K A N S A S

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DEPARTMENT OF HEALTH AND ENVIRONMENT

DATE: January 28, 2005

FROM: Michael Tate, PE, Chief, Technical Services Section

SUBJECT: Kansas Water Quality Standards and Supporting Documents

The following pages contain an *unofficial* version of the most currently effective *Kansas Surface Water Quality Standards* (K.A.R. 28-16-28b through 28-16-28g), and the standards supporting documents. The supporting documents include the *Kansas Water Quality Standards: Tables of Numeric Criteria*, the *Kansas Antidegradation Policy*, and the *Kansas Implementation Procedures: Surface Water Quality Standards*.

The Kansas Secretary of State publishes the *official* regulations. However, the official publication of the Kansas Regulations only takes place once per year and lags official adoption of new regulations by as much as a year. Therefore, in order to compile a complete, up-to-date set of Standards, the Bureau of Water has taken the electronic versions of the of the amended regulations as submitted to the Secretary of State and compiled the most current versions of KAR 28-16-28b, 28-16-28c, 28-16-28d, 28-16- 28e, 28-16-28f, and 28-16-28g into a single document that follows. These Regulations are unofficial, and have been compiled for use as a guide. These Regulations 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 (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 in 28-16-28e(b) and (c) to the numeric tables in K.A.R. 28-16-28e(d). The Department of Administration believed that with the addition of these new tables to K.A.R. 28-16-28e(d) that it would make the reviewing 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 material cannot be readily adapted to the form, style and organization requirement for regulations." KDHE took this advice, created the Tables of Numeric Criteria, and adopted it by reference in K.A.R. 28-16-28e(d).

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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. The Environmental Protection Agency (EPA) directs that 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.

Kansas Department of Health and Environment
Amended Regulation

Article 16. - SURFACE WATER QUALITY STANDARDS

28-16-28b. Definitions. As used in these regulations, the following terms shall have these meanings: (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, 1d, and 1e of the “Kansas surface water quality standards: tables of numeric criteria,” which is adopted by reference in K.A.R. 28-16-28e(d), or any elemental substance meeting the definition of pollutant in subsection (tt), 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,” as adopted by reference in K.A.R. 28-16-28e(d). (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(b) or K.S.A. 82a-2001(c), and amendments thereto, and that meets the criteria for classification given in K.A.R. 28-16-28d(a).

(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, effluent limitations determined by the secretary's best professional judgement, or other requirements in the 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 presented 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 (LC_{50}). The concentration at which acute toxicity exists shall be determined through laboratory toxicity tests conducted in accordance with the United States

environmental protection agency's "methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms," fifth edition, as published in October 2002, which is hereby adopted by reference.

(p) "Condition of chronic toxicity" means any concentration of a toxic substance that exceeds the applicable chronic criterion for aquatic life support presented 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 (TU_c), where one TU_c is equal to 100 divided by inhibition concentration 25 (IC_{25}). The concentration at which chronic toxicity exists shall be determined through laboratory toxicity tests conducted in accordance with the United States environmental protection agency's "short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms," fourth edition, as published in October 2002, which is hereby adopted by reference.

(q) "Criterion" means any numerical element or narrative provision of the surface water quality standards representing an enforceable water quality condition.

(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 the point source discharge may be permitted to discharge without exceeding water quality criteria set out by these regulations. The critical low flow may be the 7Q10 flow or the alternate low flow as defined in subsection (b) of this regulation.

(s) "Department" means the 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(b) or K.S.A. 82a-2001(c), and amendments thereto.

(u) "Discharge" means the release of effluent, either directly or indirectly, into surface waters of the state.

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

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

(x) "*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.

(y) "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 subsection (ddd), and are afforded the level of water quality protection under the antidegradation provisions of K.A.R. 28-16-28c(a) and the mixing zone provisions of K.A.R. 28-16-28c(b).

(z) "Existing use" means any of the designated uses described in K.A.R. 28-16-28d(b) or K.S.A. 82a-2001(c), 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.

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

(bb) "Federal clean water act" means the federal water pollution prevention and control act, 33 U.S.C. 1251 et seq., as amended on February 4, 1987.

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

(dd) “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.

(ee) “Inhibition concentration 25 (IC_{25})” means 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.

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

(gg) “Kansas implementation procedures: surface water quality standards,” dated April 28, 2004, means the written departmental procedures used for carrying out specific provisions of surface water quality standards, available upon request from KDHE=s division of environment, which is hereby adopted by reference.

(hh) “Maximum contaminant level” means any of the enforceable standards for finished drinking water quality promulgated by the United States environmental protection agency pursuant to 40 C.F.R 141.11 through 141.16 and 40 C.F.R. 141.60 through 141.66, dated July 1, 2003, which is hereby adopted by reference.

(ii) “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.

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

(kk) "Microgram per liter (μg/L)" means 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.

(ll) "Milligram per liter (mg/L)" means 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.

(mm) "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(d), 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.

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

(oo) "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 may 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.

(pp) "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 in subsection (ddd), and afforded the highest level of water quality protection under the antidegradation provisions of K.A.R. 28-16-28c(a) and the mixing zone provisions of K.A.R. 28-16-28c(b).

(qq) "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.

(rr) "Picocurie per liter (pCi/L)" means a volumetric unit of radioactivity equal to 2.22 nuclear transformations per minute per liter.

(ss) "Point source" means any discernible, confined, and discrete conveyance including any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or floating craft, from which pollutants are or could be discharged. This term may include structures or site conditions that act to collect and convey stormwater runoff from roadways, urban areas, or industrial sites. This term shall not include agricultural stormwater discharges or return flows from irrigated agricultural land.

(tt) "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 subsection (uu).

(uu) "Pollution" means 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 may 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.

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

(ww) "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.

(xx) "Presedimentation sludge" means a slurry or suspension of residual solid materials derived from an initial step in the production of potable water. Presedimentation sludge shall also 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.

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

(zz) "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.

(aaa) "Seven-day, ten-year low flow (7Q10 flow)" means 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, the term 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.

(bbb) "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.

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

(ddd) "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 pursuant to the requirements of K.A.R. 28-16-28d(d)(2) and K.A.R. 28-16-28f(a). The surface water register, published as the "Kansas surface water register," is adopted by reference in K.A.R. 28-16-28g.

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

(fff) "Surface waters" means all of 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 water bodies meeting the technical definition for jurisdictional wetlands given in the "corps of engineers wetlands delineation manual," as published in January 1987.

(ggg) "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.

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

(iii) "Toxic substance" means any substance that produces deleterious physiological effects in humans, animals, or plants.

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

(kkk) "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.A.R. 28-16-28d(b) or K.S.A. 82a-2001, and amendments thereto.

(lll) "Variance" means the department's written approval and authorization of a proposed action that knowingly will result in a lack of conformity with one or more of the criteria of K.A.R. 28-16-28e but that is deemed necessary based on the provisions of 40 C.F.R. 131.10(g)(1) through (g)(6), as in effect on July 1, 2003, which is hereby adopted by reference. Variances shall be administered by the department in accordance with K.A.R. 28-16-28f(e).

(mmm) “Water-effect ratio (WER)” means the numerical toxicity (median lethal concentration or 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.

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

(ooo) “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.

(ppp) “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. 2003 Supp. 65-171d and K.S.A. 65-171m; implementing K.S.A. 65-165, K.S.A. 2003 Supp. 65-171d, K.S.A. 65-171m, and K.S.A. 2003 Supp. 82a-2001; 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.)

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 these regulations, that existing water quality shall be fully maintained and protected. Water quality may be lowered only if the department finds, after full satisfaction of the intergovernmental coordination and public participation requirements on antidegradation contained in the Kansas antidegradation policy, as defined in K.A.R. 28-16-28b (ff), 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 by the department, 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) 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) 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) 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 wildlife and parks pursuant to K.S.A. 32-960, and amendments thereto, and K.A.R. 115-15-3 or in the federal endangered species act, 16 U.S.C. 1532 , as amended on October 7, 1988.

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

(6) Implementation of these antidegradation provisions for thermal discharges shall be consistent with the requirements of 33 U.S.C. 1326, as in effect on January 1, 1989.

(7) Implementation of these antidegradation provisions shall be consistent with the guidelines provided in 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 set forth in K.A.R. 28-16-28e(b) 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 streams. No mixing zone within a classified stream 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) 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) Mixing zones shall be applied in accordance with paragraphs (b)(7) and (b)(8)(A), (B), (C), and (D) of this regulation, 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) of this regulation. Mixing zones also may be allowed if there are no aquatic life criteria for an individual pollutant.

(5) 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, the right to prohibit the use of mixing zones or to place more stringent limitations on mixing zones than those stipulated in paragraphs (b)(2), (3), and (13) of this regulation shall be reserved by the department.

(6) Outstanding national resource waters. Mixing zones may be allowed by the secretary for existing permitted discharges in stream segments classified in the future as outstanding national resource waters but shall be evaluated on an individual permit basis to prevent the degradation of the stream segment.

(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) of this regulation.

(9) Alternate low flows, as defined in K.A.R. 28-16-28b(b), may be utilized by the department as the critical low flow in the calculation of mixing zone cross-sectional area or volumetric flow for specific water quality criteria. 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. 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. The right to approve or disapprove any proposed alternate low flow shall be reserved by the department.

(10) 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 department. Site-specific mixing zones may be allowed if data generated from a site-specific

study supports the use of an alternate mixing zone, but still maintains a zone of passage for aquatic life.

(11) Discharges into classified lakes. Mixing zones shall be prohibited by the department from extending 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(d). 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 extending into any classified pond shall be prohibited by the department.

(13) Discharges into classified wetlands. Mixing zones shall be prohibited by the department from extending into any classified lacustrine or palustrine wetland as defined in the "corps of engineers wetlands delineation manual," as published in January 1987.

(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 and nonpoint sources of pollution as defined in K.A.R. 28-16-28b(ss) and (oo).

(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(d) if streamflow is less than the critical low flow.

(2) High flow. Any classified stream segment may be exempted by the secretary from the application of the numeric criteria for *E. coli* bacteria specified in tables 1i and1j of the "Kansas surface water quality standards: tables of numeric criteria," which is adopted by reference in K.A.R. 28-16-28e(d), if any of the following conditions is met:

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

(B) The flow is equal to or greater than 50 percent of the two-year flood flow for any classified stream segment that has a mean flow of 30 or more cubic feet per second but less than 900 cubic feet per second.

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

(3) Effluent-created flow. 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(a)(1), the discharger shall not be required to provide treatment beyond that treatment required in the federal secondary treatment regulation, 40 C.F.R. 133.102, dated July 1, 2003, which is hereby adopted by reference. This discharge shall not violate the general surface water quality criteria listed in K.A.R. 28-16-28e(b) or impair any of the existing or attained designated uses of a downstream classified stream segment. 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(d)(2) and approved by the environmental

protection agency 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 as required by 40 C.F.R. 122.44, dated July 1, 2003, which is hereby adopted by reference.

(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 any of these regulations 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 and implementing K.S.A. 2003 Supp. 65-171d and K.S.A. 65-171m; 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.)

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. 82a-2001(a), 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) of this regulation.

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

(d) Assignment of uses to surface waters.

(1) Classified surface waters shall be designated for uses based upon the results of use attainability analyses conducted in accordance with K.S.A. 82a-2005(a), and amendments thereto. The provisions of the federal water quality standards regulation, 40 C.F.R. 131.10(g)(1) through (g)(6) as in effect on July 1, 2003, shall be followed and are adopted by reference in K.A.R. 28-16-28b(lll).

(2) A register of surface water classifications and use designations shall be maintained by the department. This register shall identify the designated uses of all listed major classified streams, lakes, wetlands, and ponds and shall list those streams, lakes, wetlands, and ponds recognized by the department as outstanding national resource waters or exceptional state waters. The use designations of listed surface waters or water bodies recognized as outstanding national

resource waters or exceptional state waters shall be those identified in the department's "Kansas surface water register," as adopted by reference in K.A.R. 28-16-28g.

(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 the requirements of paragraph (d)(1). (Authorized by K.S.A. 2003 Supp. 65-171d; implementing K.S.A 2003 Supp. 65-171d and K.S.A. 2003 Supp. 82a-2001; 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.)

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 United States environmental protection agency. 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 (f), using bioassessment methods or other related scientific procedures, including those procedures consistent with the United States environmental protection agency'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 directly or indirectly from point 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 of artificial origin 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 of artificial origin.

(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 (d) of this regulation, at ambient flow, the existing water quality shall be maintained, and the newly established numeric criteria shall be the background concentration, as defined in K.A.R. 28-16-28b(e). Background concentrations shall be established using the methods outlined in the "Kansas implementation procedures: surface water quality standards," as defined in K.A.R. 28-16-28b(gg), and available upon request from the department.

(c) Criteria for designated uses of surface waters. The numeric criteria in tables 1a, 1b, 1c, 1d, and 1e of the "Kansas surface water quality standards: tables of numeric criteria," as adopted by reference in subsection (d) of this regulation, 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. The numeric criteria in tables 1a, 1b, 1c, 1d, and 1e, as adopted in subsection (d) of this regulation, 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. 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 set forth in table 1a, as adopted in subsection (d) of this regulation, 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 comply fully with the requirements of paragraphs (b)(6) and (8) and paragraph (c)(2)(D) of this regulation.

(C) Temperature.

(i) Heat of artificial origin 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 of artificial origin 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(a)(2) 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, as adopted in subsection (d) of this regulation, shall apply beyond the zone of initial dilution. Chronic criteria for the aquatic life support use given in tables 1a, 1b, 1d, and 1e, as adopted in subsection (d) of this regulation, 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 (c)(2)(D)(i) of this regulation.

(3) Domestic water supply use.

(A) Except as provided in paragraph (c)(3)(B), the criteria listed in table 1a, as adopted in subsection (d) of this regulation, 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, as adopted in subsection (d) of this regulation, at ambient flow, 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, as defined in K.A.R. 28-16-28b(e). Background concentrations shall be established using the methods outlined in the "Kansas implementation procedures: surface water quality standards," as defined in K.A.R. 28-16-28b(gg), available upon request from the department.

(C) Any substance derived from an artificial source that, alone or in combination with other synthetic or naturally occurring substances, causes toxic, carcinogenic, teratogenic, or mutagenic effects in humans shall be limited to nonharmful concentrations in surface waters. Unless site-specific water quality conditions warrant the promulgation of more protective criteria under the provisions of subsection (a) of this regulation and K.A.R. 28-16-28f(f), maximum contaminant levels for toxic, carcinogenic, teratogenic, or mutagenic substances promulgated by the United States environmental protection agency pursuant to 40 C.F.R 141.11 through 141.16 and 40 C.F.R. 141.60 through 141.66, dated July 1, 2003 and adopted

by reference in K.A.R. 28-16-28b(hh), shall be deemed nonharmful by the department and adopted as domestic water supply criteria.

(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, as adopted in subsection (d) of this regulation, 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, as adopted in subsection (d) of this regulation, 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, as adopted in subsection (d) of this regulation, 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, as adopted in subsection (d) of this regulation, 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. 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, as adopted in subsection (d) of this regulation, beyond the mixing zone.

(F) Wastewater effluent shall be disinfected if it is determined by the department 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(d), the water quality of the classified stream segment or classified surface water other than a classified stream segment shall comply with the most stringent of the applicable water quality criteria.

(d) 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 December 6, 2004, which is hereby adopted by reference.

(Authorized by K.S.A. 2003 Supp. 65-171d, K.S.A. 65-171m, and K.S.A. 2003 Supp. 82a-2001; implementing K.S.A. 2003 Supp. 65-171d, K.S.A. 65-171m, K.S.A. 2003 Supp. 82a-2001; 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.)

Kansas Department of Health and Environment
Amended Regulation

Article 16. - SURFACE WATER QUALITY STANDARDS

28-16-28f. Administration of surface water quality standards. (a) Review and revision. At least once every three years, a public hearing shall be held for the purpose of reviewing, and, as appropriate, modifying the surface water quality standards and the surface water register.

(b) 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 department has reason to believe that continuation of the discharge will result in a potential or actual public health hazard or in irreversible water use impairments.

(c) 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 provisions of K.S.A. 82a-325 et seq., and amendments thereto; and

(4) any action undertaken by any Kansas state agency that, in the opinion of the secretary, has a potential water quality impact.

(d) Compliance schedules.

(1) Except as provided in paragraph (d)(2) in this regulation, 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 three years beyond the date of permit issuance.

(2) Compliance schedules of up to five years in total duration may be granted if it is demonstrated that the strict application of paragraph (d)(1) in this regulation is not feasible due to construction scheduling constraints or other technical limitations.

(e) Variances. If, upon written application by any person, the secretary finds that by reason of substantial and widespread socioeconomic impact the strict enforcement of the water quality criteria of K.A.R. 28-16-28e(c) is not feasible, a variance may be permitted by the secretary.

(1) The provisions of 40 C.F.R. 131.10(g), as adopted by reference in K.A.R. 28-16-28b(lll), shall be considered by the secretary in reviewing the need for a variance.

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

(3) Each variance shall be granted only after public notification and opportunity for public comment. Each variance, once granted, shall be adopted into the regulations at the next systematic review or subsequent triennial review.

(4) No action that impacts upon water quality shall be granted a variance from the terms and conditions of K.A.R. 28-16-28e(b).

(f) Site-specific criteria. Whenever the secretary proposes to use any site-specific criterion, a public notice stating the intention to use a site-specific criterion shall be issued by the department. The public notice shall include a description of the affected surface water or surface water segment and the reasons for applying the proposed criterion. If the secretary determines that there is significant public interest, a public hearing shall be held in the geographical vicinity of the affected surface water or surface water segment. A public notice of the final site-specific criterion shall be published in the Kansas register. Each site-specific criterion, once developed, shall be adopted into the regulations at the next systematic review or subsequent triennial review.

(g) Enforcement. Upon finding a violation of the surface water quality standards, an investigation to determine the cause of the violation shall be conducted by the department. If the department finds the violation to be caused by an artificial source of pollution, the person or persons responsible for the source of pollution 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. Nothing in this regulation shall abridge the right of the department to proceed with enforcement actions as provided in other Kansas statutes, regulations, or both. (Authorized by K.S.A. 2003 Supp. 65-171d and K.S.A. 65-171m; implementing K.S.A. 65-164, K.S.A. 2003 Supp. 65-171d, and K.S.A. 65-171m; effective May 1, 1986; amended Aug. 29, 1994; amended July 30, 1999; amended Jan. 28, 2005.)

Kansas Department of Health and Environment
New 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 December 15, 2003, which is hereby adopted by reference. (Authorized by and implementing K.S.A. 2003 Supp. 65-171d and K.S.A. 2003 Supp. 82a-2001; effective Jan. 28, 2005)

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

Tables of Numeric Criteria

Prepared by The Kansas Department of Health and Environment

Bureau of Water

December 6, 2004

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

USE CATEGORY						
	AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
PARAMETER	ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
RADIONUCLIDES (pCi/L)						
gross beta radioactivity	a	a	a	a	a	50
gross alpha particles including radium-226,but not radon or uranium	a	a	a	a	a	15
radium 226 and 228 combined	a	a	a	a	a	5
strontium 90	a	a	a	a	a	8
tritium	a	a	a	a	a	20,000
METALS (µg/L)						
antimony, total	88	30	a	a	640	6
arsenic, total	340	150	200	100	20.5	10
arsenic (III)	360	50	a	a	b	b
arsenic (V)	850	48	a	a	a	a
barium	a	a	a	a	a	1,000
beryllium, total	a	a	a	a	a	4
boron, total	a	a	5,000	750	a	a
cadmium, total	table 1b	table 1b	20	10	170	5
chromium, total	a	40	1,000	100	a	100
chromium (III)	table 1b	table 1b	a	a	3,433,000	50
chromium (VI)	16	11	a	a	3,400	50
copper, total	table 1b	table 1b	500	200	a	1,300
lead, total	table 1b	table 1b	100	5,000	a	15
mercury, total	1.4	0.77	10	a	0.146	b
nickel, total	table 1b	table 1b	500	200	4,600	610
selenium, total	20	5	50	20	4,200	170
selenium (V)	11.2	a	a	a	a	a
silver, total	table 1b	a	a	a	a	50
thallium, total	1,400	40	a	a	b	2
zinc, total	table 1b	table 1b	25,000	2,000	26,000	7,400
OTHER INORGANIC SUBSTANCES (µg/L)						
ammonia	table 1c	table 1c	a	a	a	a
asbestos (µfibers/L)	a	a	a	a	a	7,000,000
Chloride	860,000	c	a	a	a	250,000
chlorine, total residual	19	11	a	a	a	a
cyanide (free)	22	5.2	a	a	220,000	200
Fluoride	a	a	2,000	1,000	a	2,000
nitrate (as N)	a	a	a	a	a	10,000
nitrite + nitrate (as N)	a	a	100,000	a	a	10,000
phosphorus, elemental (white)	a	0.1	a	a	a	a

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

USE CATEGORY						
	AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
PARAMETER	ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
sulfate	a	a	1,000,000	a	a	250,000
ORGANIC SUBSTANCES (µg/L)						
Benzenes.....						
aminobenzene (analine)	14	6.7	a	a	a	a
benzene	5,300	a	a	a	51	5
chlorobenzene	250	50	a	a	1,600	130
dichlorobenzenes, total	1,120	763	a	a	2,600	a
o-dichlorobenzene	1,120	763	a	a	2,600	600
m-dichlorobenzene	1,120	763	a	a	960	b
p-dichlorobenzene	a	a	a	a	2,600	75
other chlorinated benzenes, total	250	50	a	a	a	a
1,2,4-trichlorobenzene	250	a	a	a	940	260
1,2,4,5-tetrachlorobenzene	250	50	a	a	1.1	0.97
pentachlorobenzene	250	50	a	a	1.5	1.4
hexachlorobenzene	6.0	3.7	a	a	0.00029	b
ethylbenzene	32,000	a	a	a	28,712	700
nitrobenzene	27,000	a	a	a	690	b
pentachloronitrobenzene	250	50	a	a	a	a
vinylbenzene (styrene)	a	a	a	a	a	100
Ethers.....						
chloroalkyl ethers, total	238,000	a	a	a	a	a
bis(2-chloroethyl)ether	238,000	a	a	a	0.53	b
bis(2-chloroisopropyl)ether	238,000	a	a	a	65,000	b
bis(chloromethyl)ether	238,000	a	a	a	0.00029	0.00010
2-chloroethyl vinyl ether	360	120	a	a	a	a
halogenated ethers, total	360	122	a	a	a	a
chloromethyl methyl ether	238,000	a	a	a	0.00184	a
4,4'-dibromodiphenyl ether	360	120	a	a	a	a
hexabromodiphenyl ether	360	120	a	a	a	a
nonabromodiphenyl ether	360	120	a	a	a	a
pentabromodiphenyl ether	360	120	a	a	a	a
tetrabromodiphenyl ether	360	120	a	a	a	a
tribromodiphenyl ether	360	120	a	a	a	a
Halogenated Hydrocarbons.....						
chlorinated ethanes						
1,2-dichloroethane	18,000	2,000	a	a	b	b
1,1,1-trichloroethane	18,000	a	a	a	173,077	200
1,1,2-trichloroethane	18,000	9,400	a	a	16	b
tetrachloroethanes, total	9,320	a	a	a	a	a
1,1,1,2-tetrachloroethane	9,320	a	a	a	a	a

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

USE CATEGORY						
	AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
PARAMETER	ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
1,1,2,2-tetrachloroethane	9,320	2,400	a	a	3.3	b
pentachloroethane	7,240	1,100	a	a	a	a
hexachloroethane	980	540	a	a	3.3	b
chlorinated ethylenes, total	11,600	a	a	a	a	a
1,1-dichloroethylene	11,600	a	a	a	7,100	b
cis-1,2-dichloroethylene	11,600	a	a	a	a	70
trans-1,2-dichloroethylene	11,600	a	a	a	140,000	100
trichloroethylene	45,000	21,900	a	a	30	5
tetrachloroethylene	5,280	840	a	a	3.3	5
chlorinated propanes/propenes						
1,2-dichloropropane	23,000	5,700	9.0	a	15	0.50
1,3-dichloropropene	6,600	244	a	a	14.1	b
Other Halogenated Hydrocarbons.....						
halogenated methanes, total	11,000	a	a	a	15.7	100
bromomethane	11,000	a	a	a	1,500	b
1,2-dibromoethane	a	a	a	a	a	0.05
tribromomethane(bromoform)	11,000	a	a	a	140	b
bis(2-chloroethoxy)methane	11,000	a	a	a	15.7	a
bromodichloromethane	11,000	a	a	a	17	b
bromochloromethane	11,000	a	a	a	15.7	a
bromotrichloromethane	11,000	a	a	a	15.7	a
dibromochloromethane	11,000	a	a	a	13	b
dibromochloropropane	a	a	a	a	15.7	0.2
dibromodichloromethane	11,000	a	a	a	15.7	a
dichlorodifluoromethane	11,000	a	a	a	15.7	a
dichloromethane(methylene chloride)	11,000	a	a	a	590	4.7
trichloromethane(chloroform)	28,900	1,240	a	a	470	b
tribromochloromethane	11,000	a	a	a	15.7	a
trichlorofluoromethane	11,000	a	a	a	15.7	a
tetrachloromethane(carbon tetrachloride)	35,200	a	a	a	b	5
di(2-ethylhexyl)adipate	a	a	a	a	a	500
hexachlorobutadiene	90	9.3	a	a	18	b
hexachlorocyclopentadiene	7	5.2	a	a	206	50
vinyl chloride	a	a	a	a	525	2
Miscellaneous Organics.....						
dioxin (2,3,7,8 TCDD)	0.01	0.00001	a	a	0.000000005	b
Isosphorone	117,000	a	a	a	b	b
polychlorinated biphenyls, total	2	0.014	a	a	0.000064	b
tributyltin oxide	0.149	0.026	a	a	a	a

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

USE CATEGORY						
	AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
PARAMETER	ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
Nitrogen Compounds.....						
nitrosamines, total	5,850	a	a	a	1.24	0.0008
N-nitrosodibutylamine	5,850	a	a	a	0.22	0.0063
N-nitrosodiethanolamine	5,850	a	a	a	1.24	a
N-nitrosodiethylamine	5,850	a	a	a	1.24	0.0008
N-nitrosodimethylamine	5,850	a	a	a	3.0	b
N-nitrosodiphenylamine	5,850	a	a	a	6.0	b
N-nitrosodi-n-propylamine	a	a	a	a	0.51	.005
N-nitrosopyrrolidine	5,850	a	a	a	34	0.016
acrylonitrile	7,550	2,600	a	a	0.25	b
benzidene	2,500	a	a	a	0.0002	b
3,3'-dichlorobenzidine	a	a	a	a	0.02	b
1,2-diphenyl hydrazine	270	a	a	a	0.20	b
Polynuclear Aromatic Hydrocarbons, total	a	a	a	a	0.0311	0.2
acenaphthene	1,700	520	a	a	990	670
acenaphthylene	a	a	a	a	0.0311	a
anthracene	a	a	a	a	40,000	b
benzo(a)anthracene	a	a	a	a	0.018	b
benzo(a)pyrene	a	a	a	a	0.018	b
benzo(b)fluoranthene	a	a	a	a	0.018	b
benzo(g,h,i)perylene	a	a	a	a	0.0311	a
benzo(k)fluoranthene	a	a	a	a	0.018	b
2-chloronaphthalene	a	a	a	a	1,600	1,000
chrysene	a	a	a	a	0.018	b
dibenzo(a,h)anthracene	a	a	a	a	0.018	b
fluoranthene	3,980	a	a	a	b	b
fluorene	a	a	a	a	5,300	b
ideno(1,2,3-cd)pyrene	a	a	a	a	0.018	b
naphthalene	2,300	620	a	a	a	a
phenanthrene	30	6.3	a	a	0.0311	a
pyrene	a	a	a	a	4,000	b
Phthalate Esters						
phthalates, total	940	3	a	a	a	a
butylbenzyl phthalate	a	a	a	a	1,900	1,500
di(2-ethylhexyl) phthalate	400	360	a	a	b	b
dibutyl phthalate	940	3	a	a	b	b
diethyl phthalate	a	a	a	a	b	17,000
dimethyl phthalate	940	3	a	a	1,100,000	b
Phenolic Compounds.....						
phenol	10,200	2,560	a	a	1,700,000	b
2,4-dimethyl phenol	1,300	530	a	a	850	380

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

USE CATEGORY						
	AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
PARAMETER	ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
chlorinated phenols						
2-chlorophenol	4,380	2,000	a	a	150	81
3-chlorophenol	a	a	a	a	29,000	a
2,4-dichlorophenol	2,020	365	a	a	b	b
2,4,5-trichlorophenol	100	63	a	a	3,600	1,800
2,4,6-trichlorophenol	a	970	a	a	2.4	b
pentachlorophenol	table 1b	table 1b	a	a	3.0	b
3-methyl-4-chlorophenol	30	a	a	a	a	a
nitrophenols, total	230	150	a	a	a	a
2,4-dinitrophenol	a	a	a	a	5,300	b
4,6-dinitro-o-cresol	a	a	a	a	280	b
Toluenes.....						
toluene	17,500	a	a	a	b	1,000
dinitrotoluenes, total	330	230	a	a	9.1	a
2,4-dinitrotoluene	330	230	a	a	3.4	b
xylene	a	a	a	a	a	10,000
PESTICIDES (µg/L)						
acrolein	68	21	a	a	290	190
acrylamide	a	a	a	a	a	0.01
alachlor (lasso)	760	76	100	a	a	2
aldicarb	a	a	a	a	a	3
aldicarb sulfone	a	a	a	a	a	2
aldicarb sulfoxide	a	a	a	a	a	3
aldrin	3	0.001	1	a	0.00005	b
atrazine (aatrex)	170	3	a	a	a	3
bromoxynil (MCPA)	a	a	20	a	a	a
carbaryl (sevin)	a	0.02	100	a	a	a
carbofuran (furadan)	a	a	100	a	a	40
chlordane	2.4	0.0043	3	a	0.00081	b
chlorpyrifos	0.083	0.041	100	a	a	a
2,4-D	a	a	a	a	a	100
dacthal (DCPA)	a	14,300	a	a	a	a
dalapon	a	110	a	a	a	200
diazinon (spectracide)	a	0.08	100	a	a	a
DDT and Metabolites.....						
4,4'-DDE (p,p=-DDE)	1,050	a	a	a	0.00022	b
4,4'-DDD (p,p=-DDD)	a	a	a	a	0.00031	b
DDT, total	1.1	0.001	50	a	0.000024	b
dieldrin	0.24	0.056	1	a	0.000054	b
dinoseb (DNBP)	a	a	a	a	a	7
diquat	a	a	a	a	a	20
disulfoton (disyston)	a	a	100	a	a	a
endosulfan, total	0.22	0.056	a	a	159	b
alpha-endosulfan	0.22	0.056	a	a	89	62

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

USE CATEGORY						
	AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
PARAMETER	ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
beta-endosulfan	0.22	0.056	a	a	89	62
endosulfan sulfate	a	a	a	a	b	b
endothall	a	a	a	a	a	110
endrin	0.086	0.036	0.5	a	0.81	0.76
endrin aldehyde	a	a	a	a	0.30	b
epichlorohydrin	a	a	a	a	a	4
ethylene dibromide	a	a	a	a	a	0.05
fenchlorfos (ronnel)	a	a	100	a	a	a
glyphosate (roundup)	a	a	a	a	a	700
guthion	a	0.010	100	a	a	a
heptachlor	0.52	0.0038	0.1	a	0.000079	b
heptachlor epoxide	0.52	0.0038	0.1	a	b	b
hexachlorocyclohexane	100	a	a	a	0.0414	0.0123
alpha-HCH	100	a	a	a	0.0049	b
beta-HCH	100	a	a	a	b	b
delta-HCH	100	a	a	a	a	a
gamma-HCH (lindane)	0.95	0.08	5	a	0.0625	b
technical-HCH	a	a	a	a	0.0414	a
malathion	a	0.10	100	a	a	a
methoxychlor	a	0.03	1,000	a	a	40
methyl parathion	a	a	100	a	a	a
metribuzin (sencor)	a	100	a	a	a	a
mirex	a	0.001	a	a	0.000097	a
oxamyl (vydate)	a	0.001	a	a	a	200
parathion	0.065	0.013	100	a	a	a
picloram (tordon)	a	a	a	a	a	500
propachlor (ramrod)	a	8	a	a	a	a
simazine (princep)	a	a	10	a	a	4
toxaphene	0.73	0.0002	5	a	0.00028	b
2,4,5-T	a	a	2	a	a	a
2,4,5-TP (silvex)	a	a	a	a	a	10

a - criterion not available
b - US EPA has promulgated criterion for Kansas under the Code of Federal Regulations, Title 40, part 131.36
c - criterion under investigation

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 copper, 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[(0.7409(LN(hardness)))-4.719]]

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

COPPER (ug/L):
acute criterion = WER[EXP[(0.9422*(LN(hardness)))-1.700]]
chronic criterion = WER[EXP[(0.8545*(LN(hardness)))-1.702]]

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]]

Tab1e 1c. pH-Dependent Acute Aquatic Life Criteria For Total Ammonia.

Total ammonia as N, mg/L

ACUTE AQUATIC LIFE CRITERIA FOR AMMONIA, mg/L	
pH	CRITERIA
6.5	48.8
6.6	46.8
6.7	44.6
6.8	42.0
6.9	39.1
7.0	36.1
7.1	32.8
7.2	29.5
7.3	26.2
7.4	23.0
7.5	19.9
7.6	17.0
7.7	14.4
7.8	12.1
7.9	10.1
8.0	8.40
8.1	6.95
8.2	5.72
8.3	4.71
8.4	3.88
8.5	3.20
8.6	2.65
8.7	2.20
8.8	1.84
8.9	1.56
9.0	1.32

Tab1e 1d. pH- And Temperature-Dependent Chronic Aquatic Life Criteria For Total Ammonia Early Life Stages Of Fish Present.

Total ammonia as N, mg/L

CHRONIC AQUATIC LIFE CRITERIA FOR AMMONIA, EARLY LIFE STAGES PRESENT, mg/L										
pH	TEMPERATURE, °C									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

Tab1e 1e. pH- And Temperature-Dependent Chronic Aquatic Life Criteria For Total Ammonia Early Life Stages Of Fish Absent.

Total ammonia as N, mg/L.

CHRONIC AQUATIC LIFE CRITERIA FOR AMMONIA, EARLY LIFE STAGES ABSENT*, mg/L								
pH	TEMPERATURE, °C							
	0-7	8	9	10	11	12	13	14**
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684
8.9	0.917	0.860	0.806	0.456	0.709	0.664	0.623	0.584
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503

*Early life stage absent criteria will apply to all Kansas surface waters during the months November through February except in surface water segments listed in Table 1f. The application of early life stage absent criteria outside of the months November through February shall require a segment-specific examination of the surface water for the presence of early life stages of fish.

** At 15 °C and above, the criterion for early life stages absent is equivalent to the criterion for early life stages present.

Table 1f. Surface Water Segments Where Early Life Stages Absent Chronic Aquatic Life Criteria Are Not Applicable.

SURFACE WATER	BASIN	SUBBASIN	HYDROLOGIC UNIT CODE	SEGMENT NUMBER
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	1
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	2
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	3
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	4
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	5
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	18
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	19
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	21 From Bowersock dam east to segment 19
Missouri River	Missouri	Tarkio-Wolf	10240005	1
Missouri River	Missouri	Tarkio-Wolf	10240005	2
Missouri River	Missouri	Tarkio-Wolf	10240005	19
Missouri River	Missouri	Tarkio-Wolf	10240005	20
Missouri River	Missouri	Tarkio-Wolf	10240005	21
Missouri River	Missouri	Independence-Sugar	10240011	1
Missouri River	Missouri	Independence-Sugar	10240011	2
Missouri River	Missouri	Independence-Sugar	10240011	4
Missouri River	Missouri	Independence-Sugar	10240011	5
Missouri River	Missouri	Independence-Sugar	10240011	7
Missouri River	Missouri	Independence-Sugar	10240011	9
Missouri River	Missouri	Independence-Sugar	10240011	11
Missouri River	Missouri	Independence-Sugar	10240011	13
Missouri River	Missouri	Independence-Sugar	10240011	15
Missouri River	Missouri	Independence-Sugar	10240011	19

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

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]

a - The concentration of dissolved oxygen in surface waters shall not be lowered by the influence of artificial sources of pollution.
b - pH range outside the zone of initial dilution.
c - 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 (c)(2)(E)(ii).

Table 1h. Natural Background Concentrations.

BASIN	WATERBODY	HUC 8	SEGMENT	POLLUTANT	NATURAL BACKGROUND CONCENTRATION
Cimarron	Cimarron River	11040006	1; starting at state line and traveling upstream toward Hayne.	Chloride	1,010 mg/L
Cimarron	Crooked Creek	11040007	1 and 2; starting at state line and traveling upstream to Copeland	Chloride	1,200 mg/L
Cimarron	Stumpie Arroyo	11040007	1247	Chloride	1,200 mg/L
Cimarron	Spring Creek	11040007	3	Chloride	1,200 mg/L
Cimarron	Remuda Creek	11040007	4	Chloride	1,200 mg/L
Cimarron	Cimarron River	11040008	1, 5, 11; starting at confluence with Bluff Creek and traveling upstream to the Oklahoma border.	Sulfate	465 mg/L
Cimarron	Cimarron River	11040008	1, 5, 11; starting at confluence with Bluff Creek and traveling upstream to the Oklahoma border.	Chloride	900 mg/L
Cimarron	Bluff Creek	11040008	2 & 13; starting at confluence with the Cimarron River and traveling upstream toward Minneola.	Sulfate	350 mg/L
Kansas-Lower Republican	Buffalo Creek	10250017	29 and 37; starting at the confluence with Republican River and traveling upstream to Mankato	Chloride	590 mg/L
Kansas-Lower Republican	Upper Kansas River	10270701	1, 3, 4, 6 and 7; starting at the confluence with the Big Blue River and traveling upstream to Junction City	Chloride	275 mg/L
Lower Arkansas	Rattlesnake Creek	11030009	1; above the Little Salt Marsh in Quivira National Wildlife Refuge QNWR	Chloride	1,400 mg/L
Lower Arkansas	Rattlesnake Creek	11030009	1; below the Little Salt Marsh in QNWR	Chloride	3,660 mg/L
Lower Arkansas	Rattlesnake Creek	11030009	1; below the Little Salt Marsh in QNWR	Sulfate	455 mg/L
Lower Arkansas	Peace Creek	11030010	6; starting at the confluence with the Arkansas River and traveling upstream to Stafford.	Chloride	1,800 mg/L

Table 1h. Natural Background Concentrations (continued).

BASIN	WATERBODY	HUC 8	SEGMENT	POLLUTANT	NATURAL BACKGROUND CONCENTRATION
Lower Arkansas	Arkansas River	11030013	3, 9, 18; starting at the confluence with Ninnescah River and ending at the confluence with the Little Arkansas River.	Sulfate	350 mg/L
Lower Arkansas	Slate Creek WA Watershed	11030013	Conservation Pool: Area: 26 acres Maximum Depth: 0.3 meters	Chloride	27,590 mg/L
Lower Arkansas	Slate Creek WA Watershed	11030013	Conservation Pool: Area: 26 acres Maximum Depth: 0.3 meters	Sulfate	2,500 mg/L
Lower Arkansas	Salt Fork Arkansas River	11060002	4, 6, 8, 10, 11, 13, and 15; starting at Kansas/Oklahoma state line and traveling upstream to west-central Comanche County.	Chloride	305 mg/L
Lower Arkansas	Salt Fork Arkansas River	11060002	4, 6, 8, 10, 11, 13, and 15; starting at Kansas/Oklahoma stateline and traveling upstream to west-central Comanche County.	Sulfate	730 mg/L
Lower Arkansas	Mule Creek	11060002	7; starting at the confluence with the Salt Fork Arkansas River; Headwaters in South-Central Kiowa County.	Sulfate	310 mg/L
Lower Arkansas	Medicine Lodge River	11060003	2; starting at the Oklahoma border and traveling upstream toward the confluence with Elm Creek.	Sulfate	450 mg/L
Lower Arkansas	Medicine Lodge River	11060003	8; starting at the confluence with Turkey Creek; Headwaters near Greensburg, in Kiowa County.	Sulfate	300 mg/L
Lower Arkansas	North Branch, Medicine Lodge River	11060003	24	Sulfate	300 mg/L
Lower Arkansas	Thompson Creek	11060003	26	Sulfate	300 mg/L
Lower Arkansas	Otter Creek	11060003	25	Sulfate	300 mg/L
Lower Arkansas	Soldier Creek	11060003	27	Sulfate	300 mg/L
Neosho	Doyle Creek	11070202	21	Sulfate	370 mg/L
Neosho	South Cottonwood River	11070202	17 and 18	Sulfate	840 mg/L
Neosho	French Creek	11070202	16	Sulfate	1,045 mg/L
Neosho	Clear Creek	11070202	4 and 5	Sulfate	290 mg/L
Upper Arkansas	Arkansas River	11030001	1, 3, 5, 7 & 9 from stateline to small stream E of Garden City.	Sulfate	1,875 mg/L
Upper Arkansas	Arkansas River	11030003	1	Sulfate	350 mg/L
Upper Arkansas	Arkansas River	11030004	11	Sulfate	350 mg/L
Upper Arkansas	Arkansas River	11030004	10 and 6	Sulfate	550 mg/L
Upper Arkansas	Arkansas River	11030004	10; beginning at the confluence of Mulberry Creek in east-central Ford County and ending at the confluence with Coon Creek.	Fluoride	1.45 mg/L

Table 1h. Natural Background Concentrations (continued).

BASIN	WATERBODY	HUC 8	SEGMENT	POLLUTANT	NATURAL BACKGROUND CONCENTRATION
Upper Republican	South Fork Republican River	10250003	2 and 4 (S. Fk. Republican River) starting at the Kansas-Nebraska state line and traveling upstream to southwest Cheyenne County and the Kansas-Colorado stateline.	Fluoride	1.45 mg/L
Upper Republican	Big Timber Cr	10250003	61	Fluoride	1.45 mg/L
Upper Republican	Delay Cr	10250003	66	Fluoride	1.45 mg/L
Upper Republican	Hackberry Cr	10250003	3	Fluoride	1.45 mg/L
Upper Republican	Bluff Cr	10250003	70	Fluoride	1.45 mg/L
Upper Republican	Valley Cr	10250003	69	Fluoride	1.45 mg/L
Upper Republican	Spring Cr	10250003	67	Fluoride	1.45 mg/L
Upper Republican	Sand Cr	10250003	68	Fluoride	1.45 mg/L
Upper Republican	South Fork Republican River	10250003	6, 7 and 9 (S. Fk. Republican River) starting at the Kansas-Nebraska state line and traveling upstream to southwest Cheyenne County and the Kansas-Colorado stateline.	Fluoride	1.20 mg/L
Upper Republican	Drury Cr	10250003	60	Fluoride	1.20 mg/L
Upper Republican	Crosby Cr	10250003	72	Fluoride	1.20 mg/L
Upper Republican	Battle Cr	10250003	71	Fluoride	1.20 mg/L
Upper Republican	Cowpe Cr	10250003	8	Fluoride	1.20 mg/L
Walnut	Whitewater River	11030017	18, 19, 21, and 23	Sulfate	390 mg/L
Walnut	Whitewater River, West Branch	11030017	22	Sulfate	390 mg/L
Walnut	Whitewater River, East Branch	11030017	24 and 25	Sulfate	390 mg/L
Walnut	Whitewater Creek	11030017	34	Sulfate	390 mg/L
Walnut	Prairie Creek	11030017	35	Sulfate	390 mg/L
Walnut	Wildcat Creek	11030017	26	Sulfate	390 mg/L
Walnut	Sand Creek	11030017	29	Sulfate	390 mg/L

Table 1h. Natural Background Concentrations (continued).

BASIN	WATERBODY	HUC 8	SEGMENT	POLLUTANT	NATURAL BACKGROUND CONCENTRATION
Walnut	W. Wildcat Creek	11030017	28	Sulfate	390 mg/L
Walnut	Gypsum Creek	11030017	30	Sulfate	390 mg/L
Walnut	E. Br. Whitewater Creek	11030017	31	Sulfate	390 mg/L
Walnut	Walnut Creek	11030017	44	Sulfate	390 mg/L
Walnut	Fourmile Creek	11030017	20	Sulfate	390 mg/L
Walnut	Dry Creek	11030017	32	Sulfate	390 mg/L
Walnut	Henry Creek	11030017	33	Sulfate	390 mg/L
Walnut	Eightmile Creek	11030018	30	Sulfate	520 mg/L

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

USE	Colony Forming Units (CFUs)/100mL	
PRIMARY CONTACT RECREATION	Geometric Mean April 1 – Oct. 31	Geometric Mean Nov. 1 – March 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 April 1 – Oct. 31	Geometric Mean Nov. 1 – March 31	Single Sample Maximum April 1 – Oct. 31	Single Sample Maximum Nov. 1 – March 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	

KANSAS IMPLEMENTATION PROCEDURES

Surface Water Quality Standards

Prepared by The Kansas Department of Health and Environment

Bureau of Water

April 28, 2004

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

I. Surface Water Classification

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

A. 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. Additionally, a cost/benefit analysis taking into account the economic and social impact of classifying the stream segment will be undertaken by the department. The results of the cost/benefit analysis must indicate the benefits of classifying the stream segment outweigh the costs of classifying the stream segment.

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.

B. 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.

C. 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.

D. 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

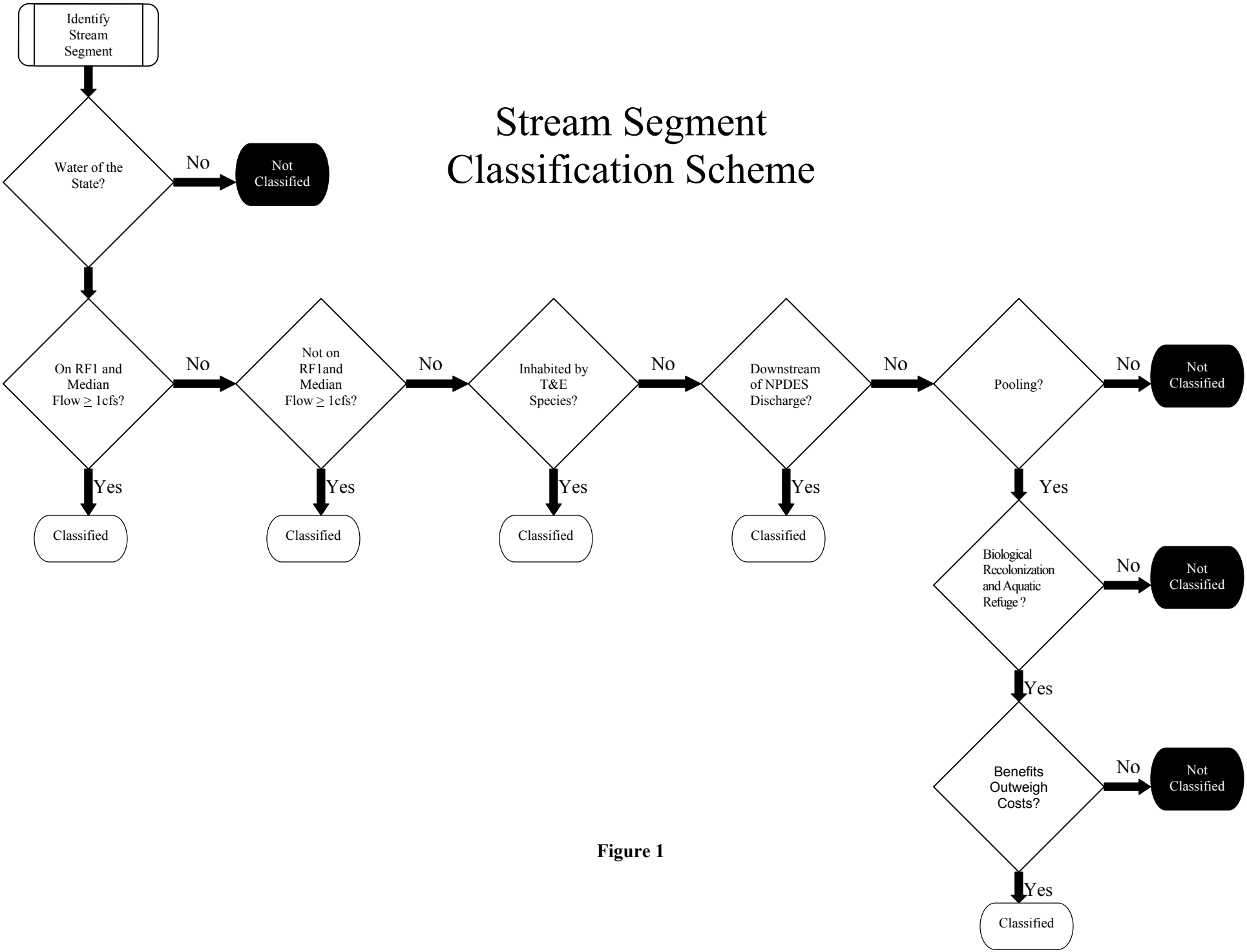

Figure 1

II. 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 developed by the Department's Bureau of Environmental Field Services. 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.

A. Agricultural Water Supply Use

Surface waters used for agricultural purposes.

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

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

B. 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.

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. Expected Aquatic Life Use. Surface waters that contain habitats or biota found commonly in the state.

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.

C. 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).

D. Food Procurement Use

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

E. Groundwater Recharge Use

Surface waters used for replenishing useable groundwater resources.

F. Industrial Water Supply Use

Surface water used for non-potable purposes including cooling or process water.

G. Recreational Use

Surface water used for primary or secondary contact recreation.

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.

a. 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:

i. “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.

ii. “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.

iii. "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.

b. Classified Stream Segments. The three subcategories of primary contact recreational use for classified stream segments are:

i. "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.

ii. "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.

iii. "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. 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.

a. 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:

i. "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.

ii. "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.

b. 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 are:

i. "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.

ii. "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.

III. Criteria

A. Background Concentrations

Applicable regulation: K.A.R. 28-16-28e (b)(9)
K.A.R. 28-16-28e (c)(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 50^{th} 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.

B. Site-Specific Criteria

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

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.