25
Grandview Plaza, City of	KS0116521	M-SH13-OO01	10260008	1	Kansas River via Smoky Hill River via Franks Creek	4.6	2.44	2.20	1-Apr-20	1-Apr-25
Mankato, City of	KS0095231	M-LR16-OO02	10250017	9037	Middle Buffal Creek via Dry Water Course	3.7	2.91	2.20	1-Apr-20	1-Apr-25

Discharger	NPDES Permit Number	KS Permit Number	Receiving Water Body			Highest Attainable Interim Effluent Limit - Unit mg/L (May be seasonal)	Economic Eligibility Assessment Score - Preliminary Screener †	Economic Eligibility Assessment Score - Secondary Screener ◊	Date Variance Went into Effect for the Permit	Multiple-discharger Variance Reevaluation Date
			HUC8	Segment or Lake Project Name Code	Text Name of Receiving Water Body					
Netawaka, City of	KS0081591	M-KS49-OO01	10270103	42	Straight Creek via Spring Creek via Unnamed Tributary	19.1	4.55	NA	1-Apr-20	1-Apr-25
Riley, City of	KS0093301	M-KS62-OO02	10270101	2	Wildcat Creek	3.51	2.47	1.80	1-Apr-20	1-Apr-25
Centralia, City of	KS0081418	M-BB05-OO01	10270205	14	Black Vermillion River via Unnamed Tributary	11.7	3.75	2.40	1-Jul-20	1-Jul-25
Lake Wabaunsee Improvement District	KS0086568	M-KS92-OO02	10270102	693	South Branch Mill Creek via East Branch Mill Creek via Unnamed Tributary	2.7	2.78	2.40	1-Jul-20	1-Jul-25
Alma, City of	KS0046345	M-KS01-OO01	10270102	27	Mill Creek	10.9	2.10	2.20	1-Oct-20	1-Oct-25
Clifton, City of	KS0048437	M-LR06-OO01	10250017	9	Republican River	9.5	3.22	2.40	1-Oct-20	1-Oct-25
Leon, City of	KS0089133	M-WA11-OO02	11030018	13	Little Walnut River	8.8	2.72	1.80	1-Oct-20	1-Oct-25
Little River, City of	KS0085758	M-LA10-OO02	11030012	14	Little Arkansas River	5.3	3.59	2.20	1-Oct-20	1-Oct-25
Mayetta, City of	KS0026182	M-KS40-OO01	10270103	9032	Cedar Creek via South Cedar Creek via Unnamed Tributary	19.2	4.6	NA	1-Oct-20	1-Oct-25
Onaga, City of	KS0029050	M-KS53-OO01	10270102	43	Vermillion Creek via Hise Creek	10.6	3.33	2.20	1-Oct-20	1-Oct-25
Shawnee County Sewer District #2, Indian Creek	KS0116556	M-KS72-OO24	10270102	1367	Kansas River via Soldier Creek via Indian Creek via Unnamed Tributary	13.5	3.83	2.20	1-Oct-20	1-Oct-25
Westmoreland, City of	KS0046485	M-KS75-OO01	10270102	22	Rock Creek	16.2	2.72	1.60	1-Oct-20	1-Oct-25

Discharger	NPDES Permit Number	KS Permit Number	Receiving Water Body			Highest Attainable Interim Effluent Limit - Unit mg/L (May be seasonal)	Economic Eligibility Assessment Score - Preliminary Screener †	Economic Eligibility Assessment Score - Secondary Screener ◊	Date Variance Went into Effect for the Permit	Multiple-discharger Variance Reevaluation Date
			HUC8	Segment or Lake Project Name Code	Text Name of Receiving Water Body					
Wheaton, City of	KS0094013	M-KS79-OO01	10270205	5	Clear Fork Black Vermillion River	4.6	5.46	NA	1-Oct-20	1-Oct-25
Whitewater, City of	KS0097276	M-WA16-OO02	11030017	25	West Branch Whitewater River	5.7	2.32	2.20	1-Oct-20	1-Oct-25
Benton, City of	KS0026689	M-WA04-OO01	11030017	24	Whitewater River via West Branch White River via Unnamed Tributary	9.4	2.36	2.20	1-Jan-21	1-Jan-26
Burrton, City of	KS0049786	M-LA02-OO01	11030012	15	Kisiwa Creek via North Branch Kisiwa Creek	10.7	2.45	2.20	1-Jan-21	1-Jan-26
Maple Hill, City of	KS0046426	M-KS39-OO01	10270102	27	Kansas River via Mill Creek via Unnamed Tributary	6.9	2.12	2.40	1-Jan-21	1-Jan-26

KEY:

† : Preliminary screener: estimates the total annual pollution control costs per household (existing costs plus those attributable to facility upgrades or a new facility) as a percentage of the median household income. A resulting value greater than 4% indicates complying with the water quality standards criterion inflicts substantial economic impact on the community thereby granting economic eligibility for the multiple-discharger variance.

◊ : Secondary Screener: When the preliminary screener results in a value less than 4%, a second, more comprehensive, assessment of the economic impact of meeting the water quality standards criterion is made to determine economic eligibility for the multiple-discharger variance.

Notes: The *Multiple-Discharger Wastewater Lagoon Ammonia Variance* was approved by the U.S. Environmental Protection Agency Region 7, on May 07, 2018. The reevaluation of the Multiple-Discharger Wastewater Lagoon Ammonia Variance is due every five (5) years upon EPA approval. KDHE will begin reevaluation at year four of the reevaluation period and harmonize the reevaluation with the permit review cycles.