Kansas Administrative Regulations

Department of Health and Environment

Article 16.—Water Pollution Control—Surface Water Quality Standards.

28-16-28b. Definitions.

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

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

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

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

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

(e) "Background concentration" means the concentration of any elemental parameter listed in tables 1a, 1b, 1c, and 1d of the "Kansas surface water quality standards: tables of numeric criteria," which is adopted by reference in K.A.R. 28-16-28e, or any elemental substance meeting the definition of pollutant in this regulation, that occurs in a surface water immediately upstream of a point source or nonpoint source under consideration and is from natural sources. The list of background

concentration determinations for classified waterbodies of the state is contained in table 1h of the "Kansas surface water quality standards: tables of numeric criteria."

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

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

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

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

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

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

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

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

(n) "Compliance schedule" means any provision in a discharge permit, license, or enforceable order issued by the department pursuant to the federal clean water act or K.S.A. 65-165 et seq., and amendments thereto, that, for the purposes of meeting water quality-based effluent limitations, technology-based limits, and effluent limitations

determined by the secretary or specified in Kansas statutes and regulations, provides a specified period of time for the construction or renovation of a wastewater treatment facility and the completion of any related scientific or engineering studies, reports, plans, design specifications, or other submittals required by the department.

(o) "Condition of acute toxicity" means any concentration of a toxic substance that exceeds the applicable acute criterion for aquatic life support specified in K.A.R. 28-16-28e or, for substances not listed in K.A.R. 28-16-28e or for mixtures of toxic substances, any concentration that exceeds 0.3 acute toxic units (TU_a), where one TU_a is equal to 100 divided by the median lethal concentration (LC_{50}). The concentration at which acute toxicity exists shall be determined through laboratory toxicity tests conducted in accordance with the EPA's "methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms."

(p) "Condition of chronic toxicity" means any concentration of a toxic substance that exceeds the applicable chronic criterion for aquatic life support specified in K.A.R. 28-16-28e or, for substances not listed in K.A.R. 28-16-28e or for mixtures of toxic substances, any concentration that exceeds 1.0 chronic toxic unit (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 EPA's "short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms."

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

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

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

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

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

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

(w) "Discharge design flow" means either of the following:

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

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

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

(y) "Duration of digression" means the period of time over which pollutant concentrations can be averaged, including the time span during which aquatic life can be exposed to elevated levels of pollutants without harm.

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

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

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

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

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

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

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

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

(hh) "Frequency of digression" means the number of times that an excursion from numeric criteria value can occur over time without impairing the designated uses of the water.

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

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

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

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

(mm) "Interim criterion" means a temporary criterion.

(nn) "Interim designated use" means a temporary designated use.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(A) Public health, safety, or welfare;

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

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

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

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

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

(sss) "Surface waters" means the following:

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

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

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

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

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

(vvv) "Thirty-day, ten-year low flow" and "30Q10 flow" mean the 30-day average low flow having a recurrence frequency of once in 10 years, as statistically determined from historical flow data. Where used in this regulation in the context of mixing zones, these terms shall refer to the minimum amount of streamflow occurring immediately upstream

of a wastewater discharge and available, in whole or in part, for dilution or assimilation of wastewater discharges.

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

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

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

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

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

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

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

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

24, 2003; amended Jan. 28, 2005; amended March 20, 2015; amended Feb. 23, 2018; amended March 25, 2022.)

***** Authenticated Kansas Administrative Regulation *****