2014 Kansas Integrated Water Quality Assessment

Clark County State Fishing Lake. Photo by Ed Carney, 2009

Kansas Department of Health and Environment
Division of Environment

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EXECUTIVE SUMMARY

This report, the Kansas Integrated Water Quality Assessment (2014), was prepared by the Kansas Department of Health and Environment (KDHE) in response to water quality reporting requirements contained in sections 303(d), 305(b), and 314(a) of the federal Clean Water Act (CWA). Section 303(d) calls for the development of a list of waterbodies currently failing to meet established water quality standards, whereas sections 305(b) and 314(a) require information concerning the overall status of the state's surface waters and the programs responsible for water quality monitoring and pollution abatement.

The Kansas 2014 list of impaired waters (*i.e.*, 303(d) list) is included as an appendix to this report. This list is based primarily on data collected by the KDHE targeted surface water monitoring programs and secondarily on information obtained from outside sources. For this assessment, watersheds containing targeted stream chemistry and/or stream biological monitoring stations represented the assessment units for flowing waters. Monitored lakes and wetlands represented the assessment units for standing waterbodies. The state's 2014 303(d) list identifies 482 station/pollutant combinations of water quality impairment on lakes, wetlands and stream systems (watersheds), encompassing 2366 stream segment/pollutant combinations, and needing the development of Total Maximum Daily Load plans (TMDLs) to address the offending pollutants. The 2014 list also identifies 464 station/pollutant combinations of waters that were previously cited as impaired in prior lists but are now meeting water quality standards, with 68 of these being new in 2014.

Requirements related to Section 305(b) were addressed, in part, using data obtained through a stream monitoring program implemented in 2006. This program employs a probabilistic survey design to estimate the stream mileage supporting those uses recognized in section 101(a) of the CWA: aquatic life support, food procurement, and contact recreation. The program's target population for monitoring and assessment included all classified streams that contained water during the summer low-flow periods of 2008-2011. Owing primarily to climate variation during this assessment window, only about 67% of the state's classified stream mileage was represented in the assessed target population. Lake and wetland assessments for Section 305(b) as well as Section 314 reporting requirements were addressed using data from the targeted lake and wetland program, which uses a near-census approach in its monitoring.

Monitoring data obtained during this reporting cycle indicated that approximately 17% (± 7%) of the state's designated stream mileage fully supported all three section 101(a) uses, whereas 83% (± 7 %) was impaired for one or more uses; parenthetical values represent 95% confidence intervals. Aquatic life, contact recreation, and food procurement uses were supported, respectively, in 31% (± 6%), 83% (± 5%), and 63 % (± 12%) of the stream miles designated for these uses. Some major measures ("causes") demonstrating non-support for streams, in order of prevalence, were suboptimal aquatic macroinvertebrate community metrics, mercury in fish tissue, and excessive *E. coli;* water chemistry parameters such as elevated metals or pesticides comprised a fourth category of causes. The most widespread discernible sources responsible for use impairments and/or pollutant loadings were generalized anthropogenic influences (*e.g.*, erosion and sedimentation, atmospheric deposition of contaminants), followed by agriculture (both livestock and crop production) and other sources (including natural sources and unknown

sources). Urban influences (both point and nonpoint sources) were less widespread stressor categories.

Approximately 30% of the assessed lake acreage fully supported all designated uses, whereas 70% was impaired for one or more designated uses. Approximately 84% of wetland acreage was assessed. Of this population, less than 1% fully supported aquatic life and recreational uses, although 100% supported food procurement use. Major causes of impairment in lakes and wetlands included nutrient enrichment, siltation and turbidity, and zebra mussel (*Dreissena polymorpha*) infestations. Agriculture, municipal point sources, resuspension of sediments, and non-native species introductions were the primary sources of these impairments. Approximately 48% of the assessed lake acreage exhibited no recent change in trophic condition, 15% experienced a measurable deterioration in trophic state, and 6% exhibited some improvement in trophic condition (with 31% unknown).

Kansas experienced major statewide droughts in 2001-2006 and again in 2011. In 2007, major floods in southeastern Kansas scoured many rivers and creeks and produced sustained high stream flows for much of the summer. The combined effects of these dramatic weather-related events exacerbated many of the water quality impairments documented in the past decade.

PART A: INTRODUCTION

Purpose

This document fulfills specific water quality reporting requirements placed on the State of Kansas by sections 303(d), 305(b), and 314(a) of the federal Clean Water Act. Sections 305(b) and 314(a) require a summary of the status of the state's surface waters. Section 303(d) calls for the development of a list of waterbodies currently failing to meet established water quality standards, which are regarded collectively as "impaired waters." Kansas is required under the CWA to take actions that improve the condition of impaired waters. These actions may include the development and implementation of TMDLs, water quality-based permit requirements, and/or nonpoint source (NPS) pollution control measures. This report presents an integrated response to the requirements of sections 303(d), 305(b), and 314(a). As such, it contains information relevant to upcoming water quality planning, monitoring, permitting, and pollution abatement initiatives in the state.

General Assessment Approach

KDHE administers several programs that collectively satisfy the environmental monitoring and reporting requirements of the CWA (KDHE, 2010b). These programs also provide the technical data needed to respond to existing and emerging water pollution problems. Departmental monitoring operations currently focus on the condition of the state's surface waters (rather than groundwater) and involve two different but complementary conceptual approaches. The first involves a targeted survey design that focuses on selected stream reaches, lakes, and wetlands. The second approach involves a probabilistic survey design that assesses randomly chosen stream reaches and extrapolates the monitoring results to the entire population of classified streams in the state. Targeted monitoring operations accommodate the development and refinement of the Kansas 303(d) list, whereas both targeted and probabilistic data are needed to meet section 305(b) and 314(a) reporting requirements.

Within KDHE, activities related to sections 305(b), 314(a), and 303(d) sections of the CWA are performed by the Watershed Planning, Monitoring, and Assessment Section of the Bureau of Water (BOW). Portions of this report addressing sections 305(b) and 314(a) characterize the overall condition of the state's streams, lakes, and wetlands and report on the prevalence of bioaccumulative contaminants in fish. They also describe the major monitoring networks and regulatory programs involved in the tracking, management, and abatement of surface water pollution. The 303(d) analysis differs from the 305(b) and 314(a) assessments in terms of statistical approach and monitoring period of interest. Moreover, under the provisions of the CWA, the 303(d) list is subjected to public review/comment approval by the U.S. Environmental Protection Agency (EPA).

Organization of Report

The remainder of this report is divided into several major parts. Part B contains background information on surface water resources within the state, describes the governmental programs

primarily responsible for improving water quality, considers the overall costs and benefits of water pollution control, and summarizes several important water quality issues facing Kansas. Part C discusses the various water quality monitoring programs administered by KDHE, the diagnostic criteria and statistical methods employed in the 303(d) and 305(b) analyses, and the major findings stemming from these analyses. Part D summarizes the current status of groundwater quality monitoring efforts in Kansas. Finally, Part E describes the measures taken by KDHE to comply with the public participation provisions of the CWA, as related to the development of the 303(d) list. Technical appendices to this report provide additional information on KDHE's water quality monitoring programs and the results of the most recent assessments. Specifically, **Appendix A** identifies the individual water chemistry and fish tissue parameters considered in the 2014 305(b) assessment, and **Appendix B** presents the most recently completed 303(d) list for Kansas.

PART B. BACKGROUND

Total Waters

Table 1 shows a summary of the waters of the State of Kansas along with other geographic and demographic information.

Table 1. Geographic information on the total waters of Kansas

Topic	Value	Data Source
State population	2,853,118	U. S. Census Bureau, 2010 Census
State surface area in square miles	81,758.72	U. S. Census Bureau, 2010 Census
Number of major river basins	12	Dec 12, 2013 KSWR (proposed) +
Total classified stream miles++	30,278	Dec 12, 2013 KSWR (proposed) +
Total classified stream miles designated for food procurement	22,235	Dec 12, 2013 KSWR (proposed) +
Number of lakes, reservoirs, and ponds (publicly owned or accessible)++	320	Dec 12, 2013 KSWR (proposed) +
Acres of lakes, reservoirs, and ponds (publicly owned or accessible)++	191,451	Dec 12, 2013 KSWR (proposed) +
Acres of freshwater wetlands (publicly owned or accessible)++	55,969	Dec 12, 2013 KSWR (proposed) +

+ The geometry of the 2013 Kansas Surface Water Register (KSWR) is derived from the 1:24,000 scale National Hydrography Dataset (NHD), projected in Lambert Conformal Conic North America (Clarke 1866) and trimmed at state boundaries.
++ includes classified waterbodies as well as those pending formal acceptance of proposed classification and use designations

Water Pollution Control Program

I. POINT SOURCE POLLUTION CONTROL

The Kansas point source program was initiated in 1907 (K.S.A. 65-161 *et seq*.) and continues to be modified and expanded in response to ongoing amendments to the CWA. The federal regulations implementing this law are found in Title 40 of the Code of Federal Regulations. Federal water pollution control programs are designed to protect the navigable waters of the United States, whereas the Kansas water pollution control program is designed to protect all surface water and groundwater resources in the state by controlling discharges from municipal, federal, commercial, and industrial wastewater treatment facilities (WWTFs), permitted concentrated animal feeding operations (CAFOs), and urban and industrial stormwaters.

KDHE is authorized to administer federal and state laws governing the treatment, re-use, and discharge of wastewaters in Kansas. Specifically, the department is responsible for the development, public notice, issuance and periodic review of water pollution control permits, the approval of engineering plans and specifications for WWTFs and sewage collection systems, the development of stormwater best management practices (BMPs), the establishment of pretreatment requirements for facilities in non-pretreatment program cities, and the performance of treatment plant compliance reviews. The department also oversees the development and management of operator training and certification programs in Kansas. Non-overflowing

WWTFs are regulated through the Kansas Water Pollution Control permitting system (K.S.A. 65-165). National Pollutant Discharge Elimination System (NPDES) permits are required for all discharging WWTFs, large and medium Municipal Separate Stormwater Sewer Systems (MS4s) and large agricultural facilities (**Table 2**). Agricultural facilities primarily include CAFOs but also include other animal feeding operations as well as some livestock markets and livestock truck washes. Wastewaters generated by these treatment facilities and operations are subject to technological effluent limitations, effluent guideline limits, and the Kansas surface water quality standards. Individual permits normally are issued for a period of five years, and all are reviewed by KDHE prior to re-issuance. The state's WWTF permit compliance record for calendar years 2012 and 2013 is summarized in **Table 3.**

In addition to regulating the wastewaters generated by these entities, the Kansas and federal programs have expanded into the area of stormwater pollution control. KDHE issues general permits for the control of stormwater runoff from construction and industrial sites, larger cities, and urbanized counties. Stormwater management plans have been implemented in 58 of the state's largest municipalities/counties/governmental entities and their surrounding areas to reduce the effects of stormwater runoff to their receiving streams. In addition, stormwater pollution prevention plans are required for construction activities disturbing more than one acre of land and for certain classes of industries that conduct activities in which materials are exposed to rainfall. Industrial facilities with individual permits are also required to develop and implement stormwater pollution control plans as part of their individual permit requirements. Stormwater NPDES permits are normally issued for a period of five years (**Table 2**).

Table 2. Number of active KWPC and NPDES permits as of January 1, 2014

Municipal and Commercial		Industrial and Federal +		Agricultural ++		Stormwater	
Mechanical Treatment Facilities (NPDES) +++	134	Industrial and Federal Discharging (NPDES) +++	522	Agricultural Federal (NPDES)	435	MS4 Municipal Stormwater (NPDES)	54
Discharging Lagoons (NPDES) +++	358						
Municipal and Commercial Non-discharging (KWPC)	416	Industrial and Federal Non-discharging (KWPC)	71	Agricultural State Permits (KWPC)	1343	Industrial Stormwater (NPDES)	1151
				Agricultural State Certificates (KWPC)	1559	Construction Stormwater (NPDES)	3027
Totals	*908*		*593*		*3337*		*4232*

KWPC = Kansas Water Pollution Control / NPDES = National Pollutant Discharge Elimination System
+ Tally does not include 60 industrial pretreatment facilities that discharge to municipal systems.
++ All agricultural facilities are nondischarging, but large facilities require Federal rather than State permits.
+++ Subject to monitoring by Compliance Monitoring Program and represented in Table 3.

Table 3. Permit compliance record for discharging wastewater treatment facilities, 2012-2013

	Municipal and Commercial Facilities	Industrial and Federal Facilities
Total number of facilities	492	522
2012 absolute compliance+	92.5%	98.5%
2013 absolute compliance+	94.1%	97.8%

+ Absolute compliance means that a facility reported on all parameters specified in its NPDES permit and met all permit limits for the monitoring period (based on records submitted by the facility).

Over the past nine years, a significant effort has been made to decrease nutrient (nitrogen and phosphorus) loadings to surface waters. In a document dated December 29, 2004, KDHE proposed and has since initiated a program whereby new and significantly upgraded mechanical wastewater treatment plants are required to construct and operate processes which will reduce the amount of nitrogen and phosphorus in the effluent discharges. As of January 1, 2014, over half of the mechanical wastewater treatment plants that generate significant amounts of nitrogen and/or phosphorus are either already operating such nutrient reduction processes or are in the process of constructing them. Additionally, the department is using a contractor to assist other major facilities in changing their operations to reduce nutrients through changes in operation if possible, or with chemical addition. Also, the department is completing a project in which it required existing major facilities to assess the feasibility of retrofitting for nutrient removal as the NPDES permits were renewed. Investments in such technology have reduced nutrient loads.

II. NONPOINT SOURCE POLLUTION CONTROL

Overview

Nonpoint source pollution refers to the transport of natural and man-made pollutants by rainfall or snowmelt moving over and through the land surface and entering lakes, rivers, streams, wetlands or groundwater. The Watershed Management Section is responsible for the coordination and planning of the Kansas Nonpoint Source Management Plan. The Plan provides a framework for coordination among agencies and organizations involved in nonpoint source related management activities. KDHE's Watershed Management Section administers funding and coordinates programs designed to eliminate or minimize NPS pollution. To accomplish this goal, the section develops and reviews strategies, management plans, local environmental protection plans, and county environmental codes intended to control NPS pollution.

The Watershed Restoration and Protection Strategy (WRAPS) program is one such effort administered by the Section,; it offers a framework to engage citizens and other stakeholders in a teamwork environment aimed at protecting and restoring Kansas watersheds by developing and implementing watershed plans. These projects are supported in part by the CWA 319 funds. The Source Water Protection Program is another program coordinated by the Section. It is designed to provide technical assistance to public water supply systems interested in writing and implementing a source water protection plan. Many public water supply systems are incorporated into Kansas WRAPS plans; however, those not covered by a WRAPS project are encouraged to complete source water protection plans.

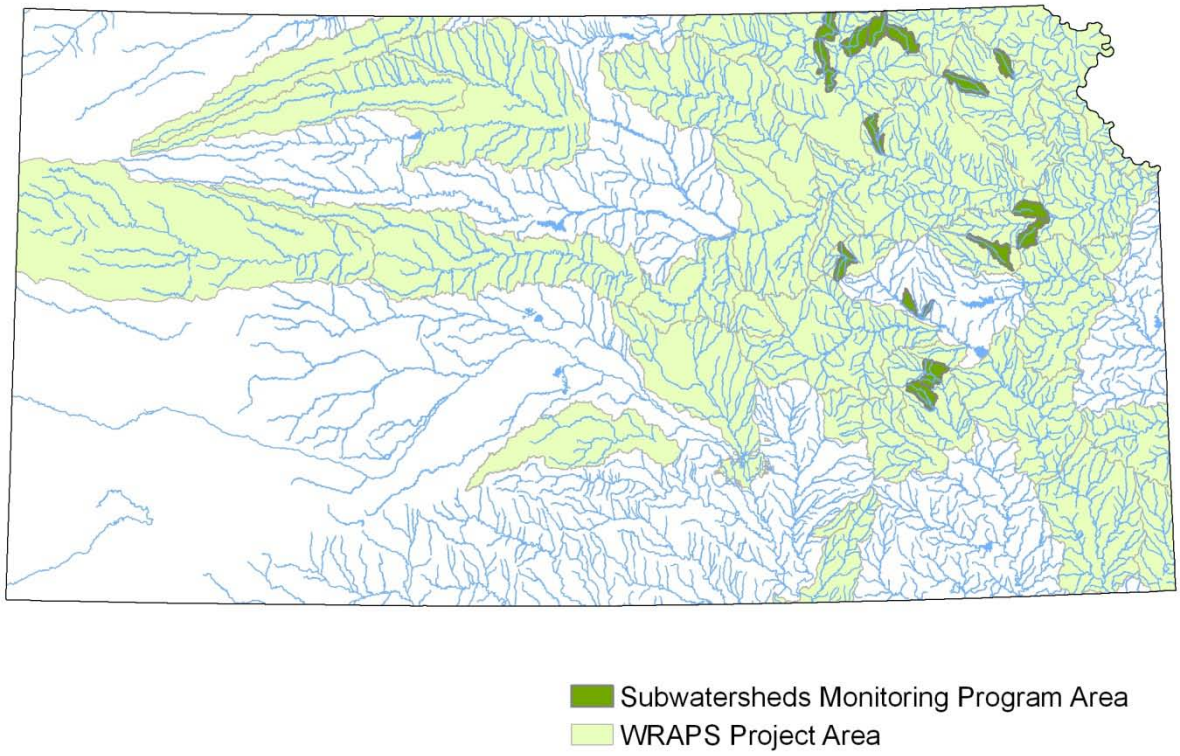
The Local Environmental Protection Program (LEPP) provides technical assistance to local authorities implementing environmental protection plans which are customized for their areas

and that complement other water quality efforts being implemented by state and federal agencies. LEPP Plans describe actions that communities take to manage private septic system wastewater treatment, solid waste, hazardous waste, NPS pollution, and private water wells.

Finally, stormwater and NPS abatement projects have been supported through various funding mechanisms. A partnership between KDHE Watershed Management Section and KDHE Municipal Program facilitated use of funds from the American Recovery and Reinvestment Act (ARRA) of 2009, and then in 2010-2012 as part of Green Project Reserves from the Kansas Water Pollution Control Revolving Fund.

Watershed Restoration and Protection Strategy

Figure 1. 2013 Kansas WRAPS Projects



Kansas has implemented a voluntary targeted watershed-based program for controlling NPS pollution known as the Watershed Restoration and Protection Strategy (WRAPS). This program is unique because the natural resource agencies of Kansas, with support from the US Environmental Protection Agency, aggressively seek citizen and stakeholder input and participation on watershed management and protection issues. This approach involves:

- Identifying watershed protection and restoration needs
- Establishing watershed protection and restoration goals
- Developing plans to achieve established goals
- Implementing fully developed plans

Watershed plans already implemented under WRAPS collectively serve and protect 45% of the state's total land surface (24,576,154 acres). This includes most watersheds draining into large federal reservoirs (**Figure 1**). Annual investments in WRAPS projects total approximately $2.5million (M). Of this amount, about $0.6M is derived from State Water Plan funds and $1.9M from CWA section 319 funds. Additional funds for Best Management Practices come from programs administered by the Kansas Department of Agriculture's Division of Conservation as well as the Federal Farm Bill administered by the United States Department of Agriculture.

A KDHE initiative begun in 2010, the Subwatersheds Monitoring Program, is designed to track water quality change in a selected set of HUC-12 subwatersheds over time, as Best Management Practices are implemented by area stakeholders (**Figure 1**).

Source Water Protection Program

The Source Water Protection Program is built on the principle that prevention often costs less than treatment. KDHE encourages public water supply systems and their surrounding communities to complete SWPPs on a voluntary basis. When the program was established, it worked with only groundwater based systems serving populations of 10,000 or less, but it has recently been expanded and is now able to assist both groundwater and surface water based systems serving any size population.

Source Water Assessments (SWAs) were completed for all active public water supply systems in 2004. States were required to complete their SWAs by June 30, 2004 as part of the 1996 amendments to the Safe Drinking Water Act. Funding for this program was provided by the USEPA, which provided grants to the LEPP participants to assist with completing the assessments. These assessments identified all potential sources of contamination for each public water supply system and serve as the basis for completing SWPPs.

The SWAs completed in 2004 are the first step in completing a comprehensive plan for protecting the public water supply system. Public water supply systems (PWSSs) and their surrounding communities use the SWA and the accompanying Susceptibility Analysis Scores to determine the contaminants and activities that pose the greatest threats to their water supply. On a statewide level, 54 percent of all PWSSs received a low (0-50 range) susceptibility score, 45 percent received a moderate (51-80) score, and only 1 percent received a high (81-100) score. Among the 12 major river basins in Kansas, the Lower Arkansas had the lowest proportion of PWSs receiving low scores (41%) and the Verdigris had the highest proportion (75%). Results are presented in **Table 4.** These assessments are used as the basis for the action plan included in each source water protection document. Water quality protection measures or established Best Management Practices are assigned to address potential sources of contamination.

Table 4. Susceptibility analysis scores for public water supply systems in Kansas

	Susceptibility Scores		
	Low (%)	Medium (%)	High (%)
Groundwater supply system	54	45	1
Surface water supply system	51	43	6
By Population	*24*	*61*	*16*

Scores are taken from 2004 baseline Source Water Assessments

The State of Kansas currently has 1,011 active public water supply systems. Of these, 114 currently benefit from an approved plan, and 86 of the 114 plans have been formally adopted by the participating communities (**Table 5**). Communities formally adopt their plan as a way to inform citizens in their community of the information contained in the plan and the importance of protecting their source of drinking water. SWPPs have been completed and approved for 104 groundwater-based public water supply systems and 10 systems that rely on surface water bodies to provide drinking water. Additionally, 63 public water supply systems relying on surface water sources (streams and/or reservoirs) directly benefit from NPS/WRAPS watershed projects.

Table 5. Public water supply systems benefiting from SWPPs and NPS/WRAPS Projects

Source Water Protection Plans			Nonpoint Source Watershed Projects	
Type	Number	Population served	Number	Population served
Approved but not yet Adopted	28	97,898	63	787,465
Approved and Adopted	86	150,454		

Local Environmental Protection Program

The LEPP is administered by KDHE and was funded by the Kansas Water Office (KWO) under the auspices of the State Water Plan from SFY1990 through SFY2010. For SFY 2011 and SFY2012, grant funds were allocated through the State General Fund. The program provided financial assistance to local governmental units developing and implementing environmental protection plans on behalf of their respective jurisdictions. All such plans included a sanitary code for regulating private water wells and private onsite wastewater treatment systems, and in addition addressed subdivision drinking water and wastewater treatment, solid and hazardous waste disposal, public water supply protection, and NPS pollution abatement. In SFY2013 and SFY2014, the program provided no financial assistance to local governments. Local governments provided funding for the program locally, most through increased user fees. With the absence of financial assistance, some local programs reduced services and some currently only administer private onsite wastewater and private water supply oversight. The role for KDHE has shifted from grant administration to providing technical assistance to the local governments for administration of their Environmental/Sanitary Code. Currently, 104 of the 105 counties in Kansas participate in this program and administer their Environmental/Sanitary Code.

Green Project Reserve / Nonpoint Source Pollution Projects

One of the Goals in the Kansas Nonpoint Source Management Plan is to institute a revolving loan fund for Nonpoint Source Projects (NPS), and to that end, a partnership was established between KDHE Watershed Management Section and KDHE Municipal Programs Section.

This effort was begun in 2009, when a portion of the American Recovery & Reinvestment Act (ARRA), in the amount of approximately $5.7 million, was set aside to fund nonpoint source / green infrastructure projects administered through the Watershed Management Section (WMS). Eleven projects were awarded in the form of low-interest loans with principal forgiveness. Projects that were funded utilize innovative technologies to sustainably manage stormwater and abate nonpoint source pollution. Projects used technologies such as constructed wetlands, native grass plantings, pervious pavement, bioretention swales, rain gardens, and stormwater reuse systems, as well as some streambank stabilization and restoration work.

In FFY 11 and 12 (October 2010-September 2012), the Kansas Water Pollution Control Revolving Fund, which has traditionally been used for treatment plant upgrades, reserved a portion of its funding for Green Project loans. This reserve amount was $5.1 million over two years. The Call for Proposals outlined the submission requirements, project eligibility, and applicant qualifications for funding of an NPS project through the KWPCRF NPS program. Selected projects were notified of the funding award; pre-award meetings were held to outline the application process and requirements; and efforts continued to complete the loan application process to secure executed loan agreements. Five projects were funded in FFY 2011, and another five in FFY 2012. These projects included streambank stabilization, restoration with riparian/vegetated buffers, pervious pavement with underdrain systems for stormwater storage, and bioretention swales and rain gardens.

Due to reductions in federal funding, the availability of the KWPCRF to implement NPS projects will be limited in the future. As a result, KDHE WMS, in coordination with other state agencies, has been working to develop a sustainable low-interest revolving loan fund specifically for the implementation of nonpoint source pollution control projects. KDHE WMS continues its efforts toward the planning and development of a loan program that would be utilized to fund a variety of NPS projects where future funding will be unavailable.

Cost/Benefit Assessment

The direct and indirect costs of water pollution control can be measured, or at least estimated, with some degree of confidence. In contrast, environmental benefits stemming from pollution control are less amenable to expression in monetary terms. Section 101(a) of the CWA establishes national water quality objectives and interim goals reflecting the belief that the costs of water pollution control are outweighed by the ecological and social benefits of clean water. The following paragraph and accompanying tables address some of the major costs associated with water pollution control efforts in Kansas.

Pollution control expenditures in the state are associated predominantly with administrative expenses, capital investments, and operational costs for WWTFs. Although little information is available regarding the control costs borne by industrial and agricultural facilities, capital expenditures associated with the construction and upgrading of municipal WWTFs have been documented carefully by KDHE. For example, the department administers the KWPCRF, which provides low interest loans to municipalities for water pollution control projects. Available monies are maximized through the sale of “leveraged revenue bonds.” During the past twenty-four years, these bonds have provided $1.076 billion for facility improvements in Kansas. KDHE

also coordinates with the Community Development Block Grant (CDBG) program, which is administered by the Kansas Department of Commerce on behalf of the state. This program typically provides grant funding for about 50% of the costs of a selected water pollution control project. During 2012 and 2013, KWPCRF, CDBG, and other state and federal programs provided about $79.8 million in financial aid to communities in Kansas (**Table 6**). NPS pollution abatement measures received much less funding, relying instead on the predominantly voluntary measures and cost-share programs discussed previously.

Table 6. KDHE cooperative funding for construction and expansion of municipal wastewater treatment facilities.

Funding year	KWPCRF +	CDBG +		RD +	
	Basic Program ++	Federal	Match+++	Federal	TOTAL
2012	$ 42.73 M	$ 2.487 M	$ 0	$ 3.587 M	$ 48.804 M
2013	$ 20.25 M	$ 1.0 M	$ 0	$ 9.784 M	$ 31.034 M
Total	$ 62.98 M	$ 3.487 M	$ 0	$ 13.371 M	$ 78.838 M

Monetary values presented in millions of dollars.
+ KWPCRF = Kansas Water Pollution Control Revolving Fund / CDBG = Community Development Block Grants / RD = Rural Development Grants and Loans
++ Total includes "Green Innovative" nonpoint source pollution control projects funded by KWPCRF
+++ All match funding for CDBG projects was provided by KWPCRF or RD

Special Concerns and Recommendations

The current major environmental concerns for the waters of Kansas can be divided into three categories: agricultural concerns, municipal/industrial concerns, and nuisance aquatic species.

I. AGRICULTURAL CONCERNS

Agriculture exerts a profound influence on surface water quality conditions in Kansas. Erosion of cropland soils produces elevated concentrations of silt in many streams and lakes, often to the detriment of native aquatic and semiaquatic life. The presence of nitrogen- and phosphorus-containing fertilizers in field runoff promotes nuisance growths of algae and detracts from the recreational and drinking water supply uses of surface water. Stormwater runoff from uncontrolled feedlots, livestock wintering areas, and heavily grazed pastures introduces pathogens and oxygen consuming organic wastes into nearby lakes and streams, sometimes compromising the sanitary condition of these waters. Pesticide residues in drinking water supply lakes can pose potential long-term risks to human health.

Efforts to alleviate the impacts of agriculture on the aquatic environment have focused primarily on the abatement of soil erosion and proper management of chemical fertilizers, biocides, and livestock wastes. Although the wider adoption of agricultural BMPs is underway and should lead to measurable reductions in stream contaminant levels, runoff water quality is not the only agricultural factor limiting the use attainment of surface waters. Throughout much of western Kansas, decades of irrigated crop production have exacted a heavy toll on stream life by lowering groundwater tables, reducing base stream flows, and transforming formerly perennial waterbodies into intermittent or ephemeral systems. In some areas of northeastern Kansas, stream channelization has radically simplified the original aquatic habitats and decimated a

formerly diverse fish and shellfish fauna. Impoundments (large and small) throughout the state have encouraged the establishment of predominantly nonnative fish assemblages, fragmented the remaining stream habitats, and diminished the seasonal peak flows required by certain native fishes for spawning and egg development.

The complete restoration of these degraded aquatic ecosystems would require large-scale habitat rehabilitation efforts and fundamental changes in the laws, policies, and practices currently dictating the use and allocation of water in Kansas. Some more readily implemented options for partially offsetting the historical effects of agriculture would include: the enhancement of minimum stream flows through the State-mediated purchase and retirement of senior water rights, the expansion of hatchery restocking programs for native fish and shellfish; the selective removal of lowhead dams and other barriers to fish migration; the installation of fish ladders and elevators on larger dams, and other related management initiatives – all in addition to concurrent improvements in agricultural practices. Most of these concepts are not new; for example, the importance of maintaining migrational corridors for fish was emphasized repeatedly by Kansas officials during the late nineteenth century but never seriously considered in the course of water resource development (reviewed by Angelo *et al*., 2003).

II. MUNICIPAL AND INDUSTRIAL CONCERNS

Discharging Wastewater Treatment Facilities and other point sources influence surface water quality throughout much of Kansas. Releases of inorganic nitrogen and phosphorus from some facilities promote blooms of filamentous or scum-forming algae in downstream waters and detract from their capacity to support primary and secondary contact recreation. Bypasses of raw or partially treated sewage occur each year, owing to treatment plant capacity limitations, malfunctions, operator error, and natural catastrophes. Such bypasses can result in fishkills and other serious water quality problems.

Stormwater runoff from lawns, golf courses, roadways, and parking lots often contains a complex mixture of chemical pollutants (*e.g.*, biocides, fertilizers, oil, grease, antifreeze, deicing salts, solvents, detergents, asbestos). These substances can prevent the development and maintenance of representative aquatic communities in receiving surface waters. Similarly, concentrations of mercury, polychlorinated biphenyls (PCBs), and other bioaccumulative contaminants in fish taken from urban streams may pose unacceptable risks to human consumers. In addition, data related to the accumulation, transport and fate of animal and human pharmaceuticals, hormones, personal care products, and other ubiquitous chemicals such as polybrominated diphenyl ether (PBDE) fire retardants are needed in Kansas as well as the rest of the country. Although the concentrations of such chemicals in the water column are most often minute, the processes of bioaccumulation and subsequent biomagnification in the food chain may concentrate these chemicals in fish tissue to levels that subject human and wildlife consumers to a risk of deleterious effects. Consumers of fish exposed to these contaminants and/or their degradation products may be exposed to concentrations in fish tissue many times greater than the concentrations occurring in the ambient environment. Although the U.S. USEPA has acknowledged the importance of monitoring and determining safe levels of these contaminants of emerging concern (CECs) in fish tissue (http://water.epa.gov/scitech/cec/upload/cec_ppcp.pdf) as well as water, analytical and financial

support for implementation has not been forthcoming.

Unplanned and extensive urban growth can negatively influence the physical habitats supporting aquatic life, in part because the attendant elimination and alteration of permeable land surfaces, wetlands and riparian areas diminishes the capacity of urban watersheds to remove pollutants and mitigate the effects of flooding. Stormwater runoff from impervious surfaces such as paved areas and rooftops can lead to powerful flooding events, capable of scouring stream bottoms and eliminating the habitat required by some native aquatic species. The channelization of urban streams results in highly simplified aquatic habitats incapable of supporting the full range of fish and wildlife indigenous to this region. In many instances, the negative effects of high density development on streams, lakes, and wetlands could be reduced through urban planning, employing established BMPs, maintaining green corridors around water bodies, and strategically designing the placement of development. The retention of natural corridors or "greenways" along rivers and creeks, and observance of the intent of the antidegradation provisions of the surface water quality standards (K.S.A. 28-16-28c(a)), would do much to preserve the natural physical and chemical attributes of the state's urban streams. Local, state, and federal authorities also could support more litter cleanup initiatives. Improvements in the visual and aesthetic character of urban waters would increase the perceived value of these resources and encourage their protection and sustainable use.

Some streams in the state also suffer from the illegal dumping of trash and other unwanted materials. The practice of discarding grass clippings, brush, and animal carcasses into streams (and the subsequent decay of these materials) reduces dissolved oxygen levels and jeopardizes populations of fish and other aquatic life. Discarded paint cans, pesticide containers, and batteries may leach toxic materials, thereby posing a threat to resident aquatic biota.

On a positive note, the deliberate and systematic renovation of many wastewater treatment facilities across the state has produced noticeable improvements in surface water quality over the past few decades, and this progress continues. As point sources contributing to water quality impairments continue to decline, attention will shift increasingly to nonpoint sources. It is anticipated that watershed pollution control efforts, predicated largely on the development and implementation of TMDLs, through WRAPS, will play an increasingly important role in the abatement of nonpoint source pollution in Kansas.

III. NUISANCE AQUATIC SPECIES

A number of exotic plant and animal species have established populations within the state, and some pose a serious risk to native aquatic life and the beneficial uses traditionally associated with surface waters. For example, Asian clams (*Corbicula fluminea*) have established large populations in streams and lakes throughout the state, and the zebra mussel (*Dreissena polymorpha*) has gained a foothold in recent years in several major river basins. Both of these exotic bivalves can compete with or otherwise injure native shellfish species, and both can impair designated recreational and drinking water supply uses. At least three species of Asian carp have been reported from the state (bighead carp, *Hypophthalmichthys nobilis*; silver carp, *Hypophthalmichthys molitrix*, and grass carp, *Ctenopharyngodon idella*), as well as white perch

(Morone americana) and rudd *(Scardinius erythrophthalmus)*; additional exotic fishes are expected to appear in Kansas in the near future. These animals can compete with native fish for food and shelter, and some dramatically reduce water clarity by disturbing bottom sediments during feeding.

A number of introduced plant species also have proven problematic. Thickets of salt cedar (*Tamarix* spp.) have become established along many streams in western and central Kansas, crowding out the native riparian vegetation and removing (via evapotranspiration) vast amounts of water from the adjoining streams and underlying alluvial aquifers. Purple loosestrife (*Lythrum salicaria*) has become the dominant herbaceous species in many wetlands, overwhelming many of the state's native plants and jeopardizing the animals depending on these plants for food and shelter. Eurasian watermilfoil (*Myriophyllum spicatum*), an exotic plant sold in the aquarium trade, has been documented in several streams in western Kansas and in scattered lakes throughout the state. This plant propagates via seeds and vegetative fragments and can spread rapidly between waterbodies by attaching to boat propellers, boat trailers, and fishing gear. Once introduced into a lake or stream, it tends to form dense mats of vegetation that can interfere with recreational activities, crowd out native aquatic vegetation, disrupt the feeding behavior of native fish, and choke water intakes used for municipal water supply, power generation, and irrigation. An even more invasive and potentially damaging exotic aquatic plant. Hydrilla (*Hydrilla verticillata*) has been discovered in two discrete locations in northeast Kansas during the last few years (an urban park lake, and a restaurant's outdoor water garden). The expansion of this exotic aquatic species carries with it, based on experiences elsewhere, and even greater potential for environmental and water infrastructure damage.

IV. CONCLUSIONS

Taken together, these threats can seem daunting. However, incremental efforts to abate the impacts of those activities are being made by various state and federal programs. For example, NPDES permits tying urban stormwater to impaired waters and directing appropriate corrective practices have been drafted. Kansas is implementing a State Nutrient Reduction Strategy to lower the presence of phosphorus and nitrogen in surface waters. Watershed Restoration and Protection Strategy (WRAPS) groups are directing funding to critical subwatersheds to reduce nonpoint source pollutant loads, and the Subwatershed Monitoring Program has been implemented to track improvement.

There have also been recent changes to state water use law that will encourage conservation; these include elimination of the "use it or lose it" rule for groundwater rights and introduction of multiyear flex accounts that allow irrigators to budget water use over five years rather than one (Kansas House Bill 2451 and Kansas Senate Bill 272; see Kansas Water Authority 2012). The 2012 Legislature authorized Local Enhanced Management Areas (LEMAs) in western Kansas as a means of combatting ground water declines through local management strategies (K.S.A. 82a-1036).

At the 2013 Governor's Conference on the Future of Water in Kansas, Governor Sam Brownback called for a number of state agencies to work together to formulate a 50-year vision

for Kansas water. These agencies included KDHE, Kansas Water Office, Kansas Department of Agriculture, Kansas Department of Wildlife, Parks, and Tourism.

Interagency collaborative efforts are increasing. Aggressive citizen education campaigns have been implemented to promote precautions and limit migration of invasive species among water bodies. Kansas Department of Wildlife, Parks, and Tourism, in partnership with the US Fish and Wildlife Service and the City of Wichita, is currently installing a fish passage structure in the Arkansas River, which is Designated Critical Habitat for several state-listed fish species. In addition, KDHE and KDWPT are exploring funding options for construction and operation of a native freshwater mollusk and fish hatchery.

Over time, these programs can improve the health and intrinsic value of our aquatic ecosystems, thereby increasing their economic and cultural value to the citizens of Kansas. In order to implement these programs effectively, it is critical that we invest in continued systematic, thorough, high quality monitoring of our water. This will allow us to direct limited resources to the highest priority waters while building a foundation of sound scientific evidence to evaluate and improve our restoration strategies and measure their success.

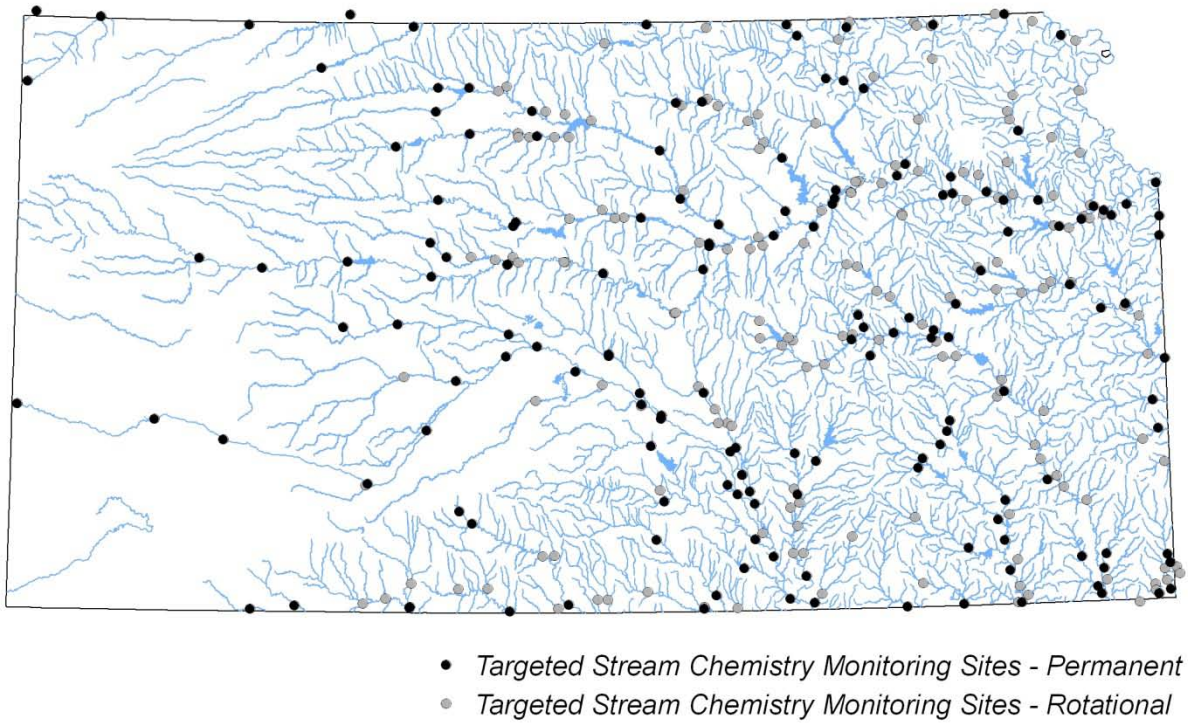
PART C. SURFACE WATER MONITORING AND ASSESSMENT

Monitoring Programs

I. TARGETED STREAM CHEMISTRY MONITORING PROGRAM

The stream chemistry monitoring program is the longest running environmental monitoring operation administered by KDHE; it currently resides with other surface water monitoring programs in the BOW Watershed Planning, Monitoring and Assessment Section. Water samples are obtained routinely from streams throughout Kansas and analyzed for a suite of physical, organic, inorganic, and bacteriological, and in some cases radiological parameters (**Appendix A**). The program database currently comprises over two million records representing nearly 400 active and inactive monitoring locations and approximately 100 different analytical parameters. Some records in the database date to the late 1960s, and several monitoring sites have a continuous period of record extending from that time to the present (KDHE, 2007).

Figure 2. Targeted Stream Chemistry Monitoring Program Sites

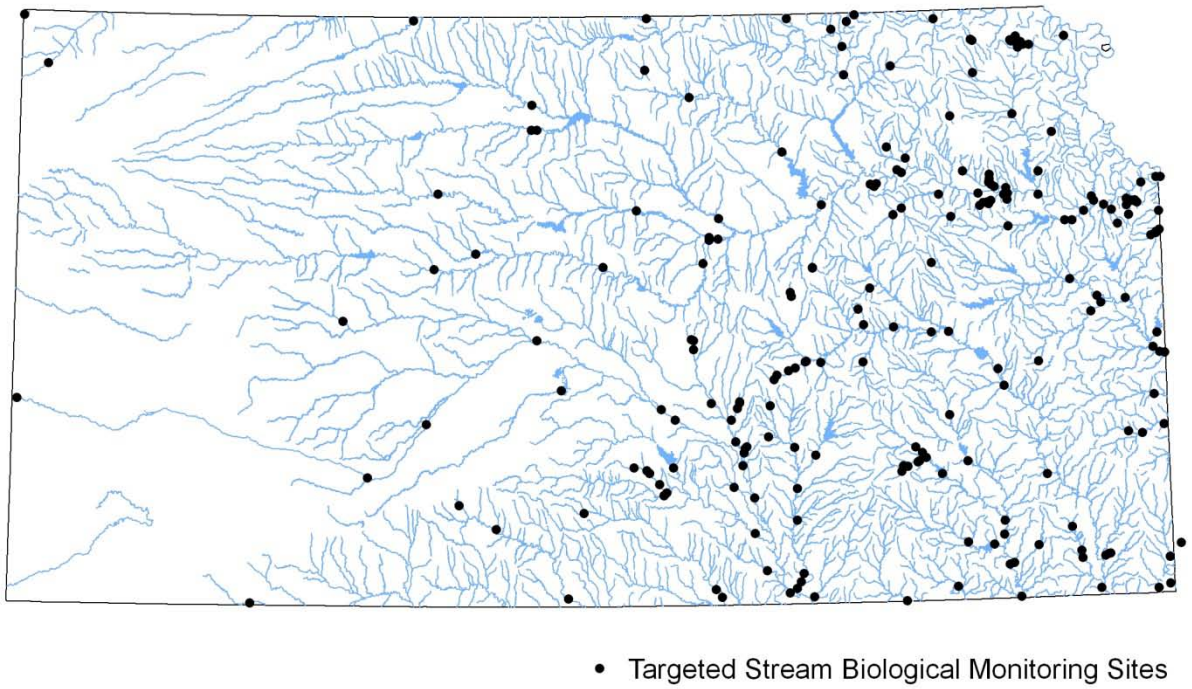


Currently, the stream chemistry sampling network comprises 329 active monitoring sites spanning all the major river basins and physiographic regions of Kansas (**Figure 2**). Monitoring personnel visit about 160 core sites on a quarterly basis every year, whereas the remaining 169 sites are monitored using a four-year rotational approach; *i.e.*, samples are collected quarterly from approximately 25 percent of rotational sites each year. Sampling sites have been chosen to

represent water quality conditions in specifically targeted watersheds or stream reaches. For example, some sites reflect water quality conditions in streams as they enter or exit Kansas, others represent conditions above or below major WWTFs, urban areas, or reservoirs, and still others reflect water quality conditions in predominantly rural watersheds. A few "minimally altered" and several "least impacted" reference streams are included in the network to gain a better understanding of baseline water quality conditions in the various ecoregions of Kansas (Chapman *et al.*, 2001). As currently configured, the network provides water quality information useful in the characterization of pollutant loadings from more than 97 percent of the state's contributing drainage area. Many monitoring sites are located near the lower terminus of eight-digit hydrologic unit code (HUC) watersheds and play an important role in the development and refinement of TMDLs for 303(d)-listed streams.

II. TARGETED STREAM BIOLOGICAL MONITORING PROGRAM

Figure 3. Targeted Stream Biological Monitoring Program Sites



This program examines the structural attributes of aquatic macroinvertebrate assemblages and utilizes this information to provide a more refined picture of the ecological status of streams in Kansas (KDHE, 2012b). Unlike water chemistry measurements alone, which reflect conditions occurring at the moment of sample collection, biological monitoring provides an integrated measure of environmental condition over time frames ranging from weeks to years, depending on the biological assemblage of interest. The majority of the program's monitoring sites are also Stream Chemistry Monitoring Program sites. Fewer biological monitoring stations can be visited throughout the year than chemistry stations; however, combining biological and chemical

sampling at selected key sites provide a more complete picture of ecological status than either method alone. Samples normally are obtained from 45-65 network sites each year as dictated by TMDL development needs, special projects, or other regulatory considerations.

Over the course of 34 years, the program has developed a sampling network that includes 222 current and historical monitoring sites distributed throughout the state; see **Figure 3.** Some stations have been sampled annually for the entire period of record. The program's database currently contains some 85,821 predominantly genus/species level records (419,067 individual organisms), and a separate freshwater mussel database contains approximately 15,000 high resolution records. Data from this program are used primarily in the development and refinement of TMDLs for 303(d)-listed streams and special studies.

III. PROBABILISTIC STREAM MONITORING PROGRAM

Probabilistic sampling is a method of environmental monitoring that yields statistically valid representative information on the physical, chemical, and/or biological condition of natural resources. It differs from conventional sampling in that probabilistic monitoring stations are a randomly selected subset of the resource as a whole. In Kansas, stream chemistry and stream biological monitoring programs traditionally have employed a targeted monitoring design that positions stations in a deliberate and strategic manner (*e.g.*, near the terminus of a specific watershed or above and below a discrete pollution source). Although these programs are of critical importance in determining site- and watershed-specific water quality conditions, funding and logistical constraints limit the number of targeted sites that can be sampled on an ongoing basis. In contrast, probabilistic monitoring focuses on the total resource rather than the individual monitoring locations. Results generated from this approach can be extrapolated with known confidence to the state's entire population of streams, including hundreds of smaller waterbodies (*e.g.*, headwater streams) largely outside the historical and current purview of the targeted monitoring programs.

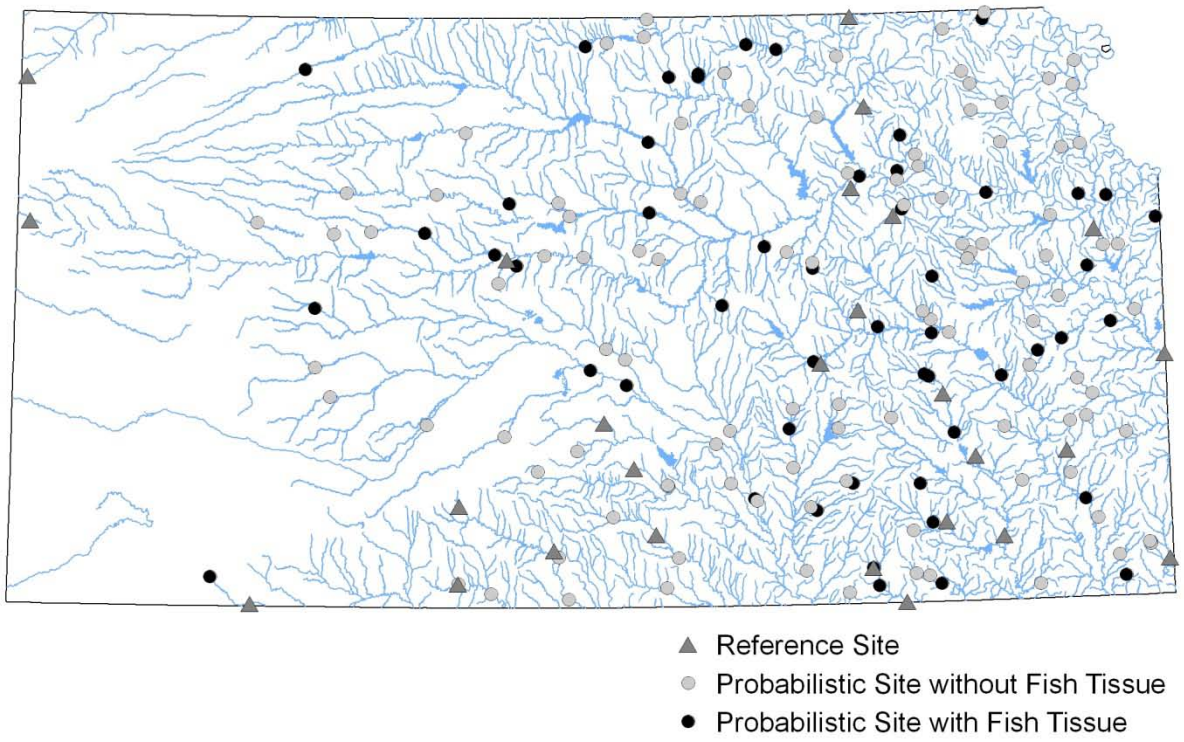
In 2004, KDHE participated in USEPA's National Wadeable Streams Assessment and gained a familiarity with the application of probabilistic sampling designs and associated field methods (USEPA, 2006 and http://water.epa.gov/type/rsl/monitoring/streamsurvey/index.cfm). In 2005, availability of supplemental monitoring funds under section 106(b) of the CWA provided an opportunity for KDHE to: (1) develop a quality assurance management plan and accompanying set of standard operating procedures for a similar statewide probabilistic program; (2) hire and train two environmental scientists to assist with the implementation of field and taxonomic duties; (3) develop a list of randomly selected (candidate) stream reaches; (4) obtain landowner permission to perform evaluations on these stream reaches; (5) initiate probabilistic monitoring operations; and (6) develop a methodology for applying probabilistic data to 305(b) water quality assessments. Probabilistic monitoring was formally implemented in June 2006 under the auspices of the newly created Kansas stream probabilistic monitoring program or SPMP.

From its inception, the SPMP was designed to complement the department's traditional monitoring programs. Probabilistic stream monitoring addresses 305(b) data needs, whereas targeted monitoring continues to serve as the primary basis for 303(d) list development, TMDL formulation, and NPDES permit review and certification. Although site selection procedures for

the probabilistic and targeted monitoring programs differ substantially, field methodologies developed for the targeted programs have been integrated with little alteration into the probabilistic program. This decision has maintained methodological continuity across programs and facilitates inter-program data comparisons.

The SPMP sampling network is predicated on a random, but spatially balanced, site selection process (see Kaufmann *et al.*, 1991; Messer *et al.*, 1991; Larsen *et al.*, 1994; Urquhart *et al.*, 1998; Herlihy *et al.*, 1998, 2000). Site coordinates are based on the random selection of points from the universe of classified stream segments identified in the most recently approved version of the Kansas Surface Water Register (KSWR) (KDHE, 2010a). This register represents all potential sampling locations or "the sampling frame." It is subject to incremental change over time owing to the deletion or addition of classified stream segments (KAR, 2004; KDHE, 2012c). In effect, an infinite number of potential sampling sites can be selected from the KSWR, allowing a manageable subset of about 30–50 newly selected sites to be sampled each year. Additional details are given in the SPMP quality assurance management plan (KDHE, 2013b).

Figure 4. Probabilistic Stream Monitoring Sites, 2008-2011



In addition to the 30-50 probabilistically selected monitoring sites sampled each year, the SPMP maintains a network of 25-35 reference-quality stations, which are chosen to reflect least disturbed waterbody types across the full range of stream sizes, ecoregions (Chapman *et al*, 2001) and major river basins; see **Figure 4.** These sites are sampled on an approximately biennial basis using the same methodologies as those used on probabilistic sites. Data from these sites are used to derive thresholds for macroinvertebrate community-structure metrics, which are

then used to assess the general population.

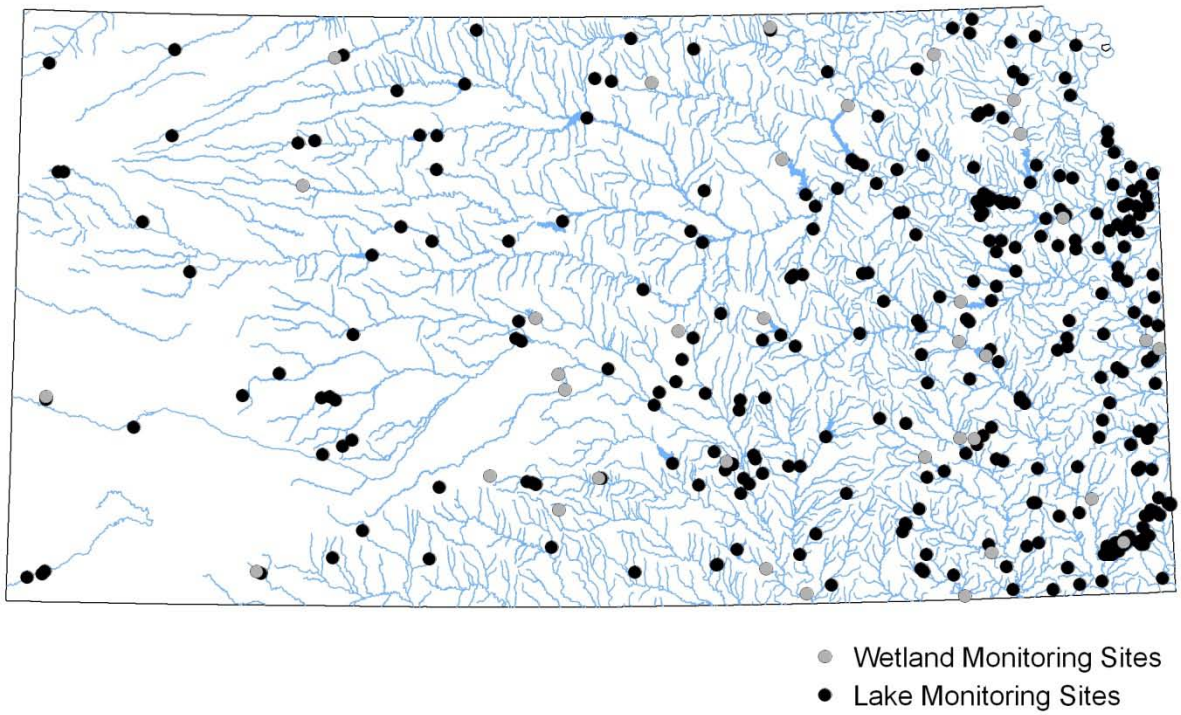
With assistance from staff of the targeted Stream Chemistry Monitoring Program (and using that program's protocols), samples are collected on a quarterly basis at each monitoring site; see **Appendix A** for parameters. During summer low flow of the same year, SPMP staff visit each site to sample the macroinvertebrate and phytoplankton communities. Physical habitat data also are collected to help discriminate between chemistry- and habitat-mediated constrains on the biotic community. The SPMP staff also obtains permissions to access a subset 12-20 of each year's sites that are on segments designated for food procurement. In cooperation with the Fish Tissue Contaminant Monitoring Program staff, harvestable-sized edible fish are collected at these sites, and their tissue plugs are screened for mercury metals. (Note: the USEPA Regional Laboratory has discontinued analysis of other heavy metals and organic contaminants, so these are no longer assessed.)

As mentioned previously, SPMP personnel employ many field protocols developed originally for the targeted monitoring programs and continue to work closely with staff from those programs, sharing in training, sample collection, and quality control and quality assurance methods. These established protocols are robust, and their utility has been demonstrated over the course of several decades. Moreover, data comparability and consistency among monitoring programs may prove important to future statewide water quality assessments. The SPMP database currently contains over 13,800 high resolution (predominantly genus/species level) macroinvertebrate records and over 1,900 water chemistry records. Separate databases house additional information on physical habitat, freshwater mussels, phytoplankton, and fish tissue.

IV. Targeted Lake and Wetland Monitoring Program

This program surveys water quality conditions in publicly owned and/or publicly accessible lakes and wetland areas throughout Kansas. Program personnel visit individual waterbodies on a three-to-five year rotational schedule, and field measurements and subsequent laboratory analyses provide data on a large suite of physical, chemical (inorganic and organic) and biological (phytoplankton and macrophytic communities) parameters (**Appendix A**). The program's primary database now contains around 300,000 analytical records representing more than 350 waterbodies. Watersheds associated with many of these lakes and wetlands are surveyed periodically with respect to prevailing land use/land cover and the location and size of discrete pollutant sources (WWTFs, CAFOs, *etc.*). Macrophyte community composition and aerial coverage are also evaluated in selected waterbodies smaller than 200 acres.

Figure 5. Targeted Lake and Wetland Monitoring Sites



As of December 2013, baseline water quality information is obtained from a dynamic ambient sampling network of 120 selected lakes and wetlands distributed throughout the state. These include all 24 federal lakes/reservoirs, most state-administered fishing lakes (those with open water in the majority of years), various other state, county or locally owned lakes, several privately owned but publicly accessible lakes (primarily for water supply), and five state or federally owned wetlands.

Because only a small number of Kansas lakes are natural in origin, an effort has been made to identify artificial lakes in minimally disturbed/developed watersheds to serve the function of reference systems. This program routinely shares a large amount of data and expertise with other agencies and organizations involved with lake and wetland management, environmental restoration, water quality monitoring, and environmental education. Additional collaborative efforts have addressed the abatement of toxic algae blooms and taste/odor problems in public water supplies.

V. Fish Tissue Contaminant Monitoring Program (Targeted and Probabilistic)

This program obtains information on chemical contaminant levels in fish collected from streams and lakes in Kansas (KDHE, 2013a). The majority of river and stream fish tissue samples are collected by KDHE staff, most lake samples are collected by the Kansas Department of Wildlife, Parks, and Tourism (KDWPT), and USEPA Region 7 provides limited additional field sampling support. In the past, all samples were analyzed by the USEPA Region 7 environmental

laboratory, including organic and inorganic parameters (**Appendix A**). However, USEPA support for analyses, with the exception of mercury fillet tissue plugs, has been recently withdrawn with no plans for resumption.

Fish tissue samples are usually obtained from 30-50 waterbodies across the state each year utilizing both targeted and probabilistic sampling designs. Targeted sampling efforts focus on tracking long term contaminant trends among legacy contaminants such as PCBs and chlordane, waterbodies with known or suspected contamination, existing advisory sites, and waterbodies where fish are heavily harvested by the fishing public. Probabilistic samples from streams and lakes serve a screening function for ascertaining contaminant patterns that may potentially affect human and wildlife consumers and provide unbiased data for fulfilling 305(b) reporting purposes related to food procurement use assessments.

Through 2010, the USEPA lab analyzed several heavy metals from composite fillets. In 2011, they moved to mercury-only tissue plugs for stream sampled top predators, and beginning in 2012, mercury-only plugs became the general rule for all fish. After 2013, the USEPA lab will not support analysis of organics.

Composite fillet samples are obtained from both targeted and probabilistic stream and lake monitoring sites. KDHE utilizes data from whole fish, composite fillets, and mercury fillet plugs to evaluate potential human health concerns related to mercury, heavy metals, organochlorine pesticides, and PCB's. Local site-specific advisories are issued, rescinded, or modified utilizing composite fillet and fillet plug data. Advisories are published at the beginning of each year jointly with KDWPT. The fish tissue database currently comprises over 23,000 records from 286 lake, stream, and river sites.

VI. SUBWATERSHED MONITORING PROGRAM

The Kansas Subwatershed Water Quality Monitoring Program (SWMP) was established in 2010 as a cooperative effort between KDHE's Watershed Management Section and existing stream monitoring programs now in the Watershed Planning, Monitoring and Assessment Section. The SWMP employs a water quality monitoring strategy (KDHE, 2011) that assesses nonpoint pollution on a subwatershed scale and was designed to track water quality improvement in selected HUC-12 subwatersheds over time. Monitoring efforts target specific Kansas watersheds that have active Watershed Restoration and Protection Strategy (WRAPS) project areas. All the WRAPS projects have detailed plans to address water quality impairments associated with nonpoint source pollutants identified in Total Maximum Daily Load (TMDL) evaluations. The WRAPS plans strategically target particular geographic areas for implementation of agricultural best management practices (BMPs), which are designed to directly address nonpoint source pollutants related to TMDLs. The baseline water quality data obtained from targeted subwatersheds will be compared to future monitoring data to document load reductions attributable to the implementation of BMPs. As the time of this report, the SWMP is monitoring 15 HUC-12 subwatersheds on at least a quarterly basis.

VII. COMPLIANCE MONITORING PROGRAM

As a National Pollutant Discharge Elimination System (NPDES) delegated state, Kansas has been issuing NPDES permits and conducting compliance sampling inspections since the mid 1970s. As of December 31, 2013, there were 1014 NPDES permitted facilities in the state subject to monitoring by this program; see **Table 2.**

NPDES permits contain specific and legally enforceable effluent limitations and self-monitoring requirements for flow measurement and sampling. The sampling frequency, the sample type (grab or composite), the parameter limitations, the analytical methods, and the reporting frequency are determined by the permitting agency (KDHE).

Self-monitoring data are submitted to KDHE by the permit holder at intervals specified in the permit. Parameters sampled for analysis are those specified in each individual facility's NPDES permit. Additional parameters such as metals, nutrients, and organic compounds are frequently sampled to obtain additional information regarding effluent characteristics. Whole effluent toxicity samples have also been collected during compliance sampling.

Compliance monitoring includes all field activities conducted to determine the status of compliance with permit requirements. A compliance sampling inspection is conducted to accomplish one or more of the following objectives:

(1) verify compliance with effluent limitations
(2) verify self-monitoring data
(3) verify that parameters specified in the permit are consistent with wastewater characteristics
(4) support permit re-issuance and revision
(5) support enforcement action

The scope of the Compliance Monitoring program is statewide. Any NPDES permit holder may be subject to compliance monitoring. Facilities are selected by KDHE Bureau of Water regulatory personnel. Program staff currently monitors 20 to 30 facilities per year.

Thirty-four facilities were monitored during the years 2012-2013. Fifty-three discharges were sampled for 252 analytes with NPDES permit limits. Eight samples were found to be in exceedences of permit limits at the time of sampling.

Although is not known whether these observed exceedences caused or contributed to actual instream violations of Kansas Surface Water Quality Standards, the vigilance of the Compliance Monitoring Program safeguards the surface waters of the state by ensuring accountability of permitted dischargers.

VIII. SPECIAL PROJECTS

Coupled with ongoing efforts to protect the physical, chemical, and biological integrity of the waters of the state, KDHE performs special water quality investigations in support of TMDL studies to strengthen mitigative and enforcement decisions implemented by the department. KDHE has recently begun four projects directly related to wastewater treatment facilities:

- KDHE's stream chemistry and biological monitoring programs will collect ambient surface water quality samples and examine the changes in aquatic biological integrity in Mill Creek coinciding with City of Olathe's Harold Street wastewater plant rehabilitation project.
- KDHE will also measure the amount of chlorophyll-a in the Mill Creek water column and attempt to compare those concentrations to the estimated periphyton cover (filamentous algae) growing on the stream bottom (using artificial substrates) to demonstrate which sample method can provide the simplest and yet the best estimate of stream trophic status (*i.e.*, a measure of algal biomass) in response to increases in nutrient concentrations expected during the rehabilitation and plant upgrade project.
- KDHE will reactivate an existing stream chemistry monitoring site and expand the agency's biological monitoring network to capture the impact of the City of Lawrence's new wastewater plant before it commences to discharge effluent to the Wakarusa River.
- KDHE will add a new biological monitoring site on Big Creek; this will help track changes related to City of Hays wastewater treatment plant's efforts to improve treatment performance and reduce the current levels of nutrients actively discharged to the stream. The biological data will be used to support evaluation and iteration of TMDL implementation efforts by the point and non-point sources discharging nutrients to the creek.

Assessment Methodology

I. 305(B) Assessment Methodology for Streams

OVERVIEW

The target population for the 2014 probabilistic stream assessment comprised that portion of the Kansas Surface Water Register (KSWR) stream extent that contained water during the summer low-flow periods of 2008-2011. The sampling frame used to select sites for 2008-2009 was an interim register dated December 15, 2005, and the 2010-2011 sites were drawn from a survey design based on the official February 12, 2009 register. Reporting here is based on the segment geometries and uses in the proposed December 12, 2013 version of the register (KDHE, 2013c), which represents an extent of approximately 30,278 stream miles, based on a 1:24K resolution. This includes perennial rivers and streams as well as intermittent streams that provide important refugia for aquatic life.

Site selection was performed by the USEPA design team in Corvallis, Oregon (Olsen, 2006 and Olsen, 2009) using the methods and assumptions of Stevens and Olsen (2004). All desk and field reconnaissance was performed by SPMP personnel, along with securing landowner permissions. The target population was determined to comprise 20,318 stream miles, or about 67% of the KSWR. Data collected during 2008-2011 were used to assess the prevailing level of support for CWA section 101(a) uses (**Table 7**).

The capacity of a given stream reach to provide for recreation, food procurement, and aquatic life support was determined by considering the local water chemistry, fish tissue chemistry,

suspended bacterial concentrations, and condition of the benthic macroinvertebrate community. Monitoring sites meeting the applicable water quality criteria or diagnostic thresholds for a given use were deemed "fully supportive" of that use. Any site failing to meet these criteria or thresholds was deemed "non-supportive" of the use. Note that the quantity of data and assessment methodologies used here are sufficient for a screening-level assessment for 305(b) purposes, but are not sufficient to support a 303(d) impairment listing or to issue state advisories or warnings.

Table 7. Types of data applied to assessment of designated use support for streams and rivers, 2008-2011

Designated Use	Macroinvertebrate Community Structure	Water Chemistry	*E. coli* Concentrations in Water Samples	Mercury in Fish Tissue
Aquatic Life	X	X		
Recreation			X	
Food Procurement				X
Overall	*X*	*X*	*X*	*X*

Causes and sources of nonsupport are not known definitively, but were inferred and assigned conservatively using best professional judgment and a variety of data sources. Data sources and considerations included the following: prevalence and proximity of upstream point sources and nonpoint sources, point source performance during the reporting period (if known), dominant land uses within the watershed and near the sampling location, chemical profiles of water samples, and any instream manifestations reflecting degraded water quality (substrate characteristics, bank instability, algal overgrowth, presence or recent evidence of livestock in the stream channel, effluent odors, *etc.*), along with considerations of any known recent extreme weather events, such as drought or flood.

Causes have been assigned at the most proximal identifiable level (*i.e.*, the most directly observable condition), and sources are the anthropogenic and environmental stressors to which the conditions may be most logically attributed. Sources, too, were assigned at the lowest causal level possible, to minimize the degree of uncertainty in conclusions.

AQUATIC LIFE USE

Stream macroinvertebrate data and water chemistry data from 158 randomly chosen sites were considered during the assessment of the aquatic life use (**Figure 2**). A site was deemed fully supportive for aquatic life only if both the macroinvertebrate community structure and the water chemistry indicated support.

In assessment of the macroinvertebrate community, primary use support was determined using the raw site scores for four of the biological metrics used by the Stream Biological Monitoring Program. These metrics are: macroinvertebrate biotic index (MBI), nutrient-organic Kansas biotic index (KBI-NO), Ephemeroptera-Plecoptera-Trichoptera index (EPT), and percent EPT specimens with respect to total macroinvertebrate abundance (%EPTCNT). (Huggins and Moffett, 1988). A fifth metric, Total Taxa (TOTTAX), was used as a tiebreaker when other metrics were equivocal.

Support thresholds for these metrics were derived from an analysis of 26 reference streams, all sampled during the 2008-2011 assessment period (**Figure 4**). Reference and probabilistic sites were partitioned into three stream flow categories (<10 cfs; 10 to 99 cfs; ≥100 cfs) using 10-year median discharge estimates for the KSWR segment on which each site falls (Perry *et al.,* 2004). Within each flow category, support thresholds for the biological metrics were set at the 75th percentile (MBI and KBI-NO) or 25th percentile (EPT, %EPTCNT, and TOTTAX) reference site score (www.epa.gov/bioindicators/html/biological_endpoints.html). This procedure effectively adjusted the expected performance of each monitored stream reach on the basis of stream size, *e.g.*, a small stream would not be expected to support the same number of EPT taxa as a large river, but it would be expected to perform as well as a similarly sized stream in the absence of environmental stressors. Support thresholds derived from this process are presented in **Table 8.**

Table 8. Aquatic life use non-support thresholds for biological metrics across three stream classes

Flow Group	MBI	KBI	EPT	%EPTCNT	TOTTAX +
< 10 cfs	> 4.78	> 2.82	< 8	< 35	< 34
10 –99cfs	> 4.26	> 2.58	< 9	< 45	< 34
≥ 100 cfs	> 4.04	> 2.42	< 14	< 64	< 31

+ secondary metric

Scores for probabilistic sites were compared to the flow-adjusted thresholds and assigned a value of 0 (non-support) or 1 (full support). These values were averaged across the four primary metrics to obtain a final average value for each site. If an average support value exceeded 0.5, the site in question was deemed fully supportive of the aquatic life use. If an average value was less than 0.5, the site was considered non-supportive of the aquatic life use. If an average value was exactly 0.5, the "total taxa" metric was used as a tiebreaker to determine support.

Water quality was also used to determine aquatic life support. Kansas has separate numeric water quality criteria for chronic versus acute water quality conditions as they relate to aquatic life (KDHE, 2005). Data were scored against both sets of criteria. Exceedences of chronic water quality criteria for inorganic parameters were excluded if they were determined to have occurred during unstable-flow periods. Natural background concentrations of certain parameters, *e.g.*,

chloride or sulfate, for individual stream segments, if applicable, were also taken into account during scoring of exceedences. (These are the same values used in approved TMDLs). If pollutant or parameter concentrations were found to exceed a given acute or chronic aquatic life criterion in greater than 25% of samples, the site in question was deemed non-supportive of the aquatic life use.

CONTACT RECREATION USE

All probabilistic sites were assessed for recreational use support based on measured suspended concentrations of *Escherichia coli*. This bacterium is part of the normal intestinal fauna of humans and many other warm blooded animals. It is utilized in many water quality studies as a general indicator of fecal contamination. For formal (*e.g.*, 303(d)) regulatory purposes, bacteriological criteria generally are applied as geometric mean concentrations, calculated using data from at least five different samples collected in separate 24-hour periods during a 30-day assessment window (K.A.R. 28-16-28d-e). The frequency and timing of the SPMP sample collections did not meet these rigid requirements. Therefore, the results reported below for the state as a whole (*i.e.*, pursuant to section 305(b) of the CWA) were based on seasonal samples collected from each probabilistic site over the course of a single year.

Based on studies use assessment studies performed by KDHE (mostly from 2001 to 2009), each stream segment listed in the KSWR was assigned to one of four recreational use categories, two primary and two secondary, depending on stream size, extent of public access, and other use attainability considerations (KDHE, 2012c). *Escherichia coli* data from each probabilistic site were compared to the applicable criterion concentration. Many of these sites were designated for secondary contact recreation only, in which case all available data were combined and the geometric mean was compared directly to the appropriate criterion concentration. Sites designated for primary contact recreation were evaluated with respect to recreational season (primary contact, April 1 – October 31; secondary contact, November 1 – March 31), and the geometric mean for each season was compared to the appropriate criterion concentration (**Table 9**). If the geometric mean exceeded the applicable criterion concentration during any season, the monitoring site in question was deemed non-supportive of the recreational use.

Table 9. *Escherichia coli* criteria used in recreational use assessments

Use	Colony Forming Units (CFUs)/100mL	
Primary Contact Recreation	Geometric Mean April 1 – Oct. 31	Geometric Mean Nov. 1 – March 31
Class B	262	2,358
Class C	427	3,843
Secondary Contact Recreation	Geometric Mean Jan. 1 – Dec. 31	
Class a	2,358	
Class b	3,843	

FOOD PROCUREMENT USE

Of the 158 probabilistic stream sites sampled during 2008-2011, 132 fell on segments designated or proposed for food procurement and thus were regarded as viable candidates for collection of

harvestable size and species of fish. However, USEPA Region 7 laboratory analysis capacities limits sampling to about 15 sites per year. Thus, fish tissue samples were obtained from 52 of the 132 candidate sites (**Figure 4**). At each site, personnel endeavored to collect one composite (three- to five-fish) sample of a representative bottom-feeding fish species (*e.g.*, channel catfish, common carp) and another composite sample of an open-water predatory species (*e.g.*, largemouth bass). Through 2010, the USEPA Region 7 laboratory analyzed composite fillet samples of top predators for four heavy metals, and analyzed composite fillet samples of bottom feeders for a number of organic compounds as well as heavy metals. Beginning in 2011, however, the laboratory stopped analyzing organic compounds for KDHE and began accepting only tissue plugs, which are analyzed only for mercury. Thus, this assessment is based solely on mercury data. Non-carcinogens such as mercury are evaluated using USEPA health endpoints for chronic systemic effects. Assumptions for risk calculation included consumption of fish tissue over the duration of an average human lifetime, average adult body weight, and eight-ounce meal portions. An average was calculated for top predators from a given site, and a separate average calculated for bottom feeders. If the concentration in either sample was found to surpass the applicable threshold concentration, the site in question was deemed non-supportive of the food procurement use.

POPULATION EXTENT ESTIMATION

Data from the 158 sites assessed for aquatic life and contact recreation and from the 52 sites assessed for food procurement were used to derive estimates for the target population as a whole. If a site failed to support any single designated use, it was considered non-supportive overall. The design team at the USEPA Western Ecology Division provided the population extent and variance estimates given in this report (personal communication, Tony Olsen). Calculations were performed using the "R" programming environment (www.r-project.org), the most current "sp" and "spsurvey" custom software modules (www.epa.gov/nheerl/arm/), and the methods and assumptions of Diaz-Ramos *et al*. (1996) and Stevens and Olsen (2003).

II. 305(B) AND 314 ASSESSMENT METHODOLOGY FOR LAKES AND WETLANDS

This targeted monitoring program assessed 320 publicly owned and/or publicly accessible lakes during the six year period of 2008-2013, plus a total of 36 publicly owned/accessible wetland areas (**Figure 5**). Physicochemical and biological data were obtained from each waterbody and compared to established water quality standards and guidelines to characterize the level of use support. A lake or wetland was deemed non-supportive of a designated use if more than 25% of the samples exceeded a given criterion associated with that use, partially supportive if more than 10% (but ≤25%) of the samples exceeded the criterion, and fully supportive if ≤10% of samples exceeded the criterion. This assessment focused primarily on epilimnetic water quality conditions, utilizing samples collected from zero to 3.0 meters in depth.

Table 10. Mean chlorophyll-a thresholds used as support criteria for six designated uses

Support Level	Designated Use	Designated Use	Designated Use
	Active or Emergency Public Water Supply	Primary Contact Recreation -Domestic Water Supply	Irrigation -Livestock Watering -Secondary Contact Recreation -Aquatic Life
Fully supportive	<8 ug/L	<10 ug/L	<18 ug/L
Fully supportive but threatened	(N/A)	10-12 ug/L	18-20 ug/L
Partially supportive	8-20 ug/L	>12-20 ug/L	20-30 ug/L, or 20-56 ug/L with no blue-green algal dominance of the phytoplankton community
Non-supportive	>20 ug/L	>20 ug/L	>30 ug/L, with blue-green algal dominance or >56 ug/L, regardless of algal community composition

The 305(b) assessment also considered long-term trends in trophic state condition for these 356 lakes and wetlands. Mean concentrations of chlorophyll-a were calculated for each waterbody based on the period of record for that waterbody. Concentrations were compared to an existing set of thresholds used to interpret narrative standards for lake trophic state, nutrient enrichment and turbidity (KAR, 2005). Mean chlorophyll-a thresholds for the support of several designated uses are shown in **Table 10.**

III. 303(D) ASSESSMENT METHODOLOGY

Overview

The 2014 list of impaired (Category 5) waters builds upon listings developed in 2012. A complete description of the procedures and assumptions applied during the preparation of this list is provided by the report, "Methodology for the Evaluation and Development of the 2014 Section 303(d) List of Impaired Water Bodies for Kansas," which is published at http://www.kdheks.gov/tmdl/methodology.htm. This list reflects the state's submissions as of 28 March 2014.

Development of the 2014 list relied primarily on data from targeted water quality monitoring programs administered by BOW and described elsewhere in this report. The statewide water quality assessment prepared by BOW pursuant to section 305(b) of the CWA also provided initial waters for listing lakes and wetlands, and long-term routine targeted monitoring of stream chemistry and stream biology provided initial data for listing streams. BOW then performed more extensive follow-up analyses, particularly on stream chemistry and stream biology, as the final basis for identifying and listing impaired waters in Kansas.

Stream chemistry data were obtained from the statewide network of targeted permanent monitoring stations (assessment period 2000-2013) and rotational stations (assessment period 1990-2013, except toxics which were assessed 2000-2013). Analysis for conventional pollutants

used binomial techniques, adjusted to minimize Type II errors. Analysis for toxics (acute or chronic) simply looked at frequency of digressions greater than once every three years. Streams suspected of being impaired by excessive total phosphorus or total suspended solids were identified by median concentrations exceeding screening values.

Watersheds monitored by the individual stream chemistry stations comprise multiple stream segments as an assessment unit for the purposes of the 303(d) program. Waters flowing directly into some large reservoirs were not surveyed as part of the stream chemistry monitoring network, instead being assigned to the assessment unit associated with that reservoir.

The public notice for the 2014 draft 303(d) list provides a mechanism for soliciting all readily available and existing water quality data from other agencies. In most cases, any submitted data corroborated the conclusions reached from the corresponding KDHE data. The public comment period ended March 21. No comments were received from the public which required modification of the list. The final 303(d) list, submitted to USEPA effective 28 March 2014, identifies 482 station/pollutant Category 5 water quality impairments (http://www.kdheks.gov/tmdl/2014/2014_303_d_Long.pdf) encompassing 2366 stream segment/pollutant combinations.

Priorities and Schedules; Introduction of the Kansas TMDL Vision

Since 1999, TMDL development efforts in each of the state's twelve major river basins have attempted to adhere to a five-year rotational schedule. With the emergence of a Kansas TMDL Vision, consistent with the approach supported by EPA's national TMDL Program, significant alteration in scheduling has been made for the years 2014- 2022. Kansas TMDL Vision is tied to KDHE's Nutrient Reduction Framework and will concentrate on stream phosphorus or nitrate impairments within 16 HUC8's deemed as high priority. The 2014 303(d) list identifies streams in the Neosho Headwaters, Middle Neosho, Spring, and Upper and Lower Walnut HUC8 sub-basins with excessive total phosphorus as slated for TMDL development in 2014.

The list similarly identifies segments of the Kansas River in the Upper, Middle and Lower Kansas sub-basins to have phosphorus TMDLs established in 2015. Streams in six other HUC8's will have stream phosphorus TMDLs developed over 2016- 2022. As time permits, secondary impairments caused by excessive nutrients including pH, deficient dissolved oxygen or lake eutrophication, may also have TMDLs developed within the priority 16 HUC8 sub-basins. This priority schedule means that no TMDL development will be conducted in other basins of the State, particularly those in western Kansas. Additionally, current plans are impairments other than nutrients will not be addressed during 2014- 2022.

Tracking Previously Listed Waters

The 2014 303(d) list also identifies waters from previous lists that were once impaired by a pollutant (Category 5) but that are now placed in other listing categories established by USEPA. Waters with approved, established TMDLs are placed in Category 4a. Such waters in Kansas were cited as impaired on the 1998, 2002, 2004, 2008, 2010, or 2012 303(d) lists; these are published at: http://www.kdheks.gov/tmdl . These waters remain impaired but now have a

TMDL established for them, hence their removal from Category 5.

A small number of water bodies have been designated as Category 4b, meaning their particular impairments have been addressed by some means other than development of a TMDL. Previous Category 4b waters addressed through the appropriate limits, schedules of compliance and other conditions placed on NPDES permits are now achieving the respective water quality criteria and have been placed in Category 2, which is reserved for those Kansas waters that were once impaired, but whose water quality has subsequently been restored to meet standards. Effluent quality data from individual facility discharge monitoring records, corresponding water quality data at downstream monitoring stations and special monitoring efforts upstream and downstream of selected facility outfalls support the transfer of those waters to Category 2.

Atrazine impairments in a limited number of water bodies in the Little Arkansas River watershed have been addressed through implementation of the Watershed Restoration and Protection Strategy (WRAPS) watershed plan. Continuation of Category 4b status is contingent upon ongoing efforts and results to abate atrazine loads in the selected subwatersheds of the Little Arkansas River. Because of the burden of proof placed on designated waters into Category 4b, it is unlikely that additional entries will be made into that category. Other WRAPS groups may address impairments through implementation of their watershed plans, but the impaired waters will remain in Category 5 until those impairments are remedied or a TMDL has been established.

A few stream systems in Kansas have been designated as Category 4c, which is used for waters impaired by factors other than pollutants (such as slurry spills, habitat limitations or flow alterations). Biological impairment as defined by macroinvertebrate monitoring appears to be linked to pervasive low flows during drought, perhaps exacerbated by water diversions. The impairment is better suited for management through water allocation and water rights administration.

Category 3 is used by Kansas when there is uncertainty as to the impaired status of a given water body. Insufficient data exist to determine if the water is newly impaired, now restored or continues to be impaired. Relatively new stations with small sample sizes would be placed in this category as would previously impaired waters that now are just barely compliant under the applicable analysis using recent data. Additional monitoring and subsequent analysis in coming listing cycles will move waters from Category 3 into Categories 2, 4a or 5.

Waters are placed in Category 2 as a result of successful restorative implementation, updated data, changes in water quality criteria, or the removal of certain designated uses through the Use Attainability Assessment process. In some cases, corrective actions on point and non-point sources of the pollutant have improved conditions to restore the applicable water quality standard. Ammonia and chlordane are two pollutants that reflect cases in which point source improvements (lowered ammonia) or an outright ban (chlordane in 1988) have resulted in measureable improvements in ambient stream concentrations, fish tissue concentrations, and biological monitoring results.

Any surface water that has not been cited as impaired in the past or present is designated as Category 1, signifying that all its designated uses are being fully supported. All category

assignments are recorded by KDHE in electronic databases, with the most recent revision tied to the 2014 listing process and submitted to KDHE as part of the 2014 integrated report and 303(d) listings package.

Assessment Results

I. 305(B) Assessment Results for Streams and Rivers (Probabilistic Data)

The draft 2013 KSWR identifies all currently classified stream segments in Kansas (KDHE, 2013c). Represented at 1:24,000 resolution, these collectively represent about 30,278 stream miles and include both perennial and intermittent waters. During prolonged droughts, some of this mileage is expected to be nonviable for sampling purposes. In addition, a given intermittent segment may not contain sampleable water at a randomly-chosen point along its length, especially during summer low-flow. Thus, the target sampling population is restricted to those reaches on classified stream segments that contain substantive aquatic habitats during the assessment period of interest. These habitats may include continuously flowing reaches, continuously wetted but non-flowing reaches, or isolated pools deemed capable of providing refugia for aquatic life.

It bears noting that the 2010 version of the KSWR, which was used for 2012 assessment, reported 27,738 stream miles represented at 1:100,000 resolution. The difference in mileage is due almost entirely to refined linework, rather than to any additions of segments.

Table 11. Probabilistic stream assessment fact sheet

Project Name	Kansas stream probabilistic monitoring program
Type of Waterbody	Stream or river
Units of Measurement	Miles
EPA Survey Design Project IDs	KSR06950 and KS2010
Sample frame for assessment	Dec 12, 2013 draft Kansas Surface Water Register
Designated Uses	Aquatic life, contact recreation, and food procurement +
Size of sample frame	30,278 miles for Aquatic Life and Contact Recreation 22,235 miles for Food Procurement
Size of Target Population	20,318 miles for Aquatic Life and Contact Recreation 16,642 miles for Food Procurement +
Percent supporting all uses assessed	16.9 ± 6.7%
Percent not supporting one or more uses	83.1 ± 6.7%
Percent nonresponse	0%
Indicators	Macroinvertebrate community assessments, water chemistry analyses, fish tissue mercury analyses, *E. coli* measurements
Assessment Date	March 3, 2014
Precision	95%

+ Food Procurement Use applies to only 73% of the Kansas Surface Water Register. For this assessment period, it applied to 82% of the target population. This is probably due to the underrepresentation of headwater & intermittent streams during drought periods.

Based on combined desk and field reconnaissance, the target sampling population during the summers of 2008-2011 was estimated at 20,318 stream miles or approximately 67% of the total

classified stream mileage on the KSWR. This extent was assessed for recreational and aquatic life support uses with chemical and biological data from 158 monitoring sites. As discussed previously, the food procurement use was assessed using fish tissue contaminant data from 52 sites. **Table 11** highlights some of the major features of the probabilistic sampling effort.

STREAM USE SUPPORT IN RELATION TO INDIVIDUAL DESIGNATED USES

The uses of surface water recognized in section 101(a) of the CWA correspond to the following three designated uses in Kansas: aquatic life support, recreation, and (human) food procurement (K.A.R. 28-16-28b *et seq.*). The first two uses apply in some form to virtually all streams listed in the KSWR. The food procurement use, on the other hand, is assigned only to a portion (73%) of the state's classified stream mileage – those rivers and streams that have been determined likely to contain edible fish of harvestable size. The Kansas surface water quality standards recognize additional uses of surface water, but these are not considered in this probabilistic assessment (**Table 12**).

Table 12. Allocation of designated uses among classified streams

Designated Use	Proportion of Mileage Designated for Use +
Aquatic life support (any category)	100%
Contact recreation (any category)	~100% ++
Food procurement	73%
Livestock watering	96%
Irrigation	92%
Groundwater recharge	92%
Industrial water supply	74%
Domestic water supply	72%

+ Mileage given relative to the entire December 12, 2013 KSWR extent of 30,278 miles
++ The few streams with no formal use designation for contact recreation (<0.5% of total mileage) were assessed here using the least restrictive (class b) criteria.

Table 13 presents use support findings for individual section 101(a) uses (aquatic life support, contact recreation, and food procurement), and **Table 14** illustrates overall support as well as the overlap among support and non-support for all three uses. The indicated 95% confidence intervals were derived using a local variance estimator approach (Stevens and Olsen, 2003). Although only about 17% of mileage supported all three uses, less than 3% of mileage failed all three uses. Most stream mileage in Kansas supported one or two of the three assessed designated uses.

Table 13. Support of individual designated uses in streams (in miles)

Designated §101(a) Use	Total Sample Frame Extent	Total Targeted & Assessed Extent	Extent Supporting Indicated Use*	Extent Not supporting Indicated Use*	Extent with Insufficient Data
Aquatic Life	30,287	20,318	6,285 ± 1,176	14,033 ± 1,176	0
Contact Recreation	30,287	20,318	16,899 ± 996	3,419 ± 996	0
Food Procurement	22,235	16,642	10,539 ± 1,959	6,103 ± 1,959	0

95% confidence intervals derived using local variance estimator approach (Stevens and Olsen, 2003)
Food procurement monitoring was based on a subsample rather than an exhaustive sample, but it was assumed for extent estimation purposes that nonsampled sites were a random subset of the population (and thus would not differ in quality from those where samples were taken).

Table 14. Detailed account of use support for streams (in miles)

		Food Procurement Support	Food Procurement Non-support
Aquatic Life Support	Contact Recreation Support	3,439 ± 1,364	1,837 ± 1,197
	Contact Recreation Non-support	0	1,009 ± 982
Aquatic Life Non-support	Contact Recreation Support	8,933 ± 1,993	2,690 ± 1,493
	Contact Recreation Non-support	1,843 ± 1,139	567 ± 567

CAUSES AND SOURCES OF STREAM IMPAIRMENT

Table 15. Major causes of water quality impairments in streams

Cause category	Cause (with ATTAINS cause code)	Impaired Mileage
Water chemistry	Atrazine (148)	2,063 ± 790
	Alachlor (84)	126 ± 126
	Aldrin (96)	126 ± 126
	Lead (663)	252 ± 252
	Selenium (984)	1,402 ± 637
	Ammonia (122)	126 ± 126
	Dissolved oxygen (449)	267 ± 267
Waterborne pathogens	*Escherichia coli* contamination (471)	3,419 ± 996
Biological assessment	Aquatic macroinvertebrate bioassessment (135)	13,151 ± 1,225
Fish tissue chemistry	Mercury in fish tissue (696)	6,103 ± 1,959

Likely causes and sources of non-support were determined for each probabilistic monitoring site exhibiting water quality impairments. This phase of the water quality assessment used habitat data collected on-site, water chemistry profiles, and aerial photographs along with geographical map coverages identifying watershed boundaries and water resources, point and nonpoint sources of pollution, general land use and land cover. Findings were extrapolated to the overall population of streams targeted during the 2008-2011 assessment period. Because some

individual monitoring sites were subject to multiple causes and sources of impairment, there is overlap among their extents, and thus the stream mileage affected by all causes and sources is not amenable to meaningful summation.

Major causes of non-support for streams, in order of prevalence, were aquatic macroinvertebrate community metrics, mercury in fish tissue, and *E. coli* contamination. Other directly-measured water quality parameters (high metals, biocides, *etc.*) combined to form an additional functional stressor category (**Table 15**).

Sources responsible for pollutant loadings and/or use impairments can be separated into four general categories. The most prevalent of these was general anthropogenic influence (*e.g.*, erosion and sedimentation, atmospheric deposition of contaminants), followed by agricultural influences (both crop and livestock production), followed by other factors (including natural sources and unknown sources). Urban influences (both point and nonpoint) comprised a relatively minor source of use nonsupport (**Table 16**).

Table 16. Major sources of water quality impairments in streams

Source Type	Source	Impaired mileage
Agricultural	Domestic waste unspecified (192) [human waste]	1,513 ± 720
	Urban runoff (518)	252 ± 252
	Industrial point sources (524)	126 ± 126
Urban	Livestock (510)	3,435 ± 998
	Crop related sources (45)	2,189 ± 816
	Agriculture Irrigation Tailwater (32)	252 ± 252
General anthropogenic	Erosion and sedimentation (56)	7,023 ± 1,344
	Atmospheric deposition (109) [mercury]	6,103 ± 1,959
	Eutrophication (189)	3,985 ± 340
	Surface mining, abandoned (446)	252 ± 252
	Mining, sand/gravel/rock quarries (289)	126 ± 126
Other	Poor habitat (426)	5,135 ± 1,192
	Unknown (472)	4,111 ± 1,092
	Drought related impacts (12)	394 ± 355
	Natural source (531)	378 ± 310

The 2000-2006 drought in Kansas, one of the most severe since the 1950s, ended in June of 2007, at which time the southeastern portion of the state received nearly 20 inches of rain in a five-day period. These rainfall events resulted in major floods that scoured many waterbodies. They also resulted in sustained high stream flows for much of the summer. The combined effects of these dramatic weather-related events clearly contributed to many of the stream impairments documented during 2008. In 2010-2011, major portions of the state again entered drought status. Although this assessment indicates that many stream systems may be in suboptimal or impacted condition, it also demonstrates that they have capacity for improvement when streamflow conditions return to normal. Mitigation of major identifiable stressors could also result in restored stream health and greater resilience.

Although this document reports only on 101(a) uses of the Clean Water Act, the stream water quality data also provide an opportunity to assess support for other uses. In particular, the two

agricultural uses, Livestock Watering and Irrigation, are important to Kansas. Of the 152 sites sampled for water quality, 100% supported the Livestock Watering use, and 97.5% supported the Irrigation use. Excursions from Irrigation criteria all involved presence of elevated fluoride.

II. 305(B) AND 314 ASSESSMENT RESULTS FOR LAKES AND WETLANDS

Lakes Assessment

BACKGROUND

A total of 320 publicly owned, or publicly accessible, lakes are included in this reporting cycle. This represents all lakes known to KDHE through monitoring activities, as well as from sources published by other agencies, most notably Kansas Department of Wildlife, Parks and Tourism (KDWPT) and the US Army Corps of Engineers (USACE). These lakes comprise a total of 191,451 acres of surface area at normal conservation pool levels. Lakes with their shorelines under common private ownership are considered private lakes in Kansas, but may still be public waterbodies under state water quality standards if they supply public drinking water or are open to the general public, by invitation or fee, for recreational use.

For the purposes of this report, all publicly owned/accessible lakes, reservoirs, and ponds are referred to as "significant" public waterbodies. This is based on the assumption that any lentic waterbody that is owned by, or accessible to, the general public will provide benefits to the general population. These benefits may include recreation and water supply, but will also certainly include habitat for the support of indigenous aquatic and semi-aquatic organisms, including fish and migratory waterfowl.

Unless specifically identified as a wetland, all lentic waterbodies are referred to as "lakes" within this report, regardless of size or origin. This is done in order to avoid the arbitrary thresholds separating ponds from other waterbodies, and to recognize the fact that we assign and expect the same benefits from constructed lakes as we do from naturally formed ones.

Table 17. Categories of data used in ALUS assessments for lakes (in acres)

Degree of Aquatic Life Use support (acute criteria only)	Acres assessed based on biological habitat data only	Acres assessed based on physical/chemical data only	Acres assessed based on both habitat and physical/chemical data	Total acres assessed
Insufficient Data	0	0	0	102
Fully Supported	0	0	94,291	94,291
Fully Supported but Threatened	0	0	12,468	12,468
Partially Supported	0	0	80,236	80,236
Not Supported	0	0	4,354	4,354

Table 17 presents a comparison of lake acreage investigated, during the 2008-2013 period of record for this 305(b) reporting cycle, versus the means by which Aquatic Life Use Support

(ALUS) assessments were determined. Assessments utilize a period of record of 6 years for physical/chemical data and the entire period of record for trophic state data for trends. At all monitored and evaluated lakes, Kansas Department of Health & Environment (KDHE) surveys utilize chemical, biological, and physical components, which also factor into metrics related to habitat.

IMPAIRED AND THREATENED LAKES

Table 18 summarizes overall use support ratings for lakes assessed during this 305(b) cycle. **Table 19** divides assessments into specific beneficial uses. The majority of lake acreage is monitored, as can be seen in **Table 18.** Fully 91.5% of reported lake acres are considered to be monitored and, thus, are monitored for "toxics" such as heavy metals and pesticides as well as the other inorganic and biological parameters common to KDHE lake surveys. Of the 175,133 monitored lake acres, 5,767 acres (3.3%) show some level of impairment from heavy metals and/or pesticides.

Table 18. Summary of Fully Supporting, Threatened, and Impaired Lakes

DEGREE OF USE SUPPORT	Assessment Category		Total assessed acres
	Evaluated	Monitored	
Insufficient Data	102	0	102
Fully Supporting of All Uses	2,305	5,257	7,562
Threatened for One or More Uses (But Not Impaired for Any Uses)	243	52	295
Impaired for One or More Uses	13,668	169,824	183,492
Total Size Assessed	16,318	175,133	191,451

Table 19. Individual use summary for lakes (in acres)

Goals	Use	Size Assessed	Fully Supporting	Fully supporting but threatened	Partially Supporting	Non Supporting	Insufficient Data
Protect and Enhance Ecosystems	Aquatic Life (acute criteria)	191,451	94,291	12,468	80,236	4,354	102
Protect and Enhance Public Health +	Fish Consumption++	191,451	190,702	0	33	694	22
	Primary Contact	191,324	31,064	9,195	146,943	4,042	80
	Secondary Contact	191,451	114,570	12,468	60,382	3,929	102
	Domestic Water Supply	189,671	21,034	239	126,521	41,797	80
Social and Economic Enhancement +	Irrigation	190,816	146,270	12,015	29,023	3,428	80
	Livestock Water Supply	190,831	145,865	12,468	28,588	3,830	80

+ = Shellfishing and Cultural Use categories not applicable.

Table 20 presents information related to direct and indirect causes of water quality impairments for this reporting cycle, while **Table 21** presents similar information regarding sources. Code

numbers associated with causes and sources are the most applicable ATTAINS codes listed. In some cases, an exact and most appropriate single code number could not be settled upon. In those cases, several code numbers appear with the cause or source category. The tabular data should be viewed as applicable to a combination of two, or more, of the codes indicated.

Table 20. Total lake area impacted by various cause categories (in acres) / L6

CAUSE CATEGORY AND CODES	ACRES BY CONTRIBUTION TO IMPAIRMENT	
	MAJOR	MODERATE/MINOR
Pesticides - atrazine (148)	171	892
Heavy Metals – arsenic (145)	33	1,136
Heavy Metals – copper (345)	130	5
Heavy Metals – lead (663)	0	3,550
Heavy Metals – selenium (984)	0	1
Fluoride (555)	0	654
Nutrients and Eutrophication (483 and 746)	28,277	142,182
High pH (620)	148	26,531
Low pH (678)	0	13
Siltation and Turbidity(995)	43,027	16,803
Low Dissolved Oxygen (449)	0	162
Chloride (272)	0	12,547
Sulfate (1016)	180	22,917
Flow Alterations (546)	772	3,502
Aquatic Plants (481 and 140)	2	253
Zebra Mussels (650) +	93,922	21,100
Perchlorate (880)	128	0

+ Major impact from zebra mussels is determined by the documented presence of adults within the waterbody, while moderate/minor impact is determined by documented presence of veliger larvae only, or by anticipated near-future infestation from upstream lakes and streams with documented infestations.

For the most part, the results for this reporting cycle are very similar to the results reported in past 305(b) cycles. Nutrients and eutrophication related impacts dominate the list of water quality problems, along with secondary effects of eutrophication, with agriculture, urban runoff, natural sources, and point source nutrient loads being the most dominant sources. Natural sources refer primarily to climate and weather driven impacts (such as water depletion, wind resuspension of sediments, and shallow thermal stratification), naturally high salinity in some locales, or fluoride impacts. Natural sources account for virtually none of the nutrient/eutrophication or heavy metal related impacts in Kansas lakes.

Table 21. Total lake area impaired by various source categories (in acres)

Source category	Contribution to impairment	
	Major	Moderate/minor
Municipal Point Sources (3)	25,600	122,124
Agriculture (18)	34,848	122,487
Urban (64)	964	7,287
Resource Extraction (252)	0	899
Hydromodification (1)	3,619	7,127
Atmospheric Deposition (109)	0	0
Natural Sources + (12 and 142)	607	23,716
In-Lake Management (362)	104	130
Resuspension (205)	10,500	0
Introductions of Non-Native Organisms (129)	76,764	31,513
Unknown (496)	0	0

+ Refers mainly to climate and drought impacts plus background levels of salinity and fluoride.

Related to the predominant impact that nutrient pollution and the resulting eutrophication process has on lake use support, a recent activity within KDHE has been the description of what are generally referred to as "reference" trophic state conditions for lakes in Kansas. In essence, reference water quality conditions for lakes occur in watersheds with none-to-limited human activity and anthropogenic pollution loads. These "least impacted or better" waterbodies then describe the condition that would be generally attainable if polluting activities were reduced, well buffered, or otherwise mitigated in the general population of lakes and wetlands. Thus, reference condition provides a valuable and attainable water quality goal for a given class of waterbodies.

Based on the water quality and trophic state data collected since the 1970s for lakes in Kansas, the following general conclusions regarding reference trophic state conditions have been reached. Lakes in Kansas with minimal pollution loads can be expected to achieve mesotrophic-to-slightly eutrophic conditions (chlorophyll-a of under 10 to 12 ug/L), with low total nutrient concentrations (total phosphorus below 30 to 35 ug/L) and relatively high water clarity (Secchi depth deeper than 1.25 to 1.50 meters) (Dodds, et al., 2006; Carney, 2009). For this 305(b) cycle, about 30.3% of assessed lakes (comprising 25.2% of assessed surface area) achieve "least impacted or better" status for nutrient levels and trophic state condition

Table 22 lists the numbers and acreage of lakes impacted by nonpoint and/or point sources of pollution, plus those with no identified impairments. Although nonpoint source impairments impact more of the smaller lakes, most of the largest lakes in Kansas have both point and nonpoint sources present within their watersheds.

Table 22. Lakes with identifiable point and nonpoint source pollution contributions

Pollution Type	Number of Lakes	Acres of Lakes
Point Sources +	24	147,724
Nonpoint Sources +	253	175,419
No Identifiable Pollution Sources	64	6,432

Numbers include any level of point source contribution, and any magnitude and combination of nonpoint source pollution impacts. Due to the fact that lakes may have both source types within their watersheds, numbers will not sum to match the total number or acres assessed.

Invasive zebra mussels (*Dreissena polymorpha*) have continued to expand into additional lakes

in Kansas over the last two years. Twenty-two lakes (as of October 15, 2013) now have documented populations (adults or veligers documented), totaling 115,022 acres or 60.1% of reported lake acreage. This is roughly double the infested lake area reported in the 2010 305(b) report, and 3.5 times that reported in the 2008 305(b) report, which was the first 305(b) to document zebra mussels in the state.

TROPHIC STATUS

Trophic state classification for Kansas lakes and wetlands is based primarily on the period of record for observed chlorophyll-a (corrected for phaeophytin-a). The rationale is based on the idea that planktonic algal biomass, as estimated by chlorophyll-a, comprises the vast majority of the base of the typical lacustrine food web in Kansas. Although macrophyte communities do contribute to the overall biological production in our lacustrine food webs, it is very rare that they provide a large portion of that food web base in and of themselves. A more typical situation would be a large macrophyte community providing structure so an increased epiphytic and benthic base for a food web could arise. Because of this, and the fact that absence of macrophyte beds is a far more common concern for the water quality and health of Kansas lakes, adjustment of trophic state classification due to macrophyte beds is rare.

The observed level of chlorophyll-a provides a very good estimate of overall lake productivity and production. In addition, higher levels of planktonic algal biomass correlate well with lower levels of aesthetic appeal and recreational opportunity, increased costs for producing drinking water, and increased problems for using lake water for livestock and irrigation (Willms, et al., 2002; Lardner, et al., 2005; Dodds, et al., 2009). Because of these factors, the trophic state estimate also becomes valuable for assessing levels of overall support for lakes and wetlands in Kansas.

While higher levels of sedimentation are often concurrent with the eutrophication process in the Midwest, KDHE monitoring does not allow more than a rough indication of sedimentation impacts per se. For the majority of settings, sedimentation is inferred from shoreline and inflow area observations, as well as watershed land use configuration, and the general turbidity of a system. Where high turbidity seems a chronic problem, trophic state may alternately be assigned using total nutrient concentrations and turbidity levels.

Chlorophyll-a values are converted to a trophic state class assignment based on the mean period of record value for a given lake or wetland. The following scale is used in assigning a lake to a given class. The TSI score is that of Carlson (1977), based on chlorophyll-a **(Table 23).**

The four primary classes are Oligomesotrophic, Mesotrophic, Eutrophic, and Hypereutrophic. The Eutrophic class is divided into three sub-classes, in order to better describe expected levels of use impairment. Likewise, the hypereutrophic class is divided into two sub-classes for the same reason. In the case of the Hypereutrophic sub-classes, the dominance, or lack thereof, for blue-green algae (cyanophytes) also factors into use support assignments.

In addition, two supplemental trophic state classes are used for lake and wetland assignments" Argillotrophic and Dystrophic. An Argillotrophic waterbody is chronically light limited and

nutrient rich, resulting in artificially low algal biomass and chlorophyll-a. A Dystrophic waterbody is highly colored by humic/organic dissolved matter, resulting in potentially lower than expected chlorophyll-a. Dystrophic lakes in Kansas are very rare. **Table 23** presents lake trophic state designations for this reporting cycle.

Table 23. Trophic status of lakes during this reporting cycle

Trophic status	TSI	Number of Lakes (number and percent total)		Lake Surface Area (acres and percent total)	
Argillotrophic		10	3.13	34,053	17.79
Oligomesotrophic	< 40	14	4.38	407	0.21
Mesotrophic	40 – 40.99	38	11.88	12,503	6.53
Slightly Eutrophic	50 – 54.99	45	14.06	35,362	18.47
Fully Eutrophic	55 – 59.99	70	21.88	78,114	40.80
Very Eutrophic	60 – 63.99	43	13.44	26,644	13.92
Lower Hypereutrophic	63.99 – 69.99	94	29.38	3,859	2.02
Upper Hypereutrophic	>69.99	0	0	0	0
Dystrophic		6	1.88	509	0.27
Unknown		320	~100.0	191,451	~100.0
Totals		10	3.13	34,053	17.79

Trophic State Index (TSI) is based on chlorophyll levels and derived from Carlson (1977)

The greatest portion of individual lakes fell into the slightly-to-fully eutrophic and the hypereutrophic classes, while the greatest amount of surface acres were within the slightly-to-fully eutrophic and the argillotrophic classes. This difference primarily results from the skewed size range for Kansas lakes. The vast majority of lakes are smaller (and often shallower) systems, which may be more impacted by pollution sources (on a watershed acre-to-lake acre basis) than larger systems might be. Also, several of the larger Federal lakes in Kansas are located on rivers that tend to move a great deal of eroded sediment. Therefore, several of the largest lakes in Kansas are chronically turbid and assigned to the argillotrophic class.

While roughly 2% of lakes reported for this cycle lack data for assigning a trophic state class, they comprise <1% of the total reported acres. The majority of these lakes are frequently dry systems, making long-term trophic classification problematic. As of 2013, all lakes and wetlands listed in the Kansas Surface Water Register have had use attainability analyses (UAAs) completed for all possible designated uses.

TRENDS IN LAKE WATER QUALITY

Time trends in lake water quality in Kansas are difficult to determine for individual lakes, due to the programmatic emphasis on regional and statewide assessment rather than in-depth studies at specific waterbodies. Trophic state remains the best means to examine trends in overall lake water quality, much as trophic state was earlier identified as a good overall water quality indicator for our lakes. Trends indicated in **Table 24** are very general in nature. If a lake had three or more trophic state assessments over the years, a trend was assigned by the following protocol:

If there was a strong upward direction in trophic state over time, the lake was assigned to the "degrading" category. If there was a strong downward direction in trophic state over time, the lake was assigned to the "improving" category. Lakes were assigned to the "stable" category for

two different sets of conditions. First, if trophic state assessments did not change much with time or, second, if they varied to the extent that any obvious trend was masked. Otherwise, lakes were assigned to the "unknown" category if they had no data available, or if they had fewer than three trophic state assessments over the period of record.

The largest portion of lakes in Kansas, for both numbers and surface acres, fell into the stable trend category. A significant number of lakes still fell into the unknown category, but they only comprise about 2.5% of total surface acreage.

Table 24. Trophic state trends in lakes

Category	Number of Lakes		Surface Area of Lakes	
	Count	% Total	Acres	% Total
Assessed for Trends	320	~100.0	191,451	~100.0
Improving	19	5.94	7,649	4.00
Stable	153	47.81	120,181	62.77
Degrading	49	15.31	58,970	30.80
Trend Unknown	99	30.94	4,651	2.43

CONTROL METHODS

Control methods for preventing or reversing pollution problems in Kansas lakes, as provided by KDHE, are primarily limited to the provision of technical advice and limited technical support, Section 319 grants aimed at citizen education and watershed best management practice (BMP) implementation, or guidelines for constructing or managing water supply lakes.

KDHE Bureau of Environmental Field Services (BEFS) and, now, Bureau of Water (BOW) have operated a technical assistance program for taste and odor problems in water supply lakes since 1989. About 200 specific investigations have been undertaken as of 2013, dealing with water supply taste and odor problems, algae bloom concerns, fish kills, and other nuisance and public health concerns. Most such investigations are aimed at providing taxonomic assistance to water suppliers and lake managers. As of 2010, KDHE adopted a policy formalizing the response to algae bloom complaints and investigations as regards public health. Since 2010, sixty-six lakes have been investigated for algae bloom related complaints.

In-depth lake sampling and restoration projects at specific lakes in the past were dependent on the Section 314 Clean Lakes Program grants. With those roles now being transferred to Section 319 Nonpoint Source programs, in-depth lake assessment projects and restoration projects have been reduced in scope if not number. In the past, matching effort from the many smaller communities in Kansas was a constant challenge for Clean Lakes Program projects. This problem is, if anything, more pronounced today.

The KDHE Bureau of Water (BOW) does maintain a statewide monitoring program for lakes and wetlands for the purposes of making statewide and regional assessments of overall lake water quality in Kansas. This network operates in order to comply with Federal requirements and expectations under the Clean Water Act as well as serve state and local needs for information and technical assistance. This network has been in place since 1975, with wetlands first added in 1988. The network strives to provide a near-census for publicly owned/managed lake surface acreage in the state. The water quality data collected to date has been used to

develop numerous water quality models that serve as valuable lake management tools, develop numerous TMDLs, and provide a basis for determining statewide water quality conditions and trends.

The Kansas Department of Wildlife, Parks and Tourism (KDWPT) provides assistance and technical advice to lake managers and citizens, with the emphasis on fisheries management rather than overall lake water quality. Some practices, such as the use of grass carp (*Ctenopharyngodon idella*) for plant control, or aeration/destratification, often run counter to maintaining the overall water quality within lakes.

RESTORATION AND REHABILITATION EFFORTS

Several restoration techniques have been applied in Kansas, but most instances are not documented in a fashion that makes such information readily available. Therefore, only restoration actions specific to projects directly involving KDHE, or higher profile projects primarily involved with other agencies, are discussed within this report.

Some of the most common activities, perhaps dubiously referred to as rehabilitation techniques by many, involve the use of copper sulfate for algae control and grass carp for macrophyte control. Although such activities are sometimes warranted, KDHE has tended to discourage the use of either practice as a prophylactic treatment. Copper sulfate should only be used for algae control if monitoring does show a strong need, and amounts should be applied with the full knowledge that copper will accumulate in the sediments. Grass carp, due to their impact on trophic state and water quality, should not be used for macrophyte control unless aquatic plants produce lake-wide problems to lake users and no other option is feasible.

Fortunately, there are now available at least two aquatic herbicides registered for use in Kansas with selective control capabilities for Eurasian watermilfoil (*Myriophyllum spicatum*) and other dicotyledonous aquatic species. As Eurasian watermilfoil continues to expand into lakes throughout Kansas, the use of these new herbicides (fluridone and triclopyr) may supplant grass carp as the preferred plant control technique. As of 2013, roughly 15-20% of monitoring network lakes have Eurasian watermilfoil present at varying levels of abundance. As stated elsewhere, the lack of macrophyte beds is a far more common problem for maintaining healthy lakes in Kansas, rather than lakes with excessive macrophyte growth. Therefore, any technique that might allow native macrophyte species to be maintained or encouraged, while dealing with more invasive species, is welcome.

KDWPT is involved in lake restoration and rehabilitation for the primary purpose of fisheries management for recreation. Techniques, such as the recycling of brush and Christmas trees for fish habitat, are also common. Water level fluctuations are utilized for management of fish spawning habitat as well as waterfowl management. KDWPT annually submits water level adjustment plans for many of the federal lakes in Kansas to the Kansas Water Office (KWO), which are reviewed and commented on at public meetings prior to submission to the USACE.

Aeration has become a common technique applied to smaller Kansas lakes in the attempt to control eutrophication. Unfortunately, almost all these efforts are undertaken without adequate

study to determine whether aeration or destratification will positively impact lake water quality. Likewise, follow-up monitoring is typically limited to anecdotally observing a neutral-to-negative impact, followed by abandonment of the technique, or similarly observing a neutral-to-positive impact and continuing the technique into the future, whether or not it has had any measurable impact that could be definitively attributed to the technique. KDHE has strongly recommended to lake managers that aerators only be purchased and applied once a lake study has definitively shown aeration might improve water quality, versus other techniques.

The application of what are commonly referred to as "best management practices" (BMPs) continues to be the most common and useful means of lake restoration and rehabilitation in Kansas. BMPs can cover a wide range of practices, for both agricultural and urban lands. Some of the more common techniques include vegetated buffer strips along streams and shorelines, diversions of runoff, pre-treatment impoundments, improved cropping/fertilization practices, sediment retention ponds, and treatment wetlands. Most BMP installation is via the Natural Resource Conservation Service (NRCS) and local Conservation Districts, in cooperation with KDHE and/or KWO.

Wastewater National Pollutant Discharge Elimination System (NPDES) and confined animal feeding operation (CAFO) permits are sometimes used as a means to promote lake water quality restoration for Kansas lakes. Downstream impacts from such permitted facilities can be taken into account in the permitting process, and during public participation activities for such permits, regarding their limits on specific water quality parameters in effluents.

Dredging has also been an infrequent, and expensive, means to attempt to restore smaller lakes in Kansas. Dredging projects, due to the expense, have been few in number over the years. Such efforts have been even more infrequent since the Section 314 Clean Lakes Program ceased funding Phase 2 project grants through the Section 314 program specifically. Since these grants ceased to be funded in the 1990s, KDHE personnel have had direct knowledge of only two recent dredging projects in the state (Plainville Lake, in Rooks County, and Mission Lake, in Brown County) with another two in the planning and design stages at Osage City Reservoir and John Redmond Reservoir.

During the period when Clean Lakes Program funds were available for in-depth diagnostic studies at specific lakes, or for restoration projects, a total of nine lakes had watershed restoration techniques recommended and implemented as part of Phase 1 grants. These lakes total 1,367 acres and are listed below.

Ford County Lake (Ford County)
Sabetha City Lake (Nemaha County)
Lake Afton (Sedgwick County)
Olathe Lake (Johnson County)
Chanute Santa Fe Lake (Neosho County)
Nemaha County State Fishing Lake (Nemaha County)
Herington Reservoir (Dickinson County)
Rimrock Lake (Riley County)
Mary's Lake (Douglas County)

A total of two lakes were dredged as part of Phase 2 grants under the Clean Lakes Program. These included Ford County Lake (Ford County) and Lone Star Lake (Douglas County). They comprise 243 acres.

Since the transfer of lake protection and restoration grants to the Section 319 Nonpoint Source Pollution Program, watershed land treatment has become emphasized over in-lake restoration at the state funding level. Any discussion of specific Section 319 projects will be listed in that section of this report.

ACID EFFECTS ON LAKES

A total of 191,349 acres of lakes in Kansas were either monitored or evaluated for pH, accounting for 99.95% of the total reported acres for this report cycle. Water quality impacts in Kansas resulting from pH levels, as seen in the data presented in **Table 20,** are almost totally due to higher pH values attained when lakes are over-enriched with nutrients and suffer from eutrophication and a high trophic state. For this report cycle, only two lakes had a pH below 6.5 units.

Even for the Mined Land Lakes Recreation Area units, where past coal mining makes them "likely" sites for low pH problems, such problems are few and far between. Enough time has passed since these areas were actively mined, and many have also been sporadically treated with lime additions, so that low pH problems are almost non-existent. Anecdotal evidence, from conversations with some citizens in southeast Kansas, suggests maybe a number of privately owned strip pit lakes still have chronically low pH, but KDHE has no specific data to confirm this. As most of the private strip pit lakes are as old as the public units, it is anticipated that the majority of them also show moderation of their pH ranges as they have aged.

The lack of an extensive Kansas problem with acidification stems from our regional geology. Kansas is underlain with abundant limestone bedrock, and soils derived from that limestone. Therefore, our state has a built in defense against atmospheric deposition of acid materials, or most other sources of acidic conditions. Other than the always possible, yet localized, chance of a spill of acidic material, the only significant sources for such water quality problems lie in past coal mined areas, or shale quarries, in Kansas. As shown by the pH data KDHE has collected throughout this region of southeast Kansas, such problems are mild and infrequent today.

Wetlands Assessment

EXTENT OF WETLAND RESOURCES

The wetland area reported for this 305(b) cycle is 55,969 acres. This includes all state and federal public wetland areas in Kansas, plus several that are owned or managed at the local level. This total does not include privately owned wetland areas, which likely comprise a larger total surface area in the state.

At present, Kansas does not have the data for a precise estimate of wetland loss from historic

levels or for the current wetland area extant in the state. Several studies have been conducted in the past, but many have assumptions, based on their primary study purpose, that render them less useful for providing numbers related to total wetlands in Kansas. One of the better studies was that of Dahl (1990), which suggested that by the 1980s the conterminous United States had lost roughly 53% of its wetlands while Kansas had lost 48%. This suggests that our wetland loss is similar to the general estimates for the United States at about 2% per year.

The Dahl (1990) study suggested that historical wetland area in Kansas was around 841,000 acres total. A study by the United States Fish and Wildlife Service (USFWS) (WRAP, 1992) also suggested that total wetland area in Kansas, as of the 1980s, totaled around 435,400 acres, which is fairly consistent with estimated losses from historic levels from the Dahl study. Applying the 2% per year general loss rate to the USFWS value, perhaps 215,000 to 265,000 acres of wetlands still exist in Kansas. If accurate, the majority of extant wetlands in Kansas are on private lands.

While no estimates are available that differentiate the wetlands in Kansas among various wetland types, field observations suggest the majority of Kansas wetlands are palustrine freshwater marshes, palustrine saltwater (oligohaline) marshes, riparian wetlands, playas, and wet meadows.

INTEGRITY OF WETLAND RESOURCES

Out of the 55,969 wetland acres (36 wetlands) assessed during this reporting cycle, 45,066 acres (8 wetlands) are considered to be monitored sites. This represents 81% of the reported acreage. An additional 10,903 acres are reported as evaluated (28 wetlands, 78% of the total 36).

Wetlands in Kansas have all had“use attainability analyses (UAAs) completed for the range of designated uses, but the primary functions of wetlands in Kansas are as aquatic life support and recreational sites. Therefore, only those specific individual uses are actually reported in **Table 25.** A total of 9,082 acres were assigned to the unknown category due to insufficient data. In most cases, “insufficient water quality data” resulted from the intermittent nature of standing water in wetlands (regarding both availability and depth) from which representative water samples might be collected.

Table 25. Individual use summary for wetlands (in acres)

Goals	Use	Size Assessed	Fully Supporting	Full Support But Threatened	Partially Supporting	Non Supporting	Insufficient Data
Protect and Enhance Ecosystems	Aquatic Life (acute criteria)	55,969	103	0	6,035	40,749	9,082
Protect and Enhance Public Health +	Fish Consumption ++	55,969	46,887	0	0	0	9,082
	Secondary Contact	55,969	104	0	6,034	40,749	9,082

+ = Shellfishing use category not applicable and thus not reported
++ = Based on food procurement criteria for water

The primary causes of wetland use impairment for this 305(b) cycle are over-enrichment and extreme trophic state conditions, high turbidity, and hydrologic modifications and drought. **Table 26** presents data on the causes of use impairment in wetlands.

The major sources of wetland use impairment are agricultural runoff, hydrologic modifications and drought, and natural processes. **Table 27** presents data on the sources of use impairment in Kansas wetlands. Natural sources refer primarily to climate and weather driven impacts (such as water depletion), naturally high salinity in some locales, or fluoride impacts. Natural sources account for virtually none of the nutrient/eutrophication or heavy metal related impacts in Kansas wetlands.

Table 26. Total wetland acres impacted by various cause categories

Cause Category (and code)	Acres by contribution to impairment	
	Major	Moderate/Minor
Cause Unknown (247)	0	0
Pesticides (148) [atrazine]	0	3,295
Heavy Metals (145) [arsenic]	0	1,265
Fluoride (555)	0	0
Nutrients and Eutrophication (483 and 746)	37,504	9,282
High pH (620)	0	0
Low pH (678)	0	0
Siltation and Turbidity (995)	5,627	28,414
Chloride (272)	220	0
Sulfate (1016)	220	1,265
Flow Alterations (546)	1	13,933

During this reporting cycle, 41,845 acres of wetlands were assessed as hypereutrophic (74.8% of the total). In many cases, the degree of hypertrophy was extreme. Certainly, the level of nutrient enrichment was far above the expectations for wetland water quality in relatively low-impact drainages (*i.e.*, "least-impacted" or better) (KDHE, 2002). These numbers indicate that the vast

majority of the remaining Kansas wetlands under public control and management suffer an inordinately high degree of impact from nutrient enrichment and eutrophication.

Table 27. Total wetland acres impacted by various source categories

Source Category	Contribution to impairment	
	Major	Moderate/Minor
Municipal Point Sources (3)	4,572	13,934
Agriculture (18)	1,555	44,141
Urban (64)	70	20
Resource Extraction (252)	0	220
Hydromodification (1)	0	36,009
Natural Sources + (12 and 142)	0	1,001
Resuspension (205)	0	1,055
Unknown (496)	0	0

+ Refers mainly to climate and drought impacts plus background levels of salinity and fluoride.

This current situation has led to the erroneous general impression that wetlands in Kansas are, as a matter of course, possessed of poorer water quality and extreme trophic state conditions. While wetlands would be expected, on average, to have higher nutrients and trophic status than comparable lakes, least impacted condition for wetlands is only marginally higher than least impacted condition for lakes. **Table 28** and **Table 29** present data on wetland trophic status and gross trophic state trends for this 305(b) cycle, respectively.

Table 28. Trophic status in wetlands

Trophic status	Number of wetlands		Acreage of wetlands	
	Count	Percent of total	Acres	Percent of total
Argillotrophic	0	0.00	0	0.00
Oligomesotrophic	2	5.56	40	0.07
Mesotrophic	1	2.78	1	<0.01
Slightly Eutrophic	0	0.00	0	0.00
Eutrophic	4	11.11	4,635	8.28
Very Eutrophic	3	8.33	366	0.65
Hypereutrophic	12	33.33	41,845	74.76
Dystrophic	0	0.00	0	0.00
Unknown	14	38.89	9,082	16.23
Totals	36	~100.0	55,969	~100.0

Table 29. Trophic state trends in wetlands

Category	Number of wetlands		Acreage of wetlands	
	Count	Percent of total	Count	Percent of total
Improving	1	2.78	1,055	1.88
Stable	15	41.67	44,151	78.88
Degrading	3	8.33	1,311	2.34
Trend Unknown	17	47.22	9,452	16.89
Assessed for Trends	36	~100.0	55,969	~100.0

DEVELOPMENT OF WETLAND WATER QUALITY STANDARDS

Wetlands are currently classified as “waters of the state” within the Kansas surface water quality standards (KDHE, 2005). UAA analyses have been completed for all designated uses, and the results of these UAAs are incorporated into the Kansas surface water register. Wetlands receive equal treatment and protection with lakes, regarding application of state water quality standards

for narrative and numeric criteria, antidegradation provisions, and implementation procedures. The US Environmental Protection Agency (USEPA) has proposed wetland specific biocriteria, but the development of such biocriteria is not considered feasible at this point in time.

ADDITIONAL WETLAND PROTECTION ACTIVITIES

Wetland protection tends to be distributed among agencies in Kansas, with no agency having a primary function for all aspects of wetland management. Kansas Department of Health & Environment (KDHE), Kansas Department of Wildlife, Parks and Tourism (KDWPT), the Kansas Department of Agriculture (KDA), and Kansas Water Office (KWO), as well as the federal Army Corps of Engineers (USACE) all have involvement in wetland protection and regulation. Kansas statutes (K.S.A. 82a-325 *et seq.*) require a total of eight state agencies, including KDHE, to review proposed water development projects for "beneficial and adverse environmental effects."

Persons desiring to alter regulatory wetlands in Kansas must file for Section 404 "dredge and fill" permits with the USACE. Simultaneously, such permit requests come to KDHE for a Section 401 water quality certification. The department makes a determination of the projected impact on water quality resulting from the proposed action and may approve the action, approve it with modifications, or deny the action based on these projected water quality impacts.

One recent activity within KDHE has been the description of what are generally referred to as "reference" conditions for lakes and wetlands in Kansas. In essence, reference water quality conditions for lakes and wetlands occur in watersheds with none-to-limited levels of human activity and anthropogenic pollution loads. These "least impacted or better" waterbodies then describe the condition that would be generally attainable if polluting activities were reduced, well buffered, or otherwise mitigated in the general population of lakes and wetlands. Thus, reference condition provides a valuable and attainable water quality goal for a given class of waterbodies.

Based on the water quality and trophic state data collected since the 1970s for lakes and wetlands in Kansas, the following general conclusions regarding reference conditions have been reached. Lakes in Kansas with minimal pollution loads can be expected to achieve mesotrophic-to-slightly eutrophic conditions, with low total nutrient concentrations and relatively high water clarity (Dodds, et al., 2006; Carney, 2009). Wetlands with similar minimal pollutant loads could be expected to achieve a trophic state in the low-to-mid range of eutrophic (chlorophyll-a at or under 12-to-18 ug/L), with moderate total nutrient levels (total phosphorus at or under 50-to-80 ug/L) (KDHE, 2002). For this 305(b) cycle, about 19.5% of assessed wetlands achieve "least impacted or better" status for nutrient levels and trophic state condition (8.35% of assessed surface area). As stated earlier in this report section roughly 75% of wetland acres exceed this least impacted or better threshold by a sizeable margin, suggesting public wetlands in Kansas are at high risk from nutrient pollution and eutrophication.

II. 303(D) ASSESSMENT RESULTS

The Kansas 2014 303(d) list identifies 482 station/pollutant combinations of water quality

impairment on lakes, wetlands and stream systems (watersheds), encompassing 2366 stream segments, and needing the development of TMDLs to address the offending pollutants.

The 2014 list identifies 464 station/pollutant combinations of waters that were previously listed as impaired but are now meeting water quality standards, with 68 of these being new in 2014.

The complete list is included in the printed version of the integrated report submitted to USEPA (**Appendix B**). This list also can be accessed by the public via the internet at http://www.kdheks.gov/tmdl/methodology.htm.

Public Health Issues

I. DRINKING WATER USE

Use of surface waters in Kansas for drinking water supply (both public and domestic) is first determined through Use Attainability Analyses (UAAs). The domestic water supply use can be either existing or attainable; therefore, the UAA process examines the likely hydrology and ambient water quality to determine attainability. Existing drinking water supply use can be verified by inspection of water rights from the Division of Water Resources of the Kansas Department of Agriculture. Attainable use is assigned to perennial streams that exhibit parameter concentrations (chloride, sulfate, fluoride, total dissolved solids) that are less than twice applicable criteria or guidance. As a result of this screening, most streams in the central and eastern portions of Kansas could potentially support drinking water uses. Similarly, lakes are assessed and, more often than not, found to support attainable drinking water supply uses.

Currently, 22,235 stream miles (72% of the Kansas Surface Water Register) and 189,671 acres of lakes bear the designated use for Domestic Water Supply. Of the lake acreage, 131,917 acres are currently serving as existing and emergency water supply, but no such calculation can be made easily for stream mileage. However, assessment of the support for this use is complicated by the provisions of the Kansas Surface Water Quality Standards. Application of water quality criteria protective of drinking water is to occur at "the point of domestic water supply diversion." Therefore, true assessment is focused on support of existing uses. Furthermore, the domestic water supply use is defined as the production of potable water, after appropriate treatment. The ambient quality of the surface water should not confound the routine treatment of the raw water supply into potable water for human consumption. However, assessment of support of the drinking water use under 303(d) is chiefly directed at the potential, attainable use of that water at some unspecified future time.

Assessing support of the water quality criteria underlying the drinking water use involves evaluating monitoring data for too frequent excursions from applicable numeric criteria, such as nitrate, sulfate, chloride, arsenic or fluoride. In cases of elevated nitrate, the root cause has typically been wastewater with insufficient denitrification. Such situations call for the water to be classed Category 5 with a TMDL scheduled for development.

Impairments due to chloride, sulfate, arsenic and fluoride are often contributed by natural, geologic sources, sometimes exacerbated by water use and reuse, concentrating salts through

water loss induced by evapotranspiration. To the degree possible, background concentrations are established as part of the water quality standards that reflect natural contributions that exceed the existing criteria for those pollutants, are not influenced by flow alterations or diversions and leave the surface water usable under the definition of domestic water supply use.

Impairment from excessive nutrients is assessed relative to trophic conditions in lakes that present problems to aquatic life, recreation and drinking water. Endpoints used by eutrophication TMDLs are set at level that should assure full attainment of all three of these designated uses. Similarly, screening for excess phosphorus in streams result in adaptive TMDLs that continue to reduce loadings of phosphorus from point and non-point sources until such time that blue-green algae counts and complaints of taste and odor in drinking water are minimized.

II. Beach Use (Blue-Green Algae and Algal Toxins)

Eutrophication, the enrichment of waterbodies with excess nutrients and the nuisance algal growth that results, causes many impacts to water quality and to the beneficial uses we expect our lakes and streams to provide us. Impacts can range from disrupting ecological system integrity, to reducing revenues from recreational use, to increasing costs and risks related to providing drinking water (Dodds, et al., 2009). Perhaps the most noticeable impact to the general public is the generation of large population explosions of phytoplankton that are generally called "blooms." These algae blooms are the net result of over-enrichment of lakes with plant nutrients (primarily phosphorus, but also nitrogen). Blooms can occur suddenly, and at all times of the year, and can be composed of numerous species from various taxonomic groups. However, the most common blooms, and certainly of the most concern to public health, are blooms composed of blue-green algae (cyanophytes).

Blue-green algae are actually large, free-living, photosynthetic bacteria. They are a natural part of the ecology, usually occurring in fairly small numbers, only becoming a problem when they grow to extreme populations. They are lumped under the functional term "algae" with other organisms because they share many of the same habitat requirements as these other types of algae (green algae, diatoms, euglenoids, dinoflagellates, *etc.*). A blue-green algae bloom can be extremely large, numbering in the millions of cells per milliliter of water. Such blooms create conditions that are visually objectionable to the public, produce foul odors, obstruct boats and other forms of recreation, cause taste and odor problems in finished drinking water, and cause fishkills. Most blue-green algae blooms will occur in nutrient enriched lakes during the summer, when water temperatures are highest, but a few species prefer cooler temperatures. Although they produce sufficient aesthetic problems to impair many recreational and economic activities, their ability to produce toxic compounds makes them a threat to public health as well.

Blue-green algae are capable of producing a number of different biochemical compounds that are toxic to warm blooded organisms (for the most part). These compounds fall into three general categories: hepatotoxins (which primarily affect the liver and other internal organs), neurotoxins (which primarily impact the nervous system), and dermatotoxins (which affect the skin, mucus membranes, eyes, ears, and throat). Over 200 different algal toxins have been identified in freshwaters (where blue-green algae are the most common toxic species) and in marine

environments (where dinoflagellates tend to be the most common type of toxic algae). In the Midwest, microcystins (a type of hepatotoxin) are the most commonly documented algal toxin type (Graham, et al., 2010), although other toxins (such as the neurotoxic anatoxin-a and saxitoxin) do occur at a lesser frequency. There are almost 100 identified variants of the microcystin toxin known. Some of these algal toxins rival, or exceed, the potency of cobra venom.

Over two dozen genera of blue-green algae may be found in the waters of Kansas, but the majority of blooms and complaints are attributable to five genera. All are colonial forms, forming filaments or large globs of cells that look like green cottage cheese floating in the water. These include *Microcystis* spp. (species can produce the hepatotoxin microcystin), *Anabaena* spp. (species can produce both hepatotoxins and neurotoxins), *Aphanizomenon spp.* (species can produce neurotoxins), *Planktothrix* spp. (species can produce both neurotoxins and the hepatotoxin microcystin), and *Cylindrospermopsis raciborskii* (can produce the hepatotoxin cylindrospermopsin). Essentially all species of blue-green algae produce dermatotoxins that are associated with their cell walls. Most blue-green algae have optimal growth at higher ambient temperatures (>27^{o} C), but some species, such as *Planktothrix rubescens* seem to grow quite well in the middle of winter, often forming reddish masses of algae under ice layers.

Around the world, pets, livestock, wildlife, and people have become ill or died after exposure to blue-green blooms and their toxins, including Kansas. Exposure to algal toxins is primarily through the ingestion of water containing blue-green algae, but exposure can also occur through breathing aerosols or through skin contact. Because of the increase in lakes and streams suffering from nutrient enrichment and eutrophication, problems related to blue-green algae and their blooms have also increased dramatically over the last few decades. Many U.S. states, and a number of foreign countries, have adopted formal programs and protocols for dealing with the public health threat posed by excessive blue-green algae in our waters. Kansas joined those other entities several years ago by adopting a formal response policy on August 13, 2010.

The program adopted by the Kansas Department of Health and Environment is a joint effort among several Bureaus within both Divisions (Health and Environment) of the agency. It is complaint driven, with citizens, lake managers, or other officials able to access and fill out a form online (www.kdheks.gov/algae-illness/index.htm). Once submitted, the complaint is vetted, and appropriate sampling of the waterbody is conducted. Sampling is directed towards the major points of public access onto the water (marinas, swimming beaches, main boat ramps or dock facilities, *etc.*), and continues until algal cell counts and toxin levels decline to safe thresholds. The program is limited to publicly owned or managed waterbodies. To date, 67 lakes have been sampled under this program. The primary purposes of the program are to inform the public of health risks associated with the current condition of the lake, to advise lake managers as to what course of action is most appropriate, and supply technical expertise to those lake managers. Two levels of threat are recognized under the program: “advisory” (20,000-100,000 blue-green cells/ml and/or microcystin concentrations of 4-20 µg/l, where the existing conditions could quickly become a threat to health and safety) and “warning” (>100,000 blue-green cells/ml and/or microcystin concentrations over 20 µg/l , where conditions are believed to represent a threat to health and safety) (Chorus, et al., 1999).

III. FISH CONSUMPTION

Public health concerns related to the consumption of locally caught fish are addressed in the ~~2012~~ 2014 fish advisories. These advisories are available on the KDHE website at http://www.kdheks.gov/news/web_archives/2014/01022014a.htm and also printed in the 2014 Fishing Atlas (KDWPT, 2014).

For many years, KDHE has designated waterbody-specific advisories and warnings. However, in 2013, for the first time, KDHE issued a statewide advisory due to the presence of mercury in fish tissue. Restrictions are based on consumer type (sensitive population *vs.* general public) as well as fish species. Harmful algae blooms are also mentioned in the advisory as they relate to fish consumption.

IV. OTHER CONSIDERATIONS

In addition to routine and proactive surface water monitoring, KDHE also provides immediate response to events that may affect or reflect surface and ground water quality. One of these is the Spills Program, administered by the Bureau of Environmental Remediation (and operated in conjunction with the Kansas Corporation Commission (KCC), for spills on oil leases). The Spills Program is authorized by Kansas law (KSA 65-171d and KAR 28-48) and is used to address events that can be quickly resolved with the goal of preventing long term harm to our soil or water resources. If a spill or release impacts ground water, it may be referred to a remedial program to address the problem, but sometimes the spiller is successful in isolating ground water impacts and can remediate it immediately through the spills program. **Table 30** presents a brief summary of events investigated and resolved by the KDHE spills program in 2012-2013. It does not include spills overseen or investigated by KCC.

Table 30. Summary of 2012-2013 spill events

	2012	2013
KDHE purview: surface water impacted	51	41
with fishkill events	*2*	*0*
KDHE purview: Ground water impacted	5	3
with referral to long-term remediation	*4*	*3*

This includes events that affected surface or ground water and were investigated or tracked by the KDHE Spills Response program. It does not include spill events related to oil leases, which are tracked by the KCC.

Another rapid-response program is the Fishkill Response program, administered through the Bureau of Environmental Field Services and coordinated with colleagues from the Kansas Department of Wildlife, Parks, and Tourism. In 2012-2013, KDHE responded to 27 fishkill events. These were investigated and resolved, and a brief summary is presented in **Table 31.** As noted in **Table 30**, two fishkills were associated with spill events.

Table 31. Summary of fishkill events investigated by KDHE 2012-2013

Waterbody Type	Cause	Year		Grand Total
		2012	2013	
Lake or Pond	Angling mortality, wanton waste	1		
	Natural kill, winter kill, summer kill, algal toxins, algal oxygen depletion		1	
	Oxygen demand, high BOD, organic loading or enrichment	1	2	
	Petroleum product discharges, spills		1	
	Unknown		1	
	TOTAL	**2**	**5**	**7**
Reservoir	Oxygen demand, high BOD, organic loading or enrichment		1	
	Temperature extremes		1	
	Unknown	1		
	TOTAL	**1**	**2**	**3**
Spillway				
	Low Flow	1		
	Natural kill, winter kill, summer kill, algal toxins, algal oxygen depletion		1	
	TOTAL	**1**	**1**	**2**
River, Stream, or Creek	Disease or parasites		1	
	Low Flow	3		
	Natural		1	
	Oxygen demand, high BOD, organic loading or enrichment	1	2	
	Other	1		
	Petroleum product discharges, spills	1		
	Toxics, chlorine, surfactants, organic compounds	3		
	Unknown		2	
	TOTAL	**9**	**6**	**15**
Grand Totals		**13**	**14**	**27**

PART D. GROUND WATER MONITORING AND ASSESSMENT

Overview

Kansas no longer maintains a statewide groundwater quality monitoring program, and funding for the renewal of such an enterprise appears unlikely in the near future. However, an earlier monitoring program (suspended in 2002 owing to budgetary constraints) routinely evaluated groundwater quality at more than 200 sites in Kansas. Individual wells in the monitoring network were sampled on a two-year rotational basis, with approximately half the wells being sampled in any given year. All wells in the network adhered to specific siting, depth, and construction criteria, and the network as a whole was deemed representative of the state's major aquifer systems. The program's surviving electronic database contains roughly 150,000 records spanning 120 different physical, chemical, and radiological parameters and 327 groundwater quality monitoring locations. Additional background information is presented in the program's QAPP and accompanying set of SOPs, last revised in December 2000 (KDHE, 2000).

The Kansas Geological Survey, with funding from the Kansas Water Office, maintains the state's Master Ground-Water Well Inventory, which links together its own databases with those from KDHE and Kansas Department of Agriculture's Division of Water Resources (http://www.kgs.ku.edu/HighPlains/data/)

Some groundwater quality information continues to be gathered by KDHE through the efforts of its major regulatory bureaus; see **Table 32** for an overview of state groundwater protection program. The Bureau of Environmental Remediation routinely samples groundwater from the vicinity of groundwater remedial sites, storage tank cleanup sites, and a few active surface mining operations. The Bureau of Waste Management obtains groundwater quality information from over 175 landfills (both closed and active) as well as hazardous waste sites across the state. BOW requires a number of major NPDES permit holders to periodically submit data on groundwater quality. Examples include large CAFOs, meat processing facilities, electrical power plants, and a few municipal WWTFs. Underground Hydrocarbon Storage well and brine storage pond permits also require submittal of data on groundwater quality.

Monitoring activities generally focus on surficial groundwater and/or a very limited set of analytical parameters; see

Table 33 for a summary of major sources of groundwater contamination in Kansas, and **Table 34** for a statewide cumulative summary of groundwater contamination. These assorted monitoring operations are not intended to provide representative information on the state's major aquifer systems or to serve as a coordinated and comprehensive ambient groundwater quality monitoring program. For Underground Injection and Hydrocarbon and brine wells, a site is considered "resolved" once all appropriate cleanup actions are underway, even if the process may require a number of years for complete cleanup. Groundwater monitoring at confined animal feeding operations is used to detect if the waste management system is protecting groundwater from nutrient releases rather than an implied discharge. Some swine facilities are required by Kansas Statutes to install groundwater monitoring based upon number of animal units confined and the depth to groundwater. The secretary may require installation and sampling of groundwater monitoring wells in the vicinity of any waste retention lagoon or pond when the Secretary determines necessary.

Groundwater monitoring related to Public Water Supply Systems is addressed separately in the next section, because of its direct impact on human health. Under the Safe Drinking Water Act, public water suppliers are required to submit data on the quality of their source water; in Kansas, a majority of which is groundwater. Additionally, Groundwater Management Districts and the Kansas Geological Survey monitor groundwater quality for management and research purposes.

Table 32. Summary of state groundwater protection programs

Programs or Activities	Check (X)	Implementation Status	Responsible Agency
Active SARA Title III program	X	fully established	KDHE*
Ambient groundwater monitoring		(suspended)	(KDHE)
Aquifer vulnerability assessment	X	on going	KDHE*
Aquifer mapping	X	fully established	KGS
Aquifer characterization	X	on going	KGS
Comprehensive data management	X	on going	KDHE
EPA-endorsed Core Comprehensive State Groundwater Protection Program	X	under review	KDHE
Groundwater discharge permits	X	fully established	KDHE
Groundwater Best Management Practices	X	fully established	KDHE
Interagency coordination for groundwater protection initiatives	X	on going	KWO
NPS controls	X	fully established	KDHE*
Pesticide State Management Plan	X	EPA approved plan implementation proceeding	KDA
Pollution Prevention Program	X	fully established	KDHE
RCRA Primacy	X	fully established	KDHE
Source Water Assessment Program (SWAP)	X	fully established	KDHE
State Water Plan Orphan Sites	X	fully established	KDHE
State RCRA with more stringent requirements than RCRA Primacy	X	fully established	KDHE
State septic system regulations	X	fully established	KDHE
Underground Storage Tank (UST) installation requirements	X	fully established	KDHE
UST Remediation Fund	X	fully established	KDHE
UST Permit Program	X	fully established	KDHE
Underground Hydrocarbon Storage Well Program	X	fully established	KDHE
Underground Injection Control Program	X	fully established	KCC & KDHE
Vulnerability assessment for drinking water/wellhead protection	X	EPA approved plan implementation proceeding	KDHE
Well abandonment regulations	X	fully established	KDHE & KCC
Wellhead Protection Program	X	approved plan implementation proceeding	KDHE
Well installation regulations	X	fully established	KDHE

KGS – Kansas Geological Survey KDA – Kansas Department of Agriculture
KCC = Kansas Corporation Commission KWO – Kansas Water Office

Table 33. Major sources of groundwater contamination for Kansas

Ten Highest Priority Contaminant Sources	Factors Considered in Selecting a Contaminant Source	Types of Contaminants
Agricultural Activities:		
Chemical and grain facilities/applications	A, C, D	2, 3, 4, 5
Animal feedlots	A, C, D, E	5, 7, 10
Storage and Treatment:		
Storage tanks (AST/LUST)	A, B,C, D	4
Surface impoundments	A, E	5, 8
Disposal Activities:		
Landfills/illegal dumping	A, C,E	3, 4, 7, 8
Other:		
Active/abandoned industrial facilities	A, B, C	2, 3, 4, 5, 7, 8, 9, 13
Oil and gas activities	A, B, C, D	4, 7, 8, 9
Pipelines and sewer lines	A, E	3, 4, 5
Salt water intrusion	B, C, D, E	7
Spills, trucking, rail	A, D	2, 3, 4, 5, 7, 8
	Factors Considered in Selecting a Contaminant Source: (A) Human health and/or environmental risk (toxicity) (B) Size of population at risk (C) Location of sources relative to drinking water sources (D) Number and/or size of contaminant sources (E) Hydrogeologic sensitivity	**Types of Contaminants:** (1) Inorganic pesticides (2) Organic pesticides (3) Halogenated solvents (4) Petroleum compounds (5) Nitrate (6) Fluoride (7) Salinity/brine (8) Metals (9) Radionuclides (10) Bacteria (11) Protozoa (12) Viruses (13) PCBs

Table 34. Groundwater contamination: statewide cumulative summary through December 31, 2013

Source Type	# of KS Sites	# of Sites with Confirmed Releases	# with Confirmed Groundwater Contamination	Primary Contaminants	# of Site Assessments	# of Sites with Source Removed	# of Sites with Corrective Action Plans	# of Sites with Active Remediation	# of Sites with Ongoing Monitoring	# of Sites with Cleanup Resolved
NPL	12	12	11	VOCs, metals	12	Unavail	4	7	7	0
CERCLIS (non-NPL)	95	95	17	VOCs, metals , PCBs	95	Unavail	2	2	2	62
DOD/FUDS	427	427	110	VOCs, metals, refined petroleum	427	Unavail.	1	9	11	85
LUST	10,703	5,130	4,338	gasoline and diesel fuels	10,703	Unavail	N/A	200	837	9334
State Sites (not including LUST sites or KCC jurisdiction sites)	2,179	2,179	1038	VOCs, metals, refined petroleum	2,179	Unavail	54	201	201	890
Concentrated Animal Feeding Operations	6,220	N/A	N/A	Nitrate and chlorides	6,220	Unavail	N/A	N/A	71	N/A
RCRA Corrective Action (incl. 6 military sites)	45	45	45	VOCs, metals, semi-volatiles	44	10	21	21	34	9
Solid Waste Landfills-Active	68	40	40	VOCs & metals	68	N/A	1	1	1	0
Solid Waste Landfills – Closed	109	77	77	VOCs & metals	109	N/A	4	4	4	0
Underground Injection Wells +	32	4	3	Brine	4	4	2	2	4	4
Underground Hydrocarbon Storage Wells	10	1	0	Brine	1	1	1	1	1	1
Underground Hydrocarbon Storage Brine-Storage Ponds (Multiple ponds per site)	9	9	9	Brine	9	9	9	9	9	9

+ Represents Class I and III injection wells, but does not include Class II brine injection wells.
N/A - not applicable; CERCLIS - Comprehensive Environmental Response, Compensation, and Liability Information System; Includes non-NPL Management Assistance (CERCLA Lead and Superfund sites); DOD/FUDS - Department of Defense/Formerly Used Defense Sites; LUST - Leaking Underground Storage Tanks; NPL - National Priority List; NPS - Nonpoint Source; RCRA - Resource Conservation and Recovery Act; VOC – volatile organic compounds

Groundwater Monitoring associated with Public Water Supply Systems

A Public Water Supply System (PWSS) entity may be composed of multiple facilities or components: groundwater wells, surface intakes, consecutive connections, treatment plants, storage tanks, and distribution systems. Normally, water flows from a raw source (or consecutive connection, if purchased from another entity) into a treatment plant, and then into the distribution system. Treated water can also be purchased through a consecutive connection from another public water supply system which would flow directly into the distribution system with no further treatment. Public water supply compliance monitoring is usually performed at the end of the treatment plant processes just prior to entry into the distribution system, or in the distribution system itself. Treated water samples do not necessarily reflect the unaltered state of the raw water that initially flows into the treatment plant.

Only a few compliance samples are collected at the raw water source, *i.e.*, groundwater wells and surface intakes. However, some raw water monitoring is performed under the aegis of Public Water Supply, and the results are reported here. Raw water sampling (whether from a groundwater or surface water source) is normally limited to just a few types of sampling:

1. (Compliance) Total organic carbon samples are collected from intakes to be used as part of the Disinfection By-Product rule determinations. The samples are matched up with a corresponding treatment plant sample so compliance can be determined.
2. (Compliance) Groundwater samples are collected as part of the Groundwater Rule, which requires source monitoring after a positive microbiological sample is collected in the distribution system. The goal is to determine whether a positive in the distribution system can be traced back to raw source water. In Kansas, since the inception of the GWR, few positive samples have been collected at a well after a distribution system positive sample.
3. (Non-Compliance) When an application is made for installation of a new public water supply well, plans are submitted, inspections are performed, and water quality test well kits are taken to provide baseline testing on a broad spectrum of inorganic, organic, radiological, and microbiological parameters. As a service to Public Water Supply Systems, KDHE offers special study sampling and test well kit monitoring to help identify the best sources of water. Test wells are drilled and water quality is determined before permits are issued. These samples are not used for compliance determinations, but are considered special study samples specifically for the permitting process.
4. (Non-Compliance) Special study samples are performed intermittently by systems for many different reasons. Normally these samples help systems identify or correct a problem for which they may or may not be aware. Often special studies are completed as part of an engineering firm's work when they are hired by the PWSS to make improvements or perform maintenance.

Drinking water facilities are tested on a three-year rotating cycle, so every facility in the state should be represented once in any consecutive three year window. **Table 35** presents results of 2011-2013 groundwater testing from both routine compliance monitoring samples and non-compliance special study sampling completed at water treatment plants and groundwater wells.

Table 35. Results of groundwater monitoring associated with Public Water Supply Systems, 2011-2013.

Monitoring Data Type	Parameter / Group	Sources	Total Samples	Samples with No Detects	Samples with Detects	Detects Nitrate ≤ 5 mg/L	Nitrate >5 and ≤ 10 mg/L	Samples Exceeding MCL	Compliance Violations
Untreated Water	VOC	78	5462	5383	79	--	--	6	--
	SOC	75	1202	1175	27	--	--	0	--
	EDB	75	192	192	0	--	--	0	--
	Arsenic	86	91	16	75	--	--	17	--
	Fluoride	70	84	4	80	--	--	0	--
	Mercury	64	69	69	0	--	--	0	--
	Nitrate	100	127	28	99	53	46	18	--
	Selenium	69	74	21	53	--	--	2	--
Finished Drinking Water	VOC	593	24122	23974	148	--	--	2	0
	SOC	596	3776	353	3423	--	--	13	0
	EDB	593	1036	1032	4	--	--	0	0
	Arsenic	596	1272	322	950	--	--	91	68
	Fluoride	597	2021	112	1909	--	--	8	3
	Mercury	596	1126	1121	5	--	--	0	0
	Nitrate	689	4984	387	4597	2843	1754	264	165
	Selenium	596	1155	208	947	--	--	24	14

This shows all detected parameters, whether they were measured for compliance or other purposes. Only the “Violations” column applies to actual compliance monitoring violations. Special studies or test well kit samples are never used to determine compliance or violations. Maximum Contaminant Level (MCL) for nitrate is 10 mg/L. VOC = volatile organic compounds; SOC = synthetic organic compounds; EDB = ethyl dibromide.

PART E. PUBLIC PARTICIPATION

As required by federal regulation and the Kansas continuing planning process, the 2014 303(d) list and associated methodology were subjected to public review. Formal public notice of the list was made via the Kansas Register on February 13, 2014. This notice included a link to the KDHE TMDL website, from which interested parties were able to review and download the entire 303(d) list and a detailed description of the listing methodology. KDHE held two public hearings regarding the list, one, in Topeka on March 12, 2014 at KDHE; the other on March 13, 2014 in Chanute at the KDHE District Office. Neither hearing was attended by the public, a typical situation for the Kansas 303(d) process, but agency staff was briefed on the development of the list by the TMDL program. The comment period was held open until March 21, 2014. No comments received by the public required modification of the list.

KDHE uses the Basin Advisory Committees (BACs) from each of the targeted river basins as a forum to discuss the list. The TMDL program briefed the Walnut BAC on March 4, 2014; the Neosho BAC on March 6, 2014 and the Kansas Lower Republican BAC on March 11, 2014. The priority selections of impaired waters slated to have TMDLs established over the next two years were presented at these BAC meetings.

Based on the proposed 2014 303(d) list, some 23 pollutant-watershed combinations addressing nutrient impairments in the Neosho, Walnut, and Kansas Lower Republican basins are slated for TMDL development over 2014-2015. These selections may be altered with changing priorities of the State environmental programs or contemporary issues (*e.g.* blue-green algae outbreak) at certain waters within the three basins in the upcoming cycle.

REFERENCES

Angelo, R.T., M.S. Cringan and S.G. Haslouer. 2003. Response of stream biological communities to agricultural disturbances in Kansas: An historical overview with comments on the potential for aquatic ecosystem restoration. 23 pp. in: Baker, D. (ed.): Proceedings of the Central Plains Bioassessment and Biocriteria Symposium, University of Kansas, Lawrence.

Arruda, J.A., M.S. Cringan, D. Gilliland, S.G. Haslouer, J.E. Fry, R. Broxterman and K.L. Brunson. 1987a. Correspondence between urban areas and the concentrations of chlordane in fish from the Kansas River. Bulletin of Environmental Contamination and Toxicology 39:563–570.

Arruda, J.A., M.S. Cringan, D. Gilliland, S.G. Haslouer, J.E. Fry, R. Broxterman and K.L. Brunson. 1987b. Results of follow-up chlordane fish tissue analysis from the Kansas River. Bureau of Water Protection, Kansas Department of Health and Environment, Topeka, Kansas. 26 pp.

Carlson, R.E. 1977. A Trophic State Index for Lakes. Limnology and Oceanography 22(2): 361-369.

Carney, E. 2009. Relative influence of lake age and watershed land use on trophic state and water quality of artificial lakes in Kansas. Lake and Reservoir Management 25(2): 199-207.

Chapman, S.S., J.M. Omernik, J.A. Freeouf, D.G. Huggins, J.R. McCauley, C.C. Freeman, G. Steinauer, R.T. Angelo and R.L. Schlepp. 2001. Ecoregions of Nebraska and Kansas (1:1,950,000-scale map with color poster, descriptive text, summary tables, and photographs). U.S. Geological Survey, Reston, Virginia.

Chorus, I and J. Bartram, Eds. 1999. Toxic Cyanobacteria in Water. E&FN Spon, London, England. 416 pages.

Dahl, T.E. 1990. Wetlands losses in the United States, 1780s to 1980s. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

Diaz-Ramos, S., D.L. Stevens and A.R. Olsen. 1996. EMAP statistical methods manual. USEPA/620/R-96/002. U.S. Environmental Protection Agency, Office of Research and Development, NHEERL-Western Ecology Division, Corvallis, Oregon. iv + 13 pp.

Dodds, W.K., E. Carney and R.T. Angelo. 2006. Determining ecoregional reference conditions for nutrients, Secchi depth, and chlorophyll-a in Kansas lakes and reservoirs. Lake and Reservoir Management 22:151–159.

Dodds, W.K., W.W. Bouska, J.L. Eitzmann, T.J. Pilger, K.L. Pitts, A.J. Riley, J.T. Schloesser, and D.J. Thornbrugh. 2009. Eutrophication of U.S. freshwaters: analysis of potential economic damages. Environmental Science and Technology 43(1): 12-19.

Graham, J.L., K.A. Loftin, M.T. Meyer, and A.C. Ziegler. 2010. Cyanotoxin mixtures and taste-and-odor compounds in cyanobacterial blooms from the midwestern United States. Environmental Science and Technology 44(19): 7361-7368.

Herlihy, A.T., J.L. Stoddard and C. Burch-Johnson. 1998. The relationship between stream chemistry and watershed land-cover data in the mid-Atlantic region, U.S. Water, Air and Soil Pollution 105:377–386.

Herlihy, A.T., D.P. Larsen, S.G. Paulsen, N.S. Urquhart and B.J. Rosenbaum. 2000. Designing a spatially balanced, randomized site selection process for regional stream surveys: The EMAP mid-Atlantic pilot study. Environmental Monitoring and Assessment 63:95–113.

Huggins, D. G. and M. Moffett. 1988. Proposed biotic and habitat indices for use in Kansas streams. Report No. 35 of the Kansas Biological Survey, University of Kansas, Lawrence, KS. 162 pp.

Kaufmann, P.R., A.T. Herlihy, M.E. Mitch, J.J. Messer and W.S. Overton. 1991. Chemical characteristics of streams in the eastern United States: I. Synoptic survey design, acid-base status and regional chemical patterns. Water Resources Research 27:611–627.

Kansas Department of Health and Environment (KDHE). 1988a. Regional ambient fish tissue monitoring program (RAFTMP) report summary, 1987. Bureau of Water Protection, Kansas Department of Health and Environment, Topeka, Kansas. 12 pp.

KDHE. 1988b. State/EPA agreement fish tissue (Kansas target lakes study) analysis report summary, 1987. Bureau of Water Protection, Kansas Department of Health and Environment, Topeka, Kansas. 17 pp.

KDHE. 2000. Kansas groundwater quality monitoring program quality assurance management plan. 74 pp. in: Division of Environment Quality Management Plan. Part III: Program Level Quality Assurance Management Plans. Kansas Department of Health and Environment, Topeka, Kansas.

KDHE. 2002. Kansas wetland survey: Water quality and functional potential of public wetland areas. Bureau of Environmental Field Services, Kansas Department of Health and Environment, Topeka, Kansas.

KDHE. 2005. Kansas Surface Water Quality Standards. Kansas Administrative Regulations 28-16-28b through 28-16-28f.

KDHE. 2007. Kansas stream chemistry monitoring program quality assurance management plan (Revision 2). 105 pp. in: Division of Environment Quality Management Plan. Part III: Program Level Quality Assurance Management Plans. Kansas Department of Health and Environment, Topeka, Kansas.

KDHE. 2010a. Kansas Surface Water Register. December 5, 2010 (most recent official/approved version). Bureau of Environmental Field Services, Kansas Department of Health and Environment, Topeka, Kansas.

KDHE. 2010b. Kansas water quality monitoring and assessment strategy, 2011-2015. Bureau of Environmental Field Services. 59 pp. http://www.kdheks.gov/befs/download/2011_Kansas_WQ_monitoring_and_assessment_strategy.pdf

KDHE. 2011. Sub-watershed water quality monitoring program quality assurance management plan. 109 pp. in: Division of Environment Quality Management Plan. Part III: Program Level Quality Assurance Management Plans. Kansas Department of Health and Environment, Topeka, Kansas.

KDHE. 2012a. Kansas lake and wetland monitoring program quality assurance management plan. Revision 4.. 94 pp. in: Division of Environment Quality Management Plan. Part III: Program Level Quality Assurance Management Plans. Kansas Department of Health and Environment, Topeka, Kansas.

KDHE 2012b. Kansas stream biological monitoring program quality assurance management plan (Revision 4).. 71 pp. in: Division of Environment Quality Management Plan. Part III: Program Level Quality Assurance Management Plans. Kansas Department of Health and Environment, Topeka, Kansas.

KDHE. 2012c. Kansas surface water use designation program quality assurance management plan (Revision 2). 173 pp. in: Division of Environment Quality Management Plan. Part III: Program Level Quality Assurance Management Plans. Kansas Department of Health and Environment, Topeka, Kansas.

KDHE. 2013a. Kansas fish tissue contaminant monitoring program (Revision 2).. 76 pp. in: Division of Environment Quality Management Plan. Part III: Program Level Quality Assurance Management Plans. Kansas Department of Health and Environment, Topeka, Kansas.

KDHE. 2013b. Kansas stream probabilistic monitoring program (Revision 3). 83 pp. in: Division of Environment Quality Management Plan. Part III: Program Level Quality Assurance Management Plans. Kansas Department of Health and Environment, Topeka, Kansas.

KDHE. 2013c. Kansas Surface Water Register. December 12, 2013 – draft proposed (not yet official). Bureau of Environmental Field Services, Kansas Department of Health and Environment, Topeka, Kansas.

KDHE. 2014. Kansas issues revised fish consumption advisories: News release dated January 2, 2014. Kansas Department of Health and Environment, Topeka, Kansas. (http://www.kdheks.gov/news/web_archives/2014/01022014a.htm)

Kansas Department of Wildlife, Parks, and Tourism (KDWPT). 2014. Kansas Fishing Atlas

2014: Public Fishing Access.. 84 pp.

Kansas Water Authority. 2012. 2012 Annual Report to the Governor and Legislature. Kansas Water Office, Topeka, KS. 28 pp. http://www.kwo.org/reports_publications/Reports/Rpt_2012_KWA_Rpt_Governor_Legislature.pdf

Lardner, H.A., B.D. Kirychuk, L. Braul, W.D. Willms, and J. Yarotski. 2005. The effect of water quality on cattle performance on pasture. Australian Journal of Agricultural Research 56: 97-104.

Larsen, D.P., K.W. Thornton, N.S. Urquhart and S.G. Paulsen. 1994. The role of sample surveys for monitoring the conditions of the nation's lakes. Environmental Monitoring and Assessment 2:101–134.

Messer, J.J., R.A. Linthurst and W.S. Overton. 1991. An USEPA program for monitoring ecological status and trends. Environmental Monitoring and Assessment 17:67– 78.

Olsen, A.R. 2006. Kansas statewide stream survey design. February 6, 2006. Unpublished communication: 800-point ArcGIS coverage and accompanying design documentation. U.S. Environmental Protection Agency, Office of Research and Development, NHEERL-Western Ecology Division, Corvallis, Oregon.

Olsen, A.R. 2009. Kansas statewide stream survey design. March 11, 2009. Unpublished communication: 800-point ArcGIS coverage and accompanying design documentation. U.S. Environmental Protection Agency, Office of Research and Development, NHEERL-Western Ecology Division, Corvallis, Oregon.

Perry, C.A., D.M. Wolock and J.C. Artman. 2004. Estimates of median flows for streams on the 1999 Kansas surface water register. U.S. Geological Survey Scientific Information Report 2004-5032. 219 pp.

Stevens, D.L. and A.R. Olsen. 2003. Variance estimation for spatially balanced samples of environmental resources. Environmetrics 14:593–610.

Stevens, D.L. and A.R. Olsen. 2004. Spatially-balanced sampling of natural resources. Journal of American Statistical Association 99:262–278.

Strahler, A.N. 1957. Quantitative analysis of watershed geomorphology. American Geophysical Union Transactions 38:913–920.

Urquhart, N.S., S.G. Paulsen and D.P. Larsen. 1998. Monitoring for regional and policy relevant trends over time. Ecological Applications 8:246–257.

USEPA. 2000a. Guidance for assessing chemical contaminant data for use in fish advisories. Volume 1: Fish sampling and analysis (3rd Edition). Office of Science and Technology and

Office of Water, U.S. Environmental Protection Agency. USEPA 823-B-00-007. 360 pp. plus technical appendices.

USEPA. 2000b. Guidance for assessing chemical contaminant data for use in fish advisories. Volume 2: Risk assessment and fish consumption limits (3rd Edition). Office of Science and Technology and Office of Water, U.S. Environmental Protection Agency. USEPA 823-B-00-008. 257 pp. plus technical appendices.

USEPA. 2004. Wadeable streams assessment site evaluation guidelines. U.S. Environmental Protection Agency, Office of Water and Office of Environmental Information. Washington, D.C. USEPA841-B-04-006. 15 pp.

USEPA. 2006. Wadeable Streams Assessment: A collaborative survey of the nation's streams. Office of Research and Development and Office of Water. USEPA 841-B-06-002. ii + 98 pp. Available at: www.epa.gov/owow/streamsurvey

Wetland and Riparian Areas Project (WRAP). 1992. Classification of wetland and riparian areas in Kansas. Kansas Water Office, Topeka, Kansas.

Willms, W.D., O.R. Kenzie, T.A. McAllister, D. Colwell, D. Viera, J.F. Wilmshurst, T. Entz, and M.E. Olson. 2002. Effects of water quality on cattle performance. Journal of Range Management 55: 452-460.

APPENDIX A. ROUTINE AND SUPPLEMENTAL PARAMETERS

A1. Routine and supplemental water chemistry and related parameters analyzed by the Targeted Stream Chemistry Monitoring Program, the Lake and Wetland Program, and the Probabilistic Stream Monitoring Program. R = routine / s = supplemental / . = N/A

TYPE	PARAMETER	Targeted Stream Chemistry Program	Probabilistic Stream Program	Lake and Wetland Program
Inorganic / Composite	Alkalinity, total (as CaCO3)	R	R	R
Inorganic / Composite	Aluminum, total recoverable	R	R	R
Inorganic / Composite	Ammonia, total (as N)	R	R	R
Inorganic / Composite	Antimony, total recoverable	R	R	R
Inorganic / Composite	Arsenic, total recoverable	R	R	R
Inorganic / Composite	Barium, total recoverable	R	R	R
Inorganic / Composite	Beryllium, total recoverable	R	R	R
Inorganic / Composite	Boron, total recoverable	R	R	R
Inorganic / Composite	Bromide	R	R	R
Inorganic / Composite	Cadmium, total recoverable	R	R	R
Inorganic / Composite	Calcium, total recoverable	R	R	R
Inorganic / Composite	Carbon, total inorganic (calculated)	.	.	R
Inorganic / Composite	Carbon, total organic	R	R	R
Inorganic / Composite	Chloride	R	R	R
Inorganic / Composite	Chromium, total recoverable	R	R	R
Inorganic / Composite	Cobalt, total recoverable	R	R	R
Inorganic / Composite	Conductivity (field)	R	.	.
Inorganic / Composite	Copper, total recoverable	R	R	R
Inorganic / Composite	Dissolved oxygen	R	R	R
Inorganic / Composite	Fluoride	R	R	R
Inorganic / Composite	Hardness, total (as CaCO3)	R	R	R
Inorganic / Composite	Iron, total recoverable	R	R	R
Inorganic / Composite	Kjeldahl nitrogen	R	R	R
Inorganic / Composite	Lead, total recoverable	R	R	R
Inorganic / Composite	Magnesium, total recoverable	R	R	R
Inorganic / Composite	Manganese, total recoverable	R	R	R
Inorganic / Composite	Mercury, total	R	R	R
Inorganic / Composite	Molybdenum, total recoverable	R	R	R
Inorganic / Composite	Nickel, total recoverable	R	R	R
Inorganic / Composite	Nitrate (as N)	R	R	R
Inorganic / Composite	Nitrite (as N)	R	R	R
Inorganic / Composite	pH (lab)	s	s	s
Inorganic / Composite	pH (field)	R	R	R
Inorganic / Composite	Phosphate, ortho- (as P)	R	R	R

A1, Continued.

TYPE	PARAMETER	Targeted Stream Chemistry Program	Probabilistic Stream Program	Lake and Wetland Program
Inorganic / Composite	Phosphorus, total (as P)	R	R	R
Inorganic / Composite	Potassium, total recoverable	R	R	R
Inorganic / Composite	Selenium, total recoverable	R	R	R
Inorganic / Composite	Silica, total recoverable	R	R	R
Inorganic / Composite	Silver, total recoverable	R	R	R
Inorganic / Composite	Sodium, total recoverable	R	R	R
Inorganic / Composite	Specific conductance	R	R	R
Inorganic / Composite	Strontium, total recoverable	R	R	R
Inorganic / Composite	Sulfate	R	R	R
Inorganic / Composite	Temperature	R	R	R
Inorganic / Composite	Temperature (field)	R	R	R
Inorganic / Composite	Thallium, total recoverable	R	R	R
Inorganic / Composite	Total dissolved solids (calculated)	R	R	R
Inorganic / Composite	Total suspended solids	R	R	R
Inorganic / Composite	Turbidity	R	R	R
Inorganic / Composite	Uranium, total recoverable	R	R	R
Inorganic / Composite	Vanadium, total recoverable	R	R	R
Inorganic / Composite	Zinc, total recoverable	R	R	R
Microbiological	*Escherichia coli (E. coli)*	R	R	R
Organic	Acetochlor	R	R	R
Organic	Alachlor	R	R	R
Organic	Aldrin	R	R	R
Organic	Alpha BHC	R	R	R
Organic	Atrazine (Aatrex)	R	R	R
Organic	beta-BCH	R	R	R
Organic	Bromacil	s	s	.
Organic	Butachlor	R	R	R
Organic	Carbofuran (Furadan)	R	R	R
Organic	Chlordane	R	R	R
Organic	Chlorpyrifos (Dursban)	s	s	.
Organic	Cyanazine (Bladex)	R	R	R
Organic	DCPA (Dacthal)	R	R	R
Organic	Deethylatrazine	s	s	s
Organic	Deisoproplyatrazine	s	s	s
Organic	Delta BHC	R	R	R
Organic	Diazinon	s	s	.
Organic	Dieldrin	R	R	R
Organic	Endosulfan I	R	R	R
Organic	Endosulfan II	R	R	R
Organic	Endosulfan sulfate	R	R	R
Organic	Endrin	R	R	R
Organic	Gamma BHC (Lindane)	R	R	R
Organic	Heptachlor	R	R	R

A1, Continued.

TYPE	PARAMETER	Targeted Stream Chemistry Program	Probabilistic Stream Program	Lake and Wetland Program
Organic	Heptachlor epoxide	R	R	R
Organic	Hexachlorobenze	R	R	R
Organic	Hexachlorocyclopentadiene	R	R	R
Organic	Methoxychlor	R	R	R
Organic	Metolachlor (Dual)	R	R	R
Organic	Metribuzin (Sencor)	R	R	R
Organic	p,p'-DDD	R	R	R
Organic	p,p'-DDE	R	R	R
Organic	p,p'-DDT	R	R	R
Organic	PCB-1016	R	R	R
Organic	PCB-1221	R	R	R
Organic	PCB-1232	R	R	R
Organic	PCB-1242	R	R	R
Organic	PCB-1248	R	R	R
Organic	PCB-1254	R	R	R
Organic	PCB-1260	R	R	R
Organic	Pentachlorophenol	s	s	.
Organic	Prometon (Pramitol)	s	s	.
Organic	Propachlor (Ramrod)	R	R	R
Organic	Propazine (Milogard)	R	R	R
Organic	Simazine	R	R	R
Organic	Toxaphene	R	R	R
Other	Algal taxonomy (field)	s	R	R
Other	Chlorophyll-a	s	R	R
Other	Macrophyte abundance (field)	.		R
Other	Pheophytin-a	s	s	R
Other	Photosynthetically active radiation (PAR)*	.	.	R
Other	Secchi depth (field)*	.		R
Radiological	Actinium-228	s	.	.
Radiological	Americum-241	s	.	.
Radiological	Antimony-125	s	.	.
Radiological	Barium-140	s	.	.
Radiological	Beryllium-7	s	.	.
Radiological	Cerium-141	s	.	.
Radiological	Cerium-144	s	.	.
Radiological	Cesium-134	s	.	.
Radiological	Cesium-136	s	.	.
Radiological	Cesium-137	s	.	.
Radiological	Cobalt-57	s	.	.
Radiological	Cobalt-60	s	.	.
Radiological	Gross alpha	s	.	.
Radiological	Gross beta	s	.	.

A1, Continued.

TYPE	PARAMETER	Targeted Stream Chemistry Program	Probabilistic Stream Program	Lake and Wetland Program
Radiological	Indium-111	s	.	.
Radiological	Iodine-123	s	.	.
Radiological	Iodine-131	s	.	.
Radiological	Iodine-132	s	.	.
Radiological	Iodine-133	s	.	.
Radiological	Iron-59	s	.	.
Radiological	Lanthanum-140	s	.	.
Radiological	Manganese-54	s	.	.
Radiological	Molybdenum-99	s	.	.
Radiological	Neodymium-147	s	.	.
Radiological	Neptunium-239	s	.	.
Radiological	Niobium-95	s	.	.
Radiological	Potassium-40	s	.	.
Radiological	Radium-226	s	.	.
Radiological	Ruthenium-103	s	.	.
Radiological	Ruthenium-106	s	.	.
Radiological	Silver-110m	S	.	.
Radiological	Technetium-99m	s	.	.
Radiological	Thorium-228	s	.	.
Radiological	Tritium	s	.	.
Radiological	Ytterbium-169	s	.	.
Radiological	Zinc-65	s	.	.
Radiological	Zirconium-95	s	.	.

A2. Routine fish tissue parameters analyzed by the USEPA Region 7 laboratories for the Fish Tissue Contamination Monitoring Program. R = routine

Type	Core Inorganic Parameters	Plug (2011 to present)	Fillet (through 2010 only)	Whole-fish (through 2013 only)
inorganic	Cadmium		R	R
inorganic	Lead		R	R
inorganic	Mercury	R	R	R
inorganic	Selenium		R	R
organic	1,2,4,5 -Tetrachlorobenzene		.	R
organic	p,p'-DDD		R	R
organic	p,p'-DDE		R	R
organic	p,p'-DDT		R	R
organic	Dieldrin		R	R
organic	Heptachlor		R	R
organic	Heptachlor epoxide		R	R
organic	Hexachlorobenzene		R	R
organic	gamma-Hexachlorocyclohexane (BHC)		R	R
organic	Mirex		.	R
organic	PCB-1248		R	R
organic	PCB-1254		R	R
organic	PCB-1260		R	R
organic	Pentachloroanisole		R	R
organic	Pentachlorobenzene		.	R
organic	Technical Chlordane		R	R
organic	Oxychlordane		R	.
organic	cis-Chlordanet		R	.
organic	trans-chlordane		R	.
organic	cis-Nonachlor		R	.
organic	trans-Nonachlor		R	.
organic	Trifluralin (Treflan)		R	R

APPENDIX B. 303(D) LIST

Appendix B contains the most recently completed 303(d) list for the state of Kansas. Current approval status may be found at www.kdheks.gov/tmdl. The first part, B-1, is a list of currently impaired waters, Categories 3, 4, and 5. The second part, Appendix B-2, is a list of waters removed from the impaired list, now moved to Category 2.

Waterbodies are listed alphabetically within HUC-8 watersheds, HUC-8s are listed numerically within river basins, and basins are listed alphabetically. More information on specific waterbodies can be found in the Kansas Surface Water Register (KDHE, 2013c). Station prefixes refer to waterbody types. Stream Chemistry (SC) stations, Lake Monitoring (LM) stations, or National Pollutant Discharge Elimination System (NPDES) facilities, or in one case, a USGS monitoring station. Other codes used in this appendix are listed in the tables below:

Impairment Code	Impairment
AP	Aquatic Plants
Ars	Arsenic
Atr	Atrazine
B	Boron
Be	Berylium
Bio	Biology
Chl	Chlordane
Cl	Chloride
Cu	Copper
DO	Dissolved Oxygen
ECB	*E. coli* Bacteria
EU	Eutrophication
F	Fluoride
FCB	Fecal Coli
Hg	Mercury
NH3	Ammonia
Pb	Lead
pH	pH
Se	Selenium
Silt	Siltation
SO4	Sulfate
Temp	Temperature
TP	Total Phosphorus
TSS	Total Suspended Solids
Zn	Zinc

Waterbody Type Code	Waterbody Type
F	Facility
L	Lake
R	Watershed
W	Wetland

Use Code	Designated Use
AL	Aquatic Life
FP	Food Procurement
REC	Recreation
WS	Water Supply

Basin Code	Basin
CI	Cimarron
KR	Kansas Lower Republican
LA	Lower Arkansas
MC	Marais des Cygnes
MO	Missouri
NE	Neosho
SO	Solomon
SS	Smoky Hill- Saline
UA	Upper Arkansas
UR	Upper Republican
VE	Verdigris
WA	Walnut

Appendix B-1: Currently impaired waters

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
CI	11040002	Upper Cimarron	3	Point of Rocks Lake (Moss Lake West)	L	MT	LM060501	AL	DO	
CI	11040002	Upper Cimarron	5	Point of Rocks Lake (Moss Lake West)	L	MT	LM060501	AL	EU	2023
CI	11040002	Upper Cimarron	5	Point of Rocks Lake (Moss Lake West)	L	MT	LM060501	WS	SO4	2023
CI	11040002	Upper Cimarron	5	Point of Rocks Lake (Moss Lake West)	L	MT	LM060501	WS	F	2023
CI	11040006	Upper Cimarron-Liberal	5	Cimarron R Near Forgan, Oklahoma	R	ME, MT, SV, SW	SC222	AL	Se	2023
CI	11040006	Upper Cimarron-Liberal	5	Cimarron R Near Forgan, Oklahoma	R	ME, MT, SV, SW	SC222	AL	DO	2023
CI	11040006	Upper Cimarron-Liberal	4a	Cimarron R Near Forgan, Oklahoma	R	ME, MT, SV, SW	SC222	AL	pH	Low
CI	11040006	Upper Cimarron-Liberal	5	Cimarron R Near Forgan, Oklahoma	R	ME, MT, SV, SW	SC222	AL	TP	2023
CI	11040006	Upper Cimarron-Liberal	4a	Cimarron R Near Forgan, Oklahoma	R	ME, MT, SV, SW	SC222	WS	Cl	Low
CI	11040007	Crooked Creek	3	Crooked Cr Near Englewood	R	GY, HS, ME	SC600	REC	ECB	
CI	11040007	Crooked Creek	5	Crooked Cr Near Englewood	R	GY, HS, ME	SC600	WS	F	2023
CI	11040007	Crooked Creek	4a	Crooked Cr Near Englewood	R	GY, HS, ME	SC600	WS	Cl	Low
CI	11040007	Crooked Creek	4a	Lake Meade State Park	L	ME	LM010601	AL	pH	High
CI	11040007	Crooked Creek	4a	Lake Meade State Park	L	ME	LM010601	AL	EU	High
CI	11040007	Crooked Creek	4a	Lake Meade State Park	L	ME	LM010601	AL	DO	High
CI	11040007	Crooked Creek	4a	Lake Meade State Park	L	ME	LM010601	REC	AP	High
CI	11040007	Crooked Creek	5	Lake Meade State Park	L	ME	LM010601	WS	F	2023
CI	11040008	Upper Cimarron-Bluff	5	Big Sandy Cr Near Ashland	R	ME, CA	SC738	AL	DO	2023
CI	11040008	Upper Cimarron-Bluff	4a	Big Sandy Cr Near Ashland	R	ME, CA	SC738	WS	SO4	Low
CI	11040008	Upper Cimarron-Bluff	5	Big Sandy Cr Near Ashland	R	ME, CA	SC738	WS	F	2023
CI	11040008	Upper Cimarron-Bluff	4a	Big Sandy Cr Near Ashland	R	ME, CA	SC738	WS	Cl	Low
CI	11040008	Upper Cimarron-Bluff	5	Bluff Cr Near Protection	R	CA, CM	SC593	WS	Cl	2023
CI	11040008	Upper Cimarron-Bluff	4a	Cavalry Cr Near Protection	R	KW, CM	SC624	REC	ECB	Medium
CI	11040008	Upper Cimarron-Bluff	4a	Cimarron R Near Protection	R	ME, CA	SC592	WS	Cl	Low
CI	11040008	Upper Cimarron-Bluff	5	Clark Co. SFL	L	CA	LM010101	AL	EU	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
CI	11040008	Upper Cimarron-Bluff	5	Day Cr Near Sitka	R	CA, CM	SC701	AL	DO	2023
CI	11040008	Upper Cimarron-Bluff	4a	Day Cr Near Sitka	R	CA, CM	SC701	WS	Cl	Low
CI	11040008	Upper Cimarron-Bluff	4a	Lake Coldwater	L	CM	LM042601	AL	EU	Low
CI	11040008	Upper Cimarron-Bluff	4a	St. Jacobs Well (Big Basin W.A.)	L	CA	LM060001	AL	EU	High
CI	11040008	Upper Cimarron-Bluff	5	St. Jacobs Well (Big Basin W.A.)	L	CA	LM060001	WS	F	2023
KR	10250016	Middle Republican	4a	Lovewell Lake	L	JW	LM015001	AL	EU	Low
KR	10250016	Middle Republican	4a	Lovewell Lake	L	JW	LM015001	AL	pH	Low
KR	10250016	Middle Republican	5	Republican R Near Hardy, Nebraska	R	JW, SM	SC231	AL	Bio	2023
KR	10250016	Middle Republican	5	Republican R Near Hardy, Nebraska	R	JW, SM	SC231	AL	TP	2023
KR	10250016	Middle Republican	4a	Republican R Near Hardy, Nebraska	R	JW, SM	SC231	REC	ECB	Low
KR	10250016	Middle Republican	5	White Rock Cr Near Burr Oak	R	JW, SM	SC508	AL	TSS	2023
KR	10250016	Middle Republican	5	White Rock Cr Near Burr Oak	R	JW, SM	SC508	AL	TP	2023
KR	10250016	Middle Republican	4a	White Rock Cr Near Burr Oak	R	JW, SM	SC508	AL	Se	Low
KR	10250016	Middle Republican	4a	White Rock Cr Near Burr Oak	R	JW, SM	SC508	REC	ECB	Low
KR	10250016	Middle Republican	5	White Rock Cr Near Burr Oak	R	JW, SM	SC508	WS	Ars	2023
KR	10250016	Middle Republican	4a	White Rock Cr Near Burr Oak	R	JW, SM	SC508	WS	SO4	Low
KR	10250017	Lower Republican	4a	Belleville City Lake	L	RP	LM060701	AL	EU	Low
KR	10250017	Lower Republican	5	Buffalo Cr Near Concordia	R	JW, CD	SC509	AL	Se	2023
KR	10250017	Lower Republican	5	Buffalo Cr Near Concordia	R	JW, CD	SC509	AL	TP	2019
KR	10250017	Lower Republican	5	Buffalo Cr Near Concordia	R	JW, CD	SC509	AL	TSS	2023
KR	10250017	Lower Republican	4a	Buffalo Cr Near Concordia	R	JW, CD	SC509	REC	FCB	Low
KR	10250017	Lower Republican	5	Buffalo Cr Near Concordia	R	JW, CD	SC509	WS	Ars	2023
KR	10250017	Lower Republican	5	Buffalo Cr Near Concordia	R	JW, CD	SC509	WS	SO4	2023
KR	10250017	Lower Republican	5	Elm Cr Near Ames	R	CD	SC709	AL	TP	2019
KR	10250017	Lower Republican	5	Elm Cr Near Ames	R	CD	SC709	AL	Cu	2023
KR	10250017	Lower Republican	3	Elm Cr Near Ames	R	CD	SC709	REC	ECB	
KR	10250017	Lower Republican	5	Five Cr Near Clay Center	R	CD, CY	SC711	WS	SO4	2023
KR	10250017	Lower Republican	4a	Jamestown W.A.	L	CD	LM052801	AL	pH	Low
KR	10250017	Lower Republican	4a	Jamestown W.A.	L	CD	LM052801	AL	EU	Low
KR	10250017	Lower Republican	4a	Jamestown W.A.	L	CD	LM052801	REC	FCB	Low
KR	10250017	Lower Republican	4a	Jamestown W.A.	L	CD	LM052801	WS	Silt	Low
KR	10250017	Lower Republican	3	Jamestown W.A.	L	CD	LM052801	WS	Ars	
KR	10250017	Lower Republican	5	Milford Lake	L	CY, RL, GE	LM019001	AL	DO	2014
KR	10250017	Lower Republican	5	Milford Lake	L	CY, RL, GE	LM019001	AL	EU	2014
KR	10250017	Lower Republican	5	Mulberry Cr Near Clifton	R	CD, CY	SC710	AL	Cu	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
KR	10250017	Lower Republican	5	Mulberry Cr Near Clifton	R	CD, CY	SC710	AL	TP	2019
KR	10250017	Lower Republican	5	Peats Cr Near Clifton	R	WS	SC649	AL	TP	2019
KR	10250017	Lower Republican	5	Peats Cr Near Clifton	R	WS	SC649	AL	Cu	2023
KR	10250017	Lower Republican	5	Peats Cr Near Clifton	R	WS	SC649	AL	Atr	2023
KR	10250017	Lower Republican	5	Republican R Near Clay Center	R	CY	SC503	AL	TP	2019
KR	10250017	Lower Republican	5	Republican R Near Clay Center	R	CY	SC503	AL	Bio	2021
KR	10250017	Lower Republican	5	Republican R Near Clay Center	R	CY	SC503	AL	TSS	2023
KR	10250017	Lower Republican	5	Republican R Near Clay Center	R	RP, WS, CD, CY	SC504	AL	TP	2019
KR	10250017	Lower Republican	5	Republican R Near Clay Center	R	RP, WS, CD, CY	SC504	AL	TSS	2023
KR	10250017	Lower Republican	4a	Republican R Near Clay Center	R	CY	SC503	REC	ECB	Medium
KR	10250017	Lower Republican	4a	Republican R Near Clay Center	R	RP, WS, CD, CY	SC504	REC	ECB	Medium
KR	10250017	Lower Republican	3	Republican R Near Rice	R	JW, RP, CD	SC510	AL	pH	
KR	10250017	Lower Republican	5	Republican R Near Rice	R	JW, RP, CD	SC510	AL	TP	2019
KR	10250017	Lower Republican	4a	Republican R Near Rice	R	JW, RP, CD	SC510	REC	ECB	Medium
KR	10250017	Lower Republican	4a	Rimrock Park Lake	L	GE	LM070501	AL	EU	Medium
KR	10250017	Lower Republican	4a	Rimrock Park Lake	L	GE	LM070501	AL	DO	Medium
KR	10250017	Lower Republican	5	Salt Cr Near Hollis	R	RP	SC650	AL	TP	2019
KR	10250017	Lower Republican	4a	Salt Cr Near Hollis	R	RP	SC650	AL	DO	High
KR	10250017	Lower Republican	5	Salt Cr Near Hollis	R	RP	SC650	AL	TSS	2023
KR	10250017	Lower Republican	4a	Salt Cr Near Hollis	R	RP	SC650	REC	ECB	High
KR	10250017	Lower Republican	5	Salt Cr Near Hollis	R	RP	SC650	WS	Cl	2023
KR	10250017	Lower Republican	5	Wolf Cr Near Concordia	R	CD	SC707	AL	TP	2019
KR	10250017	Lower Republican	5	Wolf Cr Near Concordia	R	CD	SC707	AL	DO	2019
KR	10250017	Lower Republican	3	Wolf Cr Near Concordia	R	CD	SC707	REC	ECB	
KR	10250017	Lower Republican	5	Wolf Cr Near Concordia	R	CD	SC707	WS	Ars	2023
KR	10270101	Upper Kansas	5	Kansas R Near Ogden	R	RL, GE	SC518	AL	TSS	2023
KR	10270101	Upper Kansas	5	Kansas R Near Ogden	R	RL, GE	SC518	AL	TP	2015
KR	10270101	Upper Kansas	4a	Kansas R Near Ogden	R	RL, GE	SC518	REC	ECB	Medium
KR	10270101	Upper Kansas	4a	Kansas R Near Ogden	R	RL, GE	SC518	WS	SO4	Low
KR	10270101	Upper Kansas	4a	Ogden City Lake	L	RL	LM011701	AL	EU	Low
KR	10270101	Upper Kansas	3	Sevenmile Cr Near Ogden	R	RL	SC759	AL	Bio	
KR	10270101	Upper Kansas	4a	Wildcat Cr Near Manhattan	R	RL	SC652	REC	ECB	High
KR	10270102	Middle Kansas	3	Alma City Lake	L	WB	LM050001	AL	EU	
KR	10270102	Middle Kansas	4a	Central Park Lake	L	SN	LM060901	AL	EU	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
KR	10270102	Middle Kansas	4a	Cross Cr Near Rossville	R	JA, PT	SC551	REC	ECB	High
KR	10270102	Middle Kansas	3	Deep Cr Near Manhattan	R	RL	SC647	AL	Bio	
KR	10270102	Middle Kansas	3	Dornwood Park Lake	L	SN	LM062301	AL	EU	
KR	10270102	Middle Kansas	4a	Gage Park Lake	L	SN	LM061101	AL	EU	Low
KR	10270102	Middle Kansas	5	Halfday Cr	R	SN, JA	SB376	AL	Bio	2023
KR	10270102	Middle Kansas	3	Illinois Cr Near Alma	R	WB	SC726	AL	Bio	
KR	10270102	Middle Kansas	4a	Kansas R At Topeka	R	PT, SN, WB	SC258	REC	FCB	Medium
KR	10270102	Middle Kansas	5	Kansas R At Wamego	R	RI, PT, WB	SC260	AL	TSS	2023
KR	10270102	Middle Kansas	5	Kansas R At Wamego	R	RI, PT, WB	SC260	AL	TP	2015
KR	10270102	Middle Kansas	5	Kansas R At Wamego	R	RI, PT, WB	SC260	AL	Bio	2017
KR	10270102	Middle Kansas	4a	Kansas R At Wamego	R	RI, PT, WB	SC260	REC	FCB	Medium
KR	10270102	Middle Kansas	5	Kansas R At Willard	R	PT, SN, WB	SC259	AL	TP	2015
KR	10270102	Middle Kansas	5	Kansas R At Willard	R	PT, SN, WB	SC259	AL	Bio	2017
KR	10270102	Middle Kansas	5	Kansas R At Willard	R	PT, SN, WB	SC259	AL	TSS	2023
KR	10270102	Middle Kansas	4a	Kansas R At Willard	R	PT, SN, WB	SC259	REC	ECB	High
KR	10270102	Middle Kansas	4a	Lake Shawnee	L	SN	LM012201	AL	EU	High
KR	10270102	Middle Kansas	5	Lost Cr Near Belvue	R	PT	SC755	AL	Se	2023
KR	10270102	Middle Kansas	5	Mission Cr Near Valencia	R	SN, WB	SC648	AL	Bio	2023
KR	10270102	Middle Kansas	5	Mission Cr Near Valencia	R	SN, WB	SC648	REC	ECB	2023
KR	10270102	Middle Kansas	5	Muddy Cr Near Grantville	R	JA, JF, SN	SC639	REC	ECB	2023
KR	10270102	Middle Kansas	4a	Myer's Lake	L	SN	LM075201	AL	EU	Low
KR	10270102	Middle Kansas	3	Myer's Lake	L	SN	LM075201	AL	pH	
KR	10270102	Middle Kansas	3	Pillsbury Crossing W.A.	L	RL	LM020301	FP	Hg	
KR	10270102	Middle Kansas	5	Pottawatomie Co. SFL #1	L	PT	LM012901	AL	DO	2022
KR	10270102	Middle Kansas	5	Pottawatomie Co. SFL #1	L	PT	LM012901	AL	EU	2022
KR	10270102	Middle Kansas	4a	Rock Cr Near Louisville	R	PT	SC645	REC	ECB	High
KR	10270102	Middle Kansas	5	Shunganunga Cr Near Topeka	R	SN	SC238	AL	TP	2017
KR	10270102	Middle Kansas	3	Shunganunga Cr Near Topeka	R	SN	SC238	AL	Diaz	
KR	10270102	Middle Kansas	4a	Shunganunga Cr Near Topeka	R	SN	SC238	REC	ECB	High
KR	10270102	Middle Kansas	4a	Soldier Cr Near Circleville	R	JA, NM	SC299	AL	Bio_Sed	

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
KR	10270102	Middle Kansas	4a	Soldier Cr Near Delia	R	NM, JA	SC101	AL	Bio	High
KR	10270102	Middle Kansas	5	Soldier Cr Near Delia	R	NM, JA	SC101	AL	Atr	2023
KR	10270102	Middle Kansas	5	Soldier Cr Near Delia	R	NM, JA	SC101	AL	TSS	2023
KR	10270102	Middle Kansas	5	Soldier Cr Near Topeka	R	JA, SN	SC239	REC	ECB	2023
KR	10270102	Middle Kansas	5	Topeka Public Golf Course Lake	L	SN	LM050101	AL	EU	2023
KR	10270102	Middle Kansas	5	Vermillion Cr Near Louisville	R	PT, SN, WB	SC520	AL	Bio	2023
KR	10270102	Middle Kansas	4a	Vermillion Cr Near Louisville	R	PT, SN, WB	SC520	REC	ECB	High
KR	10270102	Middle Kansas	4a	Vermillion Cr Near Onaga	R	NM, PT	SC681	REC	ECB	High
KR	10270102	Middle Kansas	4a	Wamego City Lake	L	PT	LM062101	AL	EU	Low
KR	10270102	Middle Kansas	3	Wamego City Lake	L	PT	LM062101	FP	Hg	
KR	10270102	Middle Kansas	4a	Warren Park Lake	L	SN	LM062001	AL	EU	Low
KR	10270102	Middle Kansas	4a	Warren Park Lake	L	SN	LM062001	REC	AP	Low
KR	10270102	Middle Kansas	3	West Branch Mill Cr Near Alma	R	GE, WB	SC506	AL	Bio	
KR	10270103	Delaware	5	Atchison Co. Park Lake	L	AT	LM060601	AL	EU	2023
KR	10270103	Delaware	5	Atchison Co. Park Lake	L	AT	LM060601	WS	Silt	2023
KR	10270103	Delaware	5	Delaware R Near Half Mound	R	NM, BR, JA, AT	SC554	AL	Bio	2021
KR	10270103	Delaware	5	Delaware R Near Half Mound	R	NM, BR, JA, AT	SC554	AL	TP	2019
KR	10270103	Delaware	4a	Delaware R Near Half Mound	R	NM, BR, JA, AT	SC554	REC	ECB	High
KR	10270103	Delaware	5	Elk Cr Near Larkinburg	R	JA, PT	SC604	AL	TP	2019
KR	10270103	Delaware	4a	Elk Cr Near Larkinburg	R	JA, PT	SC604	REC	ECB	High
KR	10270103	Delaware	5	Elkhorn Lake	L	JA	LM061001	AL	EU	2023
KR	10270103	Delaware	4a	Grasshopper Cr Near Muscotah	R	BR, AT	SC603	AL	Atr	Low
KR	10270103	Delaware	5	Grasshopper Cr Near Muscotah	R	BR, AT	SC603	AL	TP	2019
KR	10270103	Delaware	4a	Grasshopper Cr Near Muscotah	R	BR, AT	SC603	REC	ECB	High
KR	10270103	Delaware	3	Lake Jayhawk	L	JF	LM039701	AL	EU	
KR	10270103	Delaware	4a	Little Lake	L	BR	LM062601	AL	EU	Low
KR	10270103	Delaware	4a	Mission Lake	L	BR	LM013601	AL	EU	High
KR	10270103	Delaware	4a	Mission Lake	L	BR	LM013601	AL	Atr	High
KR	10270103	Delaware	4a	Mission Lake	L	BR	LM013601	WS	Silt	High
KR	10270103	Delaware	5	Nebo SFL	L	JA	LM061501	AL	EU	2023
KR	10270103	Delaware	4a	Perry Lake	L	JA, JF	LM029001	AL	EU	High
KR	10270103	Delaware	4a	Perry W.A. Wetland	L	JF	LM029041	AL	EU	High
KR	10270103	Delaware	4a	Perry W.A. Wetland	L	JF	LM029041	AL	DO	Low
KR	10270103	Delaware	5	Prairie Lake	L	JA	LM061901	AL	EU	2022
KR	10270103	Delaware	3	Rock Cr Near Rock Cr	R	JA, JF	SC684	REC	ECB	

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
KR	10270103	Delaware	4a	Sabetha Watershed Lake (Niehues)	L	NM	LM075101	AL	EU	Low
KR	10270103	Delaware	4a	Straight Cr Near Larkinburg	R	NM, JA	SC686	REC	ECB	High
KR	10270104	Lower Kansas	5	Antioch Park Lake	L	JO	LM067701	AL	EU	2023
KR	10270104	Lower Kansas	5	Baker Wetlands	W	DG	LM014401	AL	Pb	2023
KR	10270104	Lower Kansas	5	Baker Wetlands	W	DG	LM014401	AL	pH	2022
KR	10270104	Lower Kansas	4a	Baker Wetlands	W	DG	LM014401	AL	DO	High
KR	10270104	Lower Kansas	5	Baker Wetlands	W	DG	LM014401	AL	EU	2022
KR	10270104	Lower Kansas	4a	Buck Cr Near Williamstown	R	JF	SC677	REC	FCB	Medium
KR	10270104	Lower Kansas	5	Captain Cr Near Eudora	R	DG, JO	SC638	AL	Atr	2023
KR	10270104	Lower Kansas	3	Captain Cr Near Eudora	R	DG, JO	SC638	REC	ECB	
KR	10270104	Lower Kansas	5	Carbondale West Lake	L	OS	LM060801	AL	EU	2022
KR	10270104	Lower Kansas	5	Cedar Cr Near Cedar Junction	R	JO	SC252	AL	TP	2017
KR	10270104	Lower Kansas	4a	Cedar Cr Near Cedar Junction	R	JO	SC252	REC	ECB	High
KR	10270104	Lower Kansas	4a	Cedar Cr Near Cedar Junction	R	JO	SC252	WS	NO23	High
KR	10270104	Lower Kansas	4a	Cedar Lake	L	JO	LM061601	AL	EU	High
KR	10270104	Lower Kansas	4a	Clinton Lake	L	SN, DG, OS	LM030001	AL	EU	High
KR	10270104	Lower Kansas	4a	Coal Cr Near Sibleyville	R	DG	SC679	AL	DO	Low
KR	10270104	Lower Kansas	4a	Coal Cr Near Sibleyville	R	DG	SC679	REC	ECB	Medium
KR	10270104	Lower Kansas	5	Crooked Cr Near Winchester	R	JF	SC683	AL	TP	2017
KR	10270104	Lower Kansas	5	Crooked Cr Near Winchester	R	JF	SC683	AL	Atr	2023
KR	10270104	Lower Kansas	4a	Crooked Cr Near Winchester	R	JF	SC683	AL	Bio	Low
KR	10270104	Lower Kansas	3	Crooked Cr Near Winchester	R	JF	SC683	REC	ECB	
KR	10270104	Lower Kansas	5	Douglas Co. SFL	L	DG	LM011301	AL	EU	2022
KR	10270104	Lower Kansas	4a	Frisco Lake	L	JO	LM065201	AL	EU	Low
KR	10270104	Lower Kansas	4a	Gardner City Lake	L	JO	LM040401	AL	DO	High
KR	10270104	Lower Kansas	4a	Gardner City Lake	L	JO	LM040401	AL	EU	High
KR	10270104	Lower Kansas	4a	Kansas R At Desoto	R	LV, JO	SC254	AL	Bio	Medium
KR	10270104	Lower Kansas	5	Kansas R At Desoto	R	LV, JO	SC254	AL	TP	2015
KR	10270104	Lower Kansas	4a	Kansas R At Desoto	R	LV, JO	SC254	AL	Bio_Sed	Medium
KR	10270104	Lower Kansas	5	Kansas R At Desoto	R	LV, JO	SC254	AL	TSS	2023
KR	10270104	Lower Kansas	4a	Kansas R At Desoto	R	LV, JO	SC254	REC	ECB	High
KR	10270104	Lower Kansas	4a	Kansas R At Eudora	R	JF, LV, DG	SC255	AL	Bio	Medium
KR	10270104	Lower Kansas	5	Kansas R At Eudora	R	JF, LV, DG	SC255	AL	TP	2015
KR	10270104	Lower Kansas	5	Kansas R At Eudora	R	JF, LV, DG	SC255	AL	TSS	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
KR	10270104	Lower Kansas	5	Kansas R At Eudora	R	JF, LV, DG	SC255	FP	PCB	2023
KR	10270104	Lower Kansas	4a	Kansas R At Eudora	R	JF, LV, DG	SC255	REC	ECB	High
KR	10270104	Lower Kansas	4a	Kansas R At Kansas City, Kansas	R	LV, WY, JO	SC203	AL	Bio	Medium
KR	10270104	Lower Kansas	5	Kansas R At Kansas City, Kansas	R	LV, WY, JO	SC203	AL	TSS	2023
KR	10270104	Lower Kansas	5	Kansas R At Kansas City, Kansas	R	LV, WY, JO	SC203	AL	TP	2015
KR	10270104	Lower Kansas	4a	Kansas R At Kansas City, Kansas	R	LV, WY, JO	SC203	AL	Bio_Sed	Medium
KR	10270104	Lower Kansas	4a	Kansas R At Kansas City, Kansas	R	LV, WY, JO	SC203	REC	ECB	High
KR	10270104	Lower Kansas	5	Kansas R At Lecompton	R	JF, SN, DG	SC257	AL	TSS	2023
KR	10270104	Lower Kansas	5	Kansas R At Lecompton	R	JF, SN, DG	SC257	AL	TP	2015
KR	10270104	Lower Kansas	4a	Kansas R At Lecompton	R	JF, SN, DG	SC257	AL	Bio	Medium
KR	10270104	Lower Kansas	4a	Kansas R At Lecompton	R	JF, SN, DG	SC257	REC	ECB	High
KR	10270104	Lower Kansas	3	Kill Cr At Desoto	R	JO	SC253	AL	Atr	
KR	10270104	Lower Kansas	4a	Kill Cr At Desoto	R	JO	SC253	REC	ECB	High
KR	10270104	Lower Kansas	5	Lake Quivera	L	JO	LM022701	AL	EU	2023
KR	10270104	Lower Kansas	4a	Lakeview Estates Lake	L	SN	LM075301	AL	EU	Low
KR	10270104	Lower Kansas	4a	Lakeview Estates Lake	L	SN	LM075301	REC	AP	Low
KR	10270104	Lower Kansas	5	Leavenworth Co. SFL	L	LV	LM012301	AL	EU	2022
KR	10270104	Lower Kansas	5	Lenexa Lake	L	JO	LM022601	AL	EU	2022
KR	10270104	Lower Kansas	4a	Lone Star Lake	L	DG	LM011401	AL	EU	Low
KR	10270104	Lower Kansas	5	Mahaffie Farmstead Lake	L	JO	LM020401	AL	EU	2023
KR	10270104	Lower Kansas	4a	Mary's Lake	L	DG	LM061401	AL	EU	Medium
KR	10270104	Lower Kansas	4a	Mary's Lake	L	DG	LM061401	AL	pH	Medium
KR	10270104	Lower Kansas	4a	Mary's Lake	L	DG	LM061401	AL	DO	Medium
KR	10270104	Lower Kansas	3	Mill Cr Near Shawnee	R	JO	SC251	AL	Diaz	
KR	10270104	Lower Kansas	5	Mill Cr Near Shawnee	R	JO	SC251	AL	TP	2017
KR	10270104	Lower Kansas	4a	Mill Cr Near Shawnee	R	JO	SC251	AL	Bio_Sed	Medium
KR	10270104	Lower Kansas	4a	Mill Cr Near Shawnee	R	JO	SC251	AL	Bio	High
KR	10270104	Lower Kansas	4a	Mill Cr Near Shawnee	R	JO	SC251	REC	ECB	High
KR	10270104	Lower Kansas	4a	Mill Cr Near Shawnee	R	JO	SC251	WS	Cl	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
KR	10270104	Lower Kansas	4a	New Olathe Lake	L	JO	LM061301	AL	EU	High
KR	10270104	Lower Kansas	4a	Nine Mile Cr Near Linwood	R	JF, LV, DG	SC680	AL	Pb	Low
KR	10270104	Lower Kansas	4a	Nine Mile Cr Near Linwood	R	JF, LV, DG	SC680	REC	FCB	High
KR	10270104	Lower Kansas	4a	Olathe Waterworks Lakes	L	JO	LM062201	AL	EU	Low
KR	10270104	Lower Kansas	5	Overbrook Lake	L	OS	LM020501	AL	EU	2023
KR	10270104	Lower Kansas	4a	Pierson Park Lake	L	WY	LM061801	AL	EU	Low
KR	10270104	Lower Kansas	4a	Potter's Lake	L	DG	LM073401	AL	EU	Low
KR	10270104	Lower Kansas	5	Rose's Lake	L	JO	LM062501	AL	EU	2022
KR	10270104	Lower Kansas	5	Stranger Cr Near Easton	R	AT, JF, LV	SC602	AL	Bio	2023
KR	10270104	Lower Kansas	5	Stranger Cr Near Easton	R	AT, JF, LV	SC602	AL	Atr	2023
KR	10270104	Lower Kansas	4a	Stranger Cr Near Easton	R	AT, JF, LV	SC602	AL	Pb	Low
KR	10270104	Lower Kansas	4a	Stranger Cr Near Easton	R	AT, JF, LV	SC602	AL	Cu	Low
KR	10270104	Lower Kansas	5	Stranger Cr Near Easton	R	AT, JF, LV	SC602	AL	TSS	2023
KR	10270104	Lower Kansas	5	Stranger Cr Near Easton	R	AT, JF, LV	SC602	AL	TP	2017
KR	10270104	Lower Kansas	4a	Stranger Cr Near Easton	R	AT, JF, LV	SC602	REC	ECB	High
KR	10270104	Lower Kansas	5	Stranger Cr Near Linwood	R	LV	SC501	AL	Bio	2023
KR	10270104	Lower Kansas	4a	Stranger Cr Near Linwood	R	LV	SC501	AL	Pb	Low
KR	10270104	Lower Kansas	5	Stranger Cr Near Linwood	R	LV	SC501	AL	Atr	2023
KR	10270104	Lower Kansas	4a	Stranger Cr Near Linwood	R	LV	SC501	REC	ECB	High
KR	10270104	Lower Kansas	5	Strowbridge Reservoir	L	OS	LM051201	AL	EU	2022
KR	10270104	Lower Kansas	4a	Sunflower Park Lake	L	JO	LM073601	AL	EU	Medium
KR	10270104	Lower Kansas	4a	Sunflower Park Lake	L	JO	LM073601	AL	DO	Medium
KR	10270104	Lower Kansas	5	Turkey Cr	F	JO	NPDES55492	AL	NH3	2017
KR	10270104	Lower Kansas	5	Wakarusa R Near Eudora	R	DG	SC500	AL	TSS	2023
KR	10270104	Lower Kansas	4a	Wakarusa R Near Eudora	R	DG	SC500	REC	ECB	High
KR	10270104	Lower Kansas	4a	Wakarusa R Near Topeka	R	SN, OS	SC109	AL	Bio	High
KR	10270104	Lower Kansas	4a	Wakarusa R Near Topeka	R	SN, OS	SC109	AL	Bio_Sed	High
KR	10270104	Lower Kansas	4a	Wakarusa R Near Topeka	R	SN, OS	SC109	REC	ECB	High
KR	10270104	Lower Kansas	4a	Washington Cr Near Lawrence	R	DG	SC678	AL	DO	High
KR	10270205	Lower Big Blue	5	Big Blue R Near Blue Rapids	R	MS	SC240	AL	TSS	2023
KR	10270205	Lower Big Blue	5	Big Blue R Near Blue Rapids	R	MS	SC240	AL	pH	2019

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
KR	10270205	Lower Big Blue	5	Big Blue R Near Blue Rapids	R	MS	SC240	AL	TP	2019
KR	10270205	Lower Big Blue	5	Big Blue R Near Blue Rapids	R	MS	SC240	AL	Cu	2023
KR	10270205	Lower Big Blue	4a	Big Blue R Near Blue Rapids	R	MS	SC240	AL	Atr	High
KR	10270205	Lower Big Blue	4a	Big Blue R Near Blue Rapids	R	MS	SC240	REC	ECB	High
KR	10270205	Lower Big Blue	5	Big Blue R Near Oketo	R	MS	SC233	AL	TSS	2023
KR	10270205	Lower Big Blue	5	Big Blue R Near Oketo	R	MS	SC233	AL	pH	2019
KR	10270205	Lower Big Blue	5	Big Blue R Near Oketo	R	MS	SC233	AL	Cu	2023
KR	10270205	Lower Big Blue	5	Big Blue R Near Oketo	R	MS	SC233	AL	Bio	2021
KR	10270205	Lower Big Blue	4a	Big Blue R Near Oketo	R	MS	SC233	AL	Atr	High
KR	10270205	Lower Big Blue	5	Big Blue R Near Oketo	R	MS	SC233	AL	TP	2019
KR	10270205	Lower Big Blue	4a	Big Blue R Near Oketo	R	MS	SC233	REC	ECB	High
KR	10270205	Lower Big Blue	5	Black Vermillion R Near Frankfort	R	MS, NM	SC505	AL	Bio	2021
KR	10270205	Lower Big Blue	4a	Black Vermillion R Near Frankfort	R	MS, NM	SC505	AL	Atr	High
KR	10270205	Lower Big Blue	5	Black Vermillion R Near Frankfort	R	MS, NM	SC505	AL	TP	2019
KR	10270205	Lower Big Blue	5	Black Vermillion R Near Frankfort	R	MS, NM	SC505	AL	TSS	2023
KR	10270205	Lower Big Blue	4a	Black Vermillion R Near Frankfort	R	MS, NM	SC505	REC	ECB	High
KR	10270205	Lower Big Blue	4a	Centralia Lake	L	NM	LM073701	AL	pH	Medium
KR	10270205	Lower Big Blue	4a	Centralia Lake	L	NM	LM073701	AL	EU	Medium
KR	10270205	Lower Big Blue	4a	Centralia Lake	L	NM	LM073701	REC	AP	Medium
KR	10270205	Lower Big Blue	3	Centralia Lake	L	NM	LM073701	WS	Ars	
KR	10270205	Lower Big Blue	4a	Fancy Cr Near Randolph	R	WS, CY, RL	SC502	AL	Atr	High
KR	10270205	Lower Big Blue	4a	Fancy Cr Near Randolph	R	WS, CY, RL	SC502	REC	ECB	Medium
KR	10270205	Lower Big Blue	5	Fancy Cr Near Randolph	R	WS, CY, RL	SC502	WS	SO4	2023
KR	10270205	Lower Big Blue	5	Horseshoe Cr	R	MS	SB475	AL	Bio	2021
KR	10270205	Lower Big Blue	5	Horseshoe Cr Near Marysville	R	MR, CS	SC717	AL	TP	2019
KR	10270205	Lower Big Blue	4a	Horseshoe Cr Near Marysville	R	MR, CS	SC717	AL	Atr	High
KR	10270205	Lower Big Blue	4a	Horseshoe Cr Near Marysville	R	MR, CS	SC717	REC	ECB	High
KR	10270205	Lower Big Blue	5	Horseshoe Cr Near Marysville	R	MR, CS	SC717	WS	SO4	2023
KR	10270205	Lower Big Blue	4a	North Elm Cr Near Oketo	R	MS, NM	SC731	AL	Atr	High
KR	10270205	Lower Big Blue	5	North Elm Cr Near Oketo	R	MS, NM	SC731	AL	TP	2019
KR	10270205	Lower Big Blue	5	North Fork Black Vermillion R Near Vliets	R	MS, NM	SC128	AL	Bio	2021
KR	10270205	Lower Big Blue	5	Robidoux Cr near Frankfort	R	MS	SC754	AL	TP	2019
KR	10270205	Lower Big Blue	3	Rocky Ford W.A.	L	RL	LM020601	FP	Hg	
KR	10270205	Lower Big Blue	5	Spring Cr	R	MS	SB476	AL	Bio	2021
KR	10270205	Lower Big Blue	4a	Tuttle Cr Lake	L	MS, RL, PT	LM021001	AL	EU	High

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
KR	10270205	Lower Big Blue	4a	Tuttle Cr Lake	L	MS, RL, PT	LM021001	AL	Atr	High
KR	10270205	Lower Big Blue	4a	Tuttle Cr Lake	L	MS, RL, PT	LM021001	AL	Ala	High
KR	10270205	Lower Big Blue	4a	Tuttle Cr Lake	L	MS, RL, PT	LM021001	WS	Silt	High
KR	10270207	Lower Little Blue	4a	Lake Idlewild	L	MS	LM061201	AL	EU	Low
KR	10270207	Lower Little Blue	5	Little Blue R Near Hollenberg	R	RP, WS	SC232	AL	TSS	2023
KR	10270207	Lower Little Blue	5	Little Blue R Near Hollenberg	R	RP, WS	SC232	AL	TP	2019
KR	10270207	Lower Little Blue	5	Little Blue R Near Hollenberg	R	RP, WS	SC232	AL	pH	2019
KR	10270207	Lower Little Blue	4a	Little Blue R Near Hollenberg	R	RP, WS	SC232	AL	Atr	High
KR	10270207	Lower Little Blue	5	Little Blue R Near Hollenberg	R	RP, WS	SC232	AL	Bio	2021
KR	10270207	Lower Little Blue	5	Little Blue R Near Hollenberg	R	RP, WS	SC232	AL	Cu	2023
KR	10270207	Lower Little Blue	4a	Little Blue R Near Hollenberg	R	RP, WS	SC232	REC	ECB	High
KR	10270207	Lower Little Blue	5	Little Blue R Near Waterville	R	WS, MS	SC741	AL	TSS	2023
KR	10270207	Lower Little Blue	4a	Little Blue R Near Waterville	R	WS, MS	SC741	AL	Atr	High
KR	10270207	Lower Little Blue	5	Little Blue R Near Waterville	R	WS, MS	SC741	AL	TP	2019
KR	10270207	Lower Little Blue	4a	Little Blue R Near Waterville	R	WS, MS	SC741	REC	ECB	High
KR	10270207	Lower Little Blue	4a	Mill Cr Near Hanover	R	RP, WS	SC507	AL	Atr	High
KR	10270207	Lower Little Blue	5	Mill Cr Near Hanover	R	RP, WS	SC507	AL	TSS	2023
KR	10270207	Lower Little Blue	4a	Mill Cr Near Hanover	R	RP, WS	SC507	REC	ECB	High
KR	10270207	Lower Little Blue	4a	Rose Cr Near Narka	R	RP	SC712	AL	Atr	High
KR	10270207	Lower Little Blue	5	Rose Cr Near Narka	R	RP	SC712	AL	Cu	2023
KR	10270207	Lower Little Blue	5	Rose Cr Near Narka	R	RP	SC712	AL	TP	2019
KR	10270207	Lower Little Blue	3	Rose Cr Near Narka	R	RP	SC712	REC	ECB	
KR	10270207	Lower Little Blue	4a	Washington Co. SFL	L	WS	LM010901	AL	DO	Low
KR	10270207	Lower Little Blue	5	Washington Co. SFL	L	WS	LM010901	AL	EU	2023
KR	10270207	Lower Little Blue	4a	Washington Co. SFL	L	WS	LM010901	REC	AP	Low
KR	10270207	Lower Little Blue	5	Washington W.A.	L	WS	LM010941	AL	Pb	2023
KR	10270207	Lower Little Blue	3	Washington W.A.	L	WS	LM010941	AL	DO	
KR	10270207	Lower Little Blue	4a	Washington W.A.	L	WS	LM010941	AL	EU	Low
KR	10270207	Lower Little Blue	4a	Washington W.A.	L	WS	LM010941	WS	Silt	Low
LA	11030009	Rattlesnake	3	Kiowa Co. SFL	L	KW	LM042801	AL	EU	
LA	11030009	Rattlesnake	4a	Quivira Big Salt Marsh	L	SF	LM050601	AL	pH	High
LA	11030009	Rattlesnake	4a	Quivira Big Salt Marsh	L	SF	LM050601	AL	EU	High
LA	11030009	Rattlesnake	4a	Quivira Big Salt Marsh	L	SF	LM050601	WS	Silt	High
LA	11030009	Rattlesnake	4a	Quivira Big Salt Marsh	L	SF	LM050601	WS	Cl	Low
LA	11030009	Rattlesnake	4a	Quivira Little Salt Marsh	L	SF	LM050201	AL	EU	High
LA	11030009	Rattlesnake	4a	Quivira Little Salt Marsh	L	SF	LM050201	AL	pH	High
LA	11030009	Rattlesnake	4a	Quivira Little Salt Marsh	L	SF	LM050201	WS	Cl	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
LA	11030009	Rattlesnake	4a	Quivira Little Salt Marsh	L	SF	LM050201	WS	Silt	High
LA	11030010	Gar-Peace	5	Arkansas R Near Hutchinson	R	RC, RN	SC523	AL	Se	2023
LA	11030010	Gar-Peace	4a	Arkansas R Near Hutchinson	R	RC, RN	SC523	AL	Bio	Medium
LA	11030010	Gar-Peace	4a	Arkansas R Near Hutchinson	R	RC, RN	SC523	WS	Cl	Medium
LA	11030010	Gar-Peace	4a	Arkansas R Near Maize	R	RN, SG	SC536	AL	Bio	Medium
LA	11030010	Gar-Peace	4a	Arkansas R Near Maize	R	RN, SG	SC536	WS	Cl	Medium
LA	11030010	Gar-Peace	4a	Arkansas R Near Yoder	R	RN	SC524	AL	Bio	Medium
LA	11030010	Gar-Peace	5	Arkansas R Near Yoder	R	RN	SC524	AL	Se	2023
LA	11030010	Gar-Peace	5	Arkansas R Near Yoder	R	RN	SC524	AL	TP	2016
LA	11030010	Gar-Peace	4a	Arkansas R Near Yoder	R	RN	SC524	WS	Cl	Medium
LA	11030010	Gar-Peace	4a	Carey Park Lake	L	RN	LM063001	AL	EU	Low
LA	11030010	Gar-Peace	4a	Peace Cr Near Sterling	R	SF, RN, PR	SC658	AL	pH	Medium
LA	11030010	Gar-Peace	4a	Peace Cr Near Sterling	R	SF, RN, PR	SC658	REC	ECB	Medium
LA	11030010	Gar-Peace	4a	Peace Cr Near Sterling	R	SF, RN, PR	SC658	WS	Cl	Low
LA	11030010	Gar-Peace	4a	Salt Cr Near Hutchinson	R	RN	SC659	AL	pH	Medium
LA	11030010	Gar-Peace	5	Salt Cr Near Hutchinson	R	RN	SC659	REC	ECB	2023
LA	11030010	Gar-Peace	4a	Salt Cr Near Hutchinson	R	RN	SC659	WS	Cl	Medium
LA	11030011	Cow Creek	5	Barton Lake	L	BT	LM072701	AL	EU	2023
LA	11030011	Cow Creek	4a	Cheyenne Bottoms	L	BT	LM050401	AL	EU	High
LA	11030011	Cow Creek	4a	Cheyenne Bottoms	L	BT	LM050401	AL	DO	High
LA	11030011	Cow Creek	5	Cheyenne Bottoms	L	BT	LM050401	WS	Silt	2023
LA	11030011	Cow Creek	5	Cow Cr Near Hutchinson	R	RN	SC287	AL	Se	2023
LA	11030011	Cow Creek	4a	Cow Cr Near Hutchinson	R	RN	SC287	AL	Bio	Medium
LA	11030011	Cow Creek	5	Cow Cr Near Hutchinson	R	RN	SC287	FP	PCB	2023
LA	11030011	Cow Creek	4a	Cow Cr Near Hutchinson	R	RN	SC287	REC	ECB	High
LA	11030011	Cow Creek	4a	Cow Cr Near Hutchinson	R	RN	SC287	WS	Cl	Medium
LA	11030011	Cow Creek	3	Cow Cr Near Lyons	R	EW, BT, RC	SC657	AL	Atr	
LA	11030011	Cow Creek	5	Cow Cr Near Lyons	R	EW, BT, RC	SC657	AL	TP	2023
LA	11030011	Cow Creek	5	Cow Cr Near Lyons	R	EW, BT, RC	SC657	AL	TSS	2023
LA	11030011	Cow Creek	4a	Cow Cr Near Lyons	R	EW, BT, RC	SC657	REC	FCB	High
LA	11030011	Cow Creek	4a	Cow Cr Near Lyons	R	EW, BT, RC	SC657	WS	Cl	Medium
LA	11030011	Cow Creek	5	Cow Cr Near Willowbrook	R	RC, RN	SC522	AL	Se	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
LA	11030011	Cow Creek	5	Cow Cr Near Willowbrook	R	RC, RN	SC522	AL	TSS	2023
LA	11030011	Cow Creek	5	Cow Cr Near Willowbrook	R	RC, RN	SC522	AL	TP	2023
LA	11030011	Cow Creek	4a	Cow Cr Near Willowbrook	R	RC, RN	SC522	REC	ECB	High
LA	11030011	Cow Creek	4a	Cow Cr Near Willowbrook	R	RC, RN	SC522	WS	Cl	Medium
LA	11030011	Cow Creek	4a	Little Cow Cr Near Lyons	R	EW, RC	SC656	AL	DO	High
LA	11030011	Cow Creek	5	Little Cow Cr Near Lyons	R	EW, RC	SC656	AL	TP	2023
LA	11030011	Cow Creek	3	Little Cow Cr Near Lyons	R	EW, RC	SC656	AL	Diaz	
LA	11030011	Cow Creek	4a	Little Cow Cr Near Lyons	R	EW, RC	SC656	REC	ECB	High
LA	11030011	Cow Creek	4a	Little Cow Cr Near Lyons	R	EW, RC	SC656	WS	NO23	High
LA	11030011	Cow Creek	4a	Little Cow Cr Near Lyons	R	EW, RC	SC656	WS	Cl	Medium
LA	11030011	Cow Creek	5	Sterling City Lake	L	RC	LM064801	AL	EU	2023
LA	11030012	Little Arkansas	4a	Black Kettle Cr Near Halstead	R	MP, HV	SC705	AL	Bio_Sed	High
LA	11030012	Little Arkansas	5	Black Kettle Cr Near Halstead	R	MP, HV	SC705	AL	DO	2020
LA	11030012	Little Arkansas	5	Black Kettle Cr Near Halstead	R	MP, HV	SC705	AL	Atr	2023
LA	11030012	Little Arkansas	4a	Black Kettle Cr Near Halstead	R	MP, HV	SC705	AL	Bio	High
LA	11030012	Little Arkansas	5	Black Kettle Cr Near Halstead	R	MP, HV	SC705	AL	Cu	2023
LA	11030012	Little Arkansas	5	Black Kettle Cr Near Halstead	R	MP, HV	SC705	AL	TP	2020
LA	11030012	Little Arkansas	5	Black Kettle Cr Near Halstead	R	MP, HV	SC705	AL	TSS	2023
LA	11030012	Little Arkansas	5	Buhler City Lake	L	RN	LM050701	AL	EU	2023
LA	11030012	Little Arkansas	4a	Dillon Park Lakes	L	RN	LM063101	AL	pH	Medium
LA	11030012	Little Arkansas	4a	Dillon Park Lakes	L	RN	LM063101	AL	EU	Medium
LA	11030012	Little Arkansas	5	Emma Cr Near Sedgwick	R	MP, MN, HV	SC534	AL	DO	2020
LA	11030012	Little Arkansas	4b	Emma Cr Near Sedgwick	R	MP, MN, HV	SC534	AL	Atr	Low
LA	11030012	Little Arkansas	5	Emma Cr Near Sedgwick	R	MP, MN, HV	SC534	AL	TP	2020
LA	11030012	Little Arkansas	4a	Emma Cr Near Sedgwick	R	MP, MN, HV	SC534	AL	Bio_Sed	High
LA	11030012	Little Arkansas	4a	Emma Cr Near Sedgwick	R	MP, MN, HV	SC534	AL	Bio	High
LA	11030012	Little Arkansas	4a	Emma Cr Near Sedgwick	R	MP, MN, HV	SC534	REC	ECB	High
LA	11030012	Little Arkansas	5	Emma Cr Near Sedgwick	R	MP, MN, HV	SC534	WS	Ars	2023
LA	11030012	Little Arkansas	4a	Harvey Co. Camp Hawk Lake	L	HV	LM063401	AL	EU	Low
LA	11030012	Little Arkansas	4a	Harvey Co. Camp Hawk Lake	L	HV	LM063401	WS	Silt	Low
LA	11030012	Little Arkansas	3	Harvey Co. West Park Lake	L	HV	LM049001	AL	DO	
LA	11030012	Little Arkansas	4a	Harvey Co. West Park Lake	L	HV	LM049001	AL	EU	Low
LA	11030012	Little Arkansas	3	Inman Lake	L	MP	LM050301	AL	Pb	

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
LA	11030012	Little Arkansas	3	Inman Lake	L	MP	LM050301	AL	Cu	
LA	11030012	Little Arkansas	3	Inman Lake	L	MP	LM050301	WS	Silt	
LA	11030012	Little Arkansas	5	Kisiwa Cr Near Halstead	R	HV, RN	SC703	AL	Atr	2023
LA	11030012	Little Arkansas	5	Kisiwa Cr Near Halstead	R	HV, RN	SC703	AL	DO	2020
LA	11030012	Little Arkansas	5	Kisiwa Cr Near Halstead	R	HV, RN	SC703	AL	TP	2020
LA	11030012	Little Arkansas	5	Kisiwa Cr Near Halstead	R	HV, RN	SC703	AL	TSS	2023
LA	11030012	Little Arkansas	4a	Kisiwa Cr Near Halstead	R	HV, RN	SC703	AL	Bio_Sed	High
LA	11030012	Little Arkansas	4a	Kisiwa Cr Near Halstead	R	HV, RN	SC703	AL	Bio	High
LA	11030012	Little Arkansas	5	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	AL	TP	2020
LA	11030012	Little Arkansas	5	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	AL	TSS	2023
LA	11030012	Little Arkansas	4a	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	AL	Bio_Sed	High
LA	11030012	Little Arkansas	5	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	AL	Atr	2023
LA	11030012	Little Arkansas	4a	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	AL	Bio	High
LA	11030012	Little Arkansas	5	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	AL	Se	2023
LA	11030012	Little Arkansas	4a	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	REC	ECB	High
LA	11030012	Little Arkansas	5	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	WS	Ars	2023
LA	11030012	Little Arkansas	4a	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	WS	Cl	Medium
LA	11030012	Little Arkansas	5	Little Arkansas R At Valley Center	R	HV, SG	SC282	AL	TSS	2023
LA	11030012	Little Arkansas	5	Little Arkansas R At Valley Center	R	HV, SG	SC282	AL	Atr	2023
LA	11030012	Little Arkansas	4a	Little Arkansas R At Valley Center	R	HV, SG	SC282	AL	Bio_Sed	High
LA	11030012	Little Arkansas	4a	Little Arkansas R At Valley Center	R	HV, SG	SC282	AL	Bio	High
LA	11030012	Little Arkansas	5	Little Arkansas R At Valley Center	R	HV, SG	SC282	AL	TP	2016
LA	11030012	Little Arkansas	4a	Little Arkansas R At Valley Center	R	HV, SG	SC282	REC	ECB	High
LA	11030012	Little Arkansas	5	Little Arkansas R At Wichita	R	SG, SU	SC728	AL	TP	2016
LA	11030012	Little Arkansas	5	Little Arkansas R At Wichita	R	SG, SU	SC728	AL	TSS	2023
LA	11030012	Little Arkansas	5	Little Arkansas R At Wichita	R	SG, SU	SC728	AL	Atr	2023
LA	11030012	Little Arkansas	4a	Little Arkansas R At Wichita	R	SG, SU	SC728	AL	Bio_Sed	High
LA	11030012	Little Arkansas	4a	Little Arkansas R At Wichita	R	SG, SU	SC728	AL	Bio	High
LA	11030012	Little Arkansas	5	Little Arkansas R At Wichita	R	SG, SU	SC728	FP	PCB	2023
LA	11030012	Little Arkansas	5	Little Arkansas R At Wichita	R	SG, SU	SC728	FP	Hg	2023
LA	11030012	Little Arkansas	4a	Little Arkansas R At Wichita	R	SG, SU	SC728	REC	ECB	High

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
LA	11030012	Little Arkansas	4a	Mingenback Lake	L	MP	LM064701	AL	DO	Medium
LA	11030012	Little Arkansas	4a	Mingenback Lake	L	MP	LM064701	AL	EU	Medium
LA	11030012	Little Arkansas	3	Mingenback Lake	L	MP	LM064701	WS	Silt	
LA	11030012	Little Arkansas	4a	Newton City Park Lake	L	HV	LM064201	AL	EU	High
LA	11030012	Little Arkansas	4a	Sand Cr Near Sedgwick	R	MN, HV	SC535	AL	DO	Medium
LA	11030012	Little Arkansas	4a	Sand Cr Near Sedgwick	R	MN, HV	SC535	AL	TP	High
LA	11030012	Little Arkansas	4a	Sand Cr Near Sedgwick	R	MN, HV	SC535	AL	Bio	High
LA	11030012	Little Arkansas	4a	Sand Cr Near Sedgwick	R	MN, HV	SC535	AL	Bio_Sed	High
LA	11030012	Little Arkansas	4b	Sand Cr Near Sedgwick	R	MN, HV	SC535	AL	Atr	Low
LA	11030012	Little Arkansas	4a	Sand Cr Near Sedgwick	R	MN, HV	SC535	REC	ECB	High
LA	11030012	Little Arkansas	4a	Sand Cr Near Sedgwick	R	MN, HV	SC535	WS	NO23	High
LA	11030012	Little Arkansas	4b	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	AL	Atr	Low
LA	11030012	Little Arkansas	4a	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	AL	Bio	High
LA	11030012	Little Arkansas	4a	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	AL	Bio_Sed	High
LA	11030012	Little Arkansas	4a	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	AL	DO	High
LA	11030012	Little Arkansas	4a	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	AL	TP	High
LA	11030012	Little Arkansas	5	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	AL	Se	2023
LA	11030012	Little Arkansas	5	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	AL	TSS	2023
LA	11030012	Little Arkansas	4a	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	REC	ECB	High
LA	11030012	Little Arkansas	4a	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	WS	Cl	Medium
LA	11030012	Little Arkansas	5	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	WS	Ars	2023
LA	11030013	Middle Arkansas-Slate	4a	Arkansas R At Derby	R	SG	SC281	AL	Bio	Medium
LA	11030013	Middle Arkansas-Slate	5	Arkansas R At Derby	R	SG	SC281	AL	TP	2016
LA	11030013	Middle Arkansas-Slate	5	Arkansas R At Derby	R	SG	SC281	FP	PCB	2023
LA	11030013	Middle Arkansas-Slate	4a	Arkansas R At Derby	R	SG	SC281	REC	ECB	High
LA	11030013	Middle Arkansas-Slate	4a	Arkansas R At Derby	R	SG	SC281	WS	Cl	Medium
LA	11030013	Middle Arkansas-Slate	5	Arkansas R At Derby	R	SG	SC281	WS	NO23	2016
LA	11030013	Middle Arkansas-Slate	5	Arkansas R At Oxford	R	SG, SU, CL	SC527	AL	TP	2016

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
LA	11030013	Middle Arkansas-Slate	5	Arkansas R At Oxford	R	SG, SU, CL	SC527	AL	TSS	2023
LA	11030013	Middle Arkansas-Slate	5	Arkansas R At Oxford	R	SG, SU, CL	SC527	AL	pH	2016
LA	11030013	Middle Arkansas-Slate	4a	Arkansas R At Oxford	R	SG, SU, CL	SC527	REC	ECB	High
LA	11030013	Middle Arkansas-Slate	4a	Arkansas R At Oxford	R	SG, SU, CL	SC527	WS	Cl	Medium
LA	11030013	Middle Arkansas-Slate	5	Arkansas R At Wichita	R	SG, SU	SC729	AL	TP	2016
LA	11030013	Middle Arkansas-Slate	4a	Arkansas R At Wichita	R	SG, SU	SC729	AL	Bio	Low
LA	11030013	Middle Arkansas-Slate	4a	Arkansas R At Wichita	R	SG, SU	SC729	REC	ECB	High
LA	11030013	Middle Arkansas-Slate	4a	Arkansas R At Wichita	R	SG, SU	SC729	WS	Cl	Medium
LA	11030013	Middle Arkansas-Slate	5	Arkansas R Near Arkansas City	R	SU, CL	SC218	AL	TP	2016
LA	11030013	Middle Arkansas-Slate	4a	Arkansas R Near Arkansas City	R	SU, CL	SC218	AL	Bio	Medium
LA	11030013	Middle Arkansas-Slate	5	Arkansas R Near Arkansas City	R	SU, CL	SC218	AL	pH	2016
LA	11030013	Middle Arkansas-Slate	5	Arkansas R Near Arkansas City	R	SU, CL	SC218	AL	TSS	2023
LA	11030013	Middle Arkansas-Slate	3	Arkansas R Near Arkansas City	R	SU, CL	SC218	REC	ECB	
LA	11030013	Middle Arkansas-Slate	4a	Arkansas R Near Arkansas City	R	SU, CL	SC218	WS	Cl	Medium
LA	11030013	Middle Arkansas-Slate	4a	Cadillac Lake (Pracht Wetland)	L	SG	LM054101	AL	EU	Low
LA	11030013	Middle Arkansas-Slate	5	Chisholm Cr Park Lake	L	SG	LM064601	AL	EU	2023
LA	11030013	Middle Arkansas-Slate	5	Colwich City Lake	L	SG	LM017501	AL	EU	2023
LA	11030013	Middle Arkansas-Slate	5	Cowskin Cr At Wichita	R	SG, SU	SC730	AL	TP	2020
LA	11030013	Middle Arkansas-Slate	4a	Cowskin Cr At Wichita	R	SG, SU	SC730	AL	Bio	High
LA	11030013	Middle Arkansas-Slate	4a	Cowskin Cr At Wichita	R	SG, SU	SC730	REC	ECB	High
LA	11030013	Middle Arkansas-Slate	4a	Cowskin Cr In Wichita-Valley Center Floodway	R	SG	SC288	AL	Bio	High
LA	11030013	Middle Arkansas-Slate	5	Cowskin Cr In Wichita-Valley Center Floodway	R	SG	SC288	AL	TP	2020
LA	11030013	Middle Arkansas-Slate	4a	Cowskin Cr In Wichita-Valley Center Floodway	R	SG	SC288	REC	ECB	High
LA	11030013	Middle Arkansas-Slate	5	Cowskin Cr Near Belle Plaine	R	SG, SU	SC702	AL	TP	2020
LA	11030013	Middle Arkansas-Slate	5	Cowskin Cr Near Belle Plaine	R	SG, SU	SC702	AL	TSS	2023
LA	11030013	Middle Arkansas-Slate	5	Cowskin Cr Near Belle Plaine	R	SG, SU	SC702	REC	ECB	2023
LA	11030013	Middle Arkansas-Slate	5	Eagle Lake (Belaire Lake)	L	SG	LM022101	AL	EU	2023
LA	11030013	Middle Arkansas-Slate	5	Emery Park Lake	L	SG	LM063201	AL	EU	2023
LA	11030013	Middle Arkansas-Slate	5	Hargis Lake	L	SU	LM039901	AL	EU	2023
LA	11030013	Middle Arkansas-Slate	5	Harrison Park Lake	L	SG	LM022301	AL	EU	2023
LA	11030013	Middle Arkansas-Slate	4a	Horseshoe Lake	L	SG	LM063501	AL	EU	Low
LA	11030013	Middle Arkansas-Slate	4a	Kid's Lake	L	SG	LM063601	AL	EU	Low
LA	11030013	Middle Arkansas-Slate	5	Moss Lake	L	SG	LM064101	AL	EU	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
LA	11030013	Middle Arkansas-Slate	5	Riggs Park Lake	L	SG	LM022401	AL	EU	2023
LA	11030013	Middle Arkansas-Slate	5	Slate Cr Near Wellington	R	SU	SC528	AL	TP	2020
LA	11030013	Middle Arkansas-Slate	5	Slate Cr Near Wellington	R	SU	SC528	AL	TSS	2023
LA	11030013	Middle Arkansas-Slate	4a	Slate Cr Near Wellington	R	SU	SC528	REC	ECB	High
LA	11030013	Middle Arkansas-Slate	4a	Slate Cr Near Wellington	R	SU	SC528	WS	SO4	Low
LA	11030013	Middle Arkansas-Slate	4a	Slate Cr W.A.	L	SU	LM014201	AL	EU	Medium
LA	11030013	Middle Arkansas-Slate	4a	Slate Cr W.A.	L	SU	LM014201	AL	pH	Medium
LA	11030013	Middle Arkansas-Slate	4a	Slate Cr W.A.	L	SU	LM014201	WS	Silt	Medium
LA	11030013	Middle Arkansas-Slate	4a	Slate Cr W.A.	L	SU	LM014201	WS	Cl	Medium
LA	11030013	Middle Arkansas-Slate	4a	Slate Cr W.A.	L	SU	LM014201	WS	SO4	Low
LA	11030013	Middle Arkansas-Slate	3	Vic's Lake	L	SG	LM064301	AL	EU	
LA	11030013	Middle Arkansas-Slate	4a	Watson Park Lake	L	SG	LM064401	AL	EU	Low
LA	11030013	Middle Arkansas-Slate	3	Windmill Lake	L	SG	LM064501	AL	EU	
LA	11030014	North Fork Ninnescah	3	Cheney Lake	L	RN	LM017001	AL	pH	
LA	11030014	North Fork Ninnescah	4a	Cheney Lake	L	RN	LM017001	AL	EU	High
LA	11030014	North Fork Ninnescah	4a	Cheney Lake	L	RN	LM017001	WS	Silt	High
LA	11030014	North Fork Ninnescah	4a	North Fork Ninnescah R Near Castleton	R	SF, RN, PR	SC525	AL	pH	Low
LA	11030015	South Fork Ninnescah	4a	Kingman Co. SFL	L	KM	LM010401	AL	DO	Medium
LA	11030015	South Fork Ninnescah	5	Kingman Co. SFL	L	KM	LM010401	AL	EU	2023
LA	11030015	South Fork Ninnescah	4a	Kingman Co. SFL	L	KM	LM010401	AL	pH	Medium
LA	11030015	South Fork Ninnescah	4a	Kingman Co. SFL	L	KM	LM010401	REC	AP	Medium
LA	11030015	South Fork Ninnescah	3	Lemon Park Lake	L	PR	LM063901	AL	EU	
LA	11030015	South Fork Ninnescah	4a	Pratt Co. Lake	L	PR	LM064001	AL	EU	High
LA	11030015	South Fork Ninnescah	5	Pratt Co. Lake	L	PR	LM064001	AL	pH	2023
LA	11030015	South Fork Ninnescah	5	South Fork Ninnescah R Near Murdock	R	PR, KM	SC036	AL	Temp	2023
LA	11030015	South Fork Ninnescah	4a	South Fork Ninnescah R Near Murdock	R	PR, KM	SC036	WS	Cl	Medium
LA	11030015	South Fork Ninnescah	5	Texas Lake W.A.	L	PR	LM053001	AL	DO	2023
LA	11030016	Ninnescah	4a	Lake Afton	L	SG	LM049201	AL	EU	High
LA	11030016	Ninnescah	3	Ninnescah R Near Belle Plaine	R	SG, KM, SU	SC280	AL	Bio_Sed	
LA	11030016	Ninnescah	3	Ninnescah R Near Belle Plaine	R	SG, KM, SU	SC280	REC	ECB	
LA	11030016	Ninnescah	4a	Ninnescah R Near Belle Plaine	R	SG, KM, SU	SC280	WS	Cl	Medium
LA	11060001	Kaw Lake	3	Beaver Cr Near Maple City	R	CL	SC664	REC	ECB	
LA	11060001	Kaw Lake	5	Cowley Co. SFL	L	CL	LM013401	AL	EU	2023
LA	11060001	Kaw Lake	4a	Cowley Co. SFL	L	CL	LM013401	AL	Se	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
LA	11060001	Kaw Lake	3	Grouse Cr Near Cambridge	R	CL	SC761	AL	Bio	
LA	11060001	Kaw Lake	3	Grouse Cr Near Silverdale	R	CL	SC531	REC	ECB	
LA	11060001	Kaw Lake	4a	Silver Cr Near Silverdale	R	CL	SC706	AL	DO	Medium
LA	11060002	Upper Salt Fork Arkansas	4a	Mule Cr Near Aetna	R	KW, BA, CM	SC622	REC	FCB	Medium
LA	11060002	Upper Salt Fork Arkansas	5	Salt Fork Arkansas R Near Hardtner	R	BA, CM	SC591	AL	Temp	2023
LA	11060003	Medicine Lodge	4a	Barber Co. SFL	L	BA	LM013101	AL	DO	Low
LA	11060003	Medicine Lodge	5	Barber Co. SFL	L	BA	LM013101	WS	SO4	2023
LA	11060003	Medicine Lodge	3	Elm Cr Near Medicine Lodge	R	PR, BA	SC590	REC	ECB	
LA	11060003	Medicine Lodge	4a	Medicine Lodge R Near Belvidere	R	KW	SC588	REC	FCB	High
LA	11060003	Medicine Lodge	4a	Medicine Lodge R Near Medicine Lodge	R	PR, KW, BA	SC589	REC	FCB	High
LA	11060003	Medicine Lodge	4a	Medicine Lodge R Near Medicine Lodge	R	PR, KW, BA	SC589	WS	SO4	Low
LA	11060004	Lower Salt Fork Arkansas	5	Sandy Cr Near Ruella	R	HP	SC619	AL	Temp	2023
LA	11060005	Chikaskia	4a	Anthony City Lake	L	HP	LM048801	AL	pH	High
LA	11060005	Chikaskia	4a	Anthony City Lake	L	HP	LM048801	AL	DO	High
LA	11060005	Chikaskia	4a	Anthony City Lake	L	HP	LM048801	AL	EU	High
LA	11060005	Chikaskia	4a	Anthony City Lake	L	HP	LM048801	WS	Silt	High
LA	11060005	Chikaskia	5	Bluff Cr Near Bluff City	R	HP	SC618	AL	TP	2023
LA	11060005	Chikaskia	4a	Bluff Cr Near Bluff City	R	HP	SC618	REC	ECB	High
LA	11060005	Chikaskia	4a	Bluff Cr Near Caldwell	R	HP	SC530	REC	ECB	High
LA	11060005	Chikaskia	5	Chikaskia R Near Corbin	R	SU	SC529	AL	Cu	2023
LA	11060005	Chikaskia	4a	Chikaskia R Near Corbin	R	SU	SC529	REC	ECB	High
LA	11060005	Chikaskia	4a	Fall Cr Near Caldwell	R	SU	SC662	REC	FCB	High
LA	11060005	Chikaskia	5	Fall Cr Near Caldwell	R	SU	SC662	WS	Ars	2023
LA	11060005	Chikaskia	5	Isabel W.A.	L	PR	LM014301	AL	Cu	2023
LA	11060005	Chikaskia	4a	Isabel W.A.	L	PR	LM014301	AL	EU	Low
LA	11060005	Chikaskia	4a	Isabel W.A.	L	PR	LM014301	AL	pH	Low
LA	11060005	Chikaskia	5	Isabel W.A.	L	PR	LM014301	AL	DO	2023
LA	11060005	Chikaskia	5	Shoofly Cr Near Hunnewell	R	SU	SC663	AL	TP	2023
LA	11060005	Chikaskia	3	Shoofly Cr Near Hunnewell	R	SU	SC663	REC	ECB	
LA	11060005	Chikaskia	4a	Wellington Lake	L	SU	LM042201	AL	Se	Low
LA	11060005	Chikaskia	4a	Wellington Lake	L	SU	LM042201	WS	Silt	Medium
MC	10290101	Upper Marais Des Cygnes	4a	110 Mile Cr Near Scranton	R	OS, FR	SC633	AL	DO	High
MC	10290101	Upper Marais Des Cygnes	5	110 Mile Cr Near Scranton	R	OS, FR	SC633	AL	Atr	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
MC	10290101	Upper Marais Des Cygnes	5	Appanoose Cr Near Richter	R	DG, OS, FR	SC692	AL	DO	2022
MC	10290101	Upper Marais Des Cygnes	5	Appanoose Cr Near Richter	R	DG, OS, FR	SC692	AL	Pb	2023
MC	10290101	Upper Marais Des Cygnes	4a	Cedar Cr Lake	L	AN	LM040701	AL	EU	High
MC	10290101	Upper Marais Des Cygnes	4a	Cedar Cr Lake	L	AN	LM040701	WS	Silt	High
MC	10290101	Upper Marais Des Cygnes	4a	Crystal Lake	L	AN	LM064901	AL	EU	Medium
MC	10290101	Upper Marais Des Cygnes	5	Dragoon Cr Near Burlingame	R	WB, OS	SC577	AL	Atr	2023
MC	10290101	Upper Marais Des Cygnes	3	Dragoon Cr Near Burlingame	R	WB, OS	SC577	REC	ECB	
MC	10290101	Upper Marais Des Cygnes	5	Garnett North Lake	L	AN	LM040601	AL	EU	2022
MC	10290101	Upper Marais Des Cygnes	3	Lebo City Lake	L	CF	LM041201	AL	Cu	
MC	10290101	Upper Marais Des Cygnes	4a	Lebo City Park Lake	L	CF	LM065601	AL	EU	Low
MC	10290101	Upper Marais Des Cygnes	4a	Marais Des Cygnes R Near Ottawa	R	DG, FR	SC270	REC	ECB	High
MC	10290101	Upper Marais Des Cygnes	5	Marais Des Cygnes R Near Quenemo	R	OS, CF	SC720	AL	Cu	2023
MC	10290101	Upper Marais Des Cygnes	3	Marais Des Cygnes R Near Quenemo	R	OS, CF	SC720	REC	ECB	
MC	10290101	Upper Marais Des Cygnes	4a	Marais Des Cygnes R Near Reading	R	WB, LY	SC742	REC	ECB	High
MC	10290101	Upper Marais Des Cygnes	3	Marais Des Cygnes R Near Richter	R	OS, FR	SC555	REC	ECB	
MC	10290101	Upper Marais Des Cygnes	4a	One Hundred Forty Two Mile Cr Near Reading	R	LY	SC579	AL	DO	High
MC	10290101	Upper Marais Des Cygnes	4a	One Hundred Forty Two Mile Cr Near Reading	R	LY	SC579	REC	FCB	High
MC	10290101	Upper Marais Des Cygnes	4a	Osage City Reservoir	L	OS	LM066101	AL	EU	Low
MC	10290101	Upper Marais Des Cygnes	5	Osawatomie City Lake	L	MI	LM066201	AL	EU	2023
MC	10290101	Upper Marais Des Cygnes	4a	Ottawa Cr Near Ottawa	R	DG, FR	SC616	AL	Pb	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
MC	10290101	Upper Marais Des Cygnes	4a	Ottawa Cr Near Ottawa	R	DG, FR	SC616	AL	DO	High
MC	10290101	Upper Marais Des Cygnes	3	Ottawa Cr Near Ottawa	R	DG, FR	SC616	REC	ECB	
MC	10290101	Upper Marais Des Cygnes	4a	Pomona Lake	L	OS	LM028001	AL	EU	High
MC	10290101	Upper Marais Des Cygnes	4a	Pomona Lake	L	OS	LM028001	WS	Silt	High
MC	10290101	Upper Marais Des Cygnes	5	Pottawatomie Cr Near Osawatomie	R	FR, AN	SC556	AL	Bio	2022
MC	10290101	Upper Marais Des Cygnes	4a	Pottawatomie Cr Near Osawatomie	R	FR, AN	SC556	AL	DO	High
MC	10290101	Upper Marais Des Cygnes	3	Pottawatomie Cr Near Osawatomie	R	FR, AN	SC556	REC	ECB	
MC	10290101	Upper Marais Des Cygnes	5	Richmond City Lake	L	FR	LM046801	AL	EU	2022
MC	10290101	Upper Marais Des Cygnes	5	Richmond City Lake	L	FR	LM046801	AL	DO	2022
MC	10290101	Upper Marais Des Cygnes	5	Salt Cr	F	OS	NPDES24821	REC	ECB	2023
MC	10290101	Upper Marais Des Cygnes	4a	Salt Cr Near Lyndon	R	OS, FR	SC578	AL	Atr	Low
MC	10290101	Upper Marais Des Cygnes	4a	Salt Cr Near Lyndon	R	OS, FR	SC578	AL	DO	Low
MC	10290101	Upper Marais Des Cygnes	5	Salt Cr Near Lyndon	R	OS, FR	SC578	REC	ECB	2023
MC	10290101	Upper Marais Des Cygnes	4a	Spring Cr Park Lake	L	DG	LM066801	AL	EU	Low
MC	10290101	Upper Marais Des Cygnes	4a	Spring Cr Park Lake	L	DG	LM066801	REC	AP	Low
MC	10290101	Upper Marais Des Cygnes	4a	Switzler Cr Near Burlingame	R	OS	SC687	AL	DO	High
MC	10290101	Upper Marais Des Cygnes	5	Switzler Cr Near Burlingame	R	OS	SC687	AL	Atr	2023
MC	10290101	Upper Marais Des Cygnes	5	Westphalia Lake	L	AN	LM066901	WS	Silt	2023
MC	10290102	Lower Marais Des Cygnes	4a	Big Sugar Cr Near Trading Post	R	AN, LN	SC558	AL	DO	Medium
MC	10290102	Lower Marais Des Cygnes	3	Big Sugar Cr Near Trading Post	R	AN, LN	SC558	REC	ECB	

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
MC	10290102	Lower Marais Des Cygnes	5	Bull Cr Near Henson	R	MI	SC557	REC	ECB	2023
MC	10290102	Lower Marais Des Cygnes	5	Critzer Lake	L	LN	LM051301	AL	EU	2023
MC	10290102	Lower Marais Des Cygnes	4a	Edgerton City Lake	L	JO	LM065001	AL	Atr	Medium
MC	10290102	Lower Marais Des Cygnes	4a	Edgerton City Lake	L	JO	LM065001	AL	EU	Medium
MC	10290102	Lower Marais Des Cygnes	4a	Hillsdale Lake	L	JO, MI	LM035001	AL	EU	High
MC	10290102	Lower Marais Des Cygnes	3	La Cygne Lake	L	MI, LN	LM044002	AL	EU	
MC	10290102	Lower Marais Des Cygnes	4a	Louisburg SFL	L	MI	LM043801	AL	EU	High
MC	10290102	Lower Marais Des Cygnes	3	Marais Des Cygnes Near Trading Post	R	LN	SC745	AL	Bio	
MC	10290102	Lower Marais Des Cygnes	5	Marais Des Cygnes Near Trading Post	R	LN	SC745	AL	TSS	2023
MC	10290102	Lower Marais Des Cygnes	3	Marais Des Cygnes Near Trading Post	R	MI, LN	SC206	REC	ECB	
MC	10290102	Lower Marais Des Cygnes	3	Marais Des Cygnes Near Trading Post	R	LN	SC745	REC	ECB	
MC	10290102	Lower Marais Des Cygnes	5	Marais Des Cygnes R Near Henson	R	FR, MI	SC743	AL	Atr	2023
MC	10290102	Lower Marais Des Cygnes	4a	Marais Des Cygnes W.A.	L	LN	LM053201	AL	pH	High
MC	10290102	Lower Marais Des Cygnes	5	Marais Des Cygnes W.A.	L	LN	LM053201	AL	Cu	2023
MC	10290102	Lower Marais Des Cygnes	5	Marais Des Cygnes W.A.	L	LN	LM053201	AL	Pb	2023
MC	10290102	Lower Marais Des Cygnes	4a	Marais Des Cygnes W.A.	L	LN	LM053201	AL	DO	High
MC	10290102	Lower Marais Des Cygnes	3	Marais Des Cygnes W.A.	L	LN	LM053201	AL	Atr	
MC	10290102	Lower Marais Des Cygnes	4a	Marais Des Cygnes W.A.	L	LN	LM053201	AL	EU	High
MC	10290102	Lower Marais Des Cygnes	4a	Marais Des Cygnes W.A.	L	LN	LM053201	WS	Silt	High
MC	10290102	Lower Marais Des Cygnes	5	Marais Des Cygnes W.A.	L	LN	LM053201	WS	Ars	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
MC	10290102	Lower Marais Des Cygnes	4a	Miami Co. SFL	L	MI	LM043601	AL	pH	Medium
MC	10290102	Lower Marais Des Cygnes	4a	Miami Co. SFL	L	MI	LM043601	AL	EU	Medium
MC	10290102	Lower Marais Des Cygnes	5	Middle Cr Near New Lancaster	R	MI	SC697	AL	Zn	2023
MC	10290102	Lower Marais Des Cygnes	4a	Middle Cr Near New Lancaster	R	MI	SC697	AL	DO	High
MC	10290102	Lower Marais Des Cygnes	5	Miola Lake	L	MI	LM051001	AL	EU	2023
MC	10290102	Lower Marais Des Cygnes	4a	Mound City Lake	L	LN	LM051401	AL	EU	Medium
MC	10290102	Lower Marais Des Cygnes	4a	Mound City Lake	L	LN	LM051401	AL	pH	Medium
MC	10290102	Lower Marais Des Cygnes	4a	Mound City Lake	L	LN	LM051401	AL	DO	Medium
MC	10290102	Lower Marais Des Cygnes	4a	Mound City Lake	L	LN	LM051401	REC	AP	Medium
MC	10290102	Lower Marais Des Cygnes	3	Paola City Lake	L	MI	LM073201	AL	EU	
MC	10290102	Lower Marais Des Cygnes	5	Pleasanton Lake #1	L	LN	LM066401	AL	EU	2023
MC	10290102	Lower Marais Des Cygnes	5	Pleasanton Lake #2	L	LN	LM066501	AL	EU	2023
MC	10290102	Lower Marais Des Cygnes	4a	Pleasanton Reservoir	L	LN	LM044201	AL	EU	High
MC	10290102	Lower Marais Des Cygnes	5	Spring Hill City Lake	L	JO	LM073501	AL	EU	2023
MC	10290103	Little Osage	5	Little Osage R Near Fulton	R	AN, LN, AL, BB	SC207	AL	DO	2023
MC	10290103	Little Osage	5	Little Osage R Near Fulton	R	AN, LN, AL, BB	SC207	AL	Bio	2023
MC	10290103	Little Osage	4a	Little Osage R Near Fulton	R	AN, LN, AL, BB	SC207	REC	ECB	Medium
MC	10290103	Little Osage	4a	Prescott City Lake	L	LN	LM066601	AL	EU	Low
MC	10290104	Marmaton	4a	Bourbon Co. SFL	L	BB	LM013301	AL	DO	Medium
MC	10290104	Marmaton	4a	Bourbon Co. SFL	L	BB	LM013301	AL	pH	Medium
MC	10290104	Marmaton	4a	Bourbon Co. SFL	L	BB	LM013301	AL	EU	Medium
MC	10290104	Marmaton	4a	Bronson City Lake	L	BB	LM046201	AL	EU	Medium
MC	10290104	Marmaton	5	Drywood Cr Near Garland	R	BB, CR	SC617	AL	Se	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
MC	10290104	Marmaton	4a	Drywood Cr Near Garland	R	BB, CR	SC617	AL	DO	Low
MC	10290104	Marmaton	3	Drywood Cr Near Garland	R	BB, CR	SC617	REC	ECB	
MC	10290104	Marmaton	5	Drywood Cr Near Garland	R	BB, CR	SC617	WS	SO4	2023
MC	10290104	Marmaton	4a	Elm Cr Lake	L	BB	LM044801	AL	EU	Low
MC	10290104	Marmaton	5	Gunn Park East Lake	L	BB	LM065401	AL	EU	2023
MC	10290104	Marmaton	5	Gunn Park West Lake	L	BB	LM065501	AL	EU	2023
MC	10290104	Marmaton	4a	Lake Crawford State Park #2	L	CR	LM011101	AL	EU	High
MC	10290104	Marmaton	3	Marmaton R	R	BB	SB324	AL	Bio	
MC	10290104	Marmaton	4a	Marmaton R Near Fort Scott	R	BB	SC208	AL	DO	High
MC	10290104	Marmaton	4a	Marmaton R Near Fort Scott	R	BB	SC208	AL	Bio	High
MC	10290104	Marmaton	4a	Marmaton R Near Fort Scott	R	AL, BB	SC559	AL	DO	High
MC	10290104	Marmaton	3	Marmaton R Near Fort Scott	R	AL, BB	SC559	AL	Bio	
MC	10290104	Marmaton	5	Marmaton R Near Fort Scott	R	BB	SC208	REC	ECB	2023
MC	10290104	Marmaton	5	Rock Cr Lake	L	BB	LM045201	AL	DO	2023
MC	10290104	Marmaton	4a	Rock Cr Lake	L	BB	LM045201	AL	EU	High
MO	10240005	Tarkio-Wolf	4a	Brown Co. SFL	L	BR	LM010301	AL	EU	Medium
MO	10240005	Tarkio-Wolf	4a	Brown Co. SFL	L	BR	LM010301	AL	DO	Medium
MO	10240005	Tarkio-Wolf	4a	Brown Co. SFL	L	BR	LM010301	AL	pH	Medium
MO	10240005	Tarkio-Wolf	4a	Brown Co. SFL	L	BR	LM010301	REC	AP	Medium
MO	10240005	Tarkio-Wolf	4a	Hiawatha City Lake	L	BR	LM011601	AL	EU	Medium
MO	10240005	Tarkio-Wolf	4a	Hiawatha City Lake	L	BR	LM011601	AL	Atr	Medium
MO	10240005	Tarkio-Wolf	3	Mosquito Cr Near Troy	R	DP	SC722	REC	ECB	
MO	10240005	Tarkio-Wolf	4a	Troy Fair Lake	L	DP	LM073801	AL	EU	Low
MO	10240005	Tarkio-Wolf	4a	Troy Fair Lake	L	DP	LM073801	REC	AP	Low
MO	10240005	Tarkio-Wolf	5	Wolf R Near Sparks	R	BR, DP	SC201	AL	Atr	2023
MO	10240005	Tarkio-Wolf	4a	Wolf R Near Sparks	R	BR, DP	SC201	AL	Bio	High
MO	10240005	Tarkio-Wolf	4a	Wolf R Near Sparks	R	BR, DP	SC201	REC	ECB	High
MO	10240007	South Fork Big Nemaha	3	Nemaha Co. SFL/W.A.	L	NM	LM010801	AL	EU	
MO	10240007	South Fork Big Nemaha	3	Pole Cr Near St. Benedict	R	NM	SC756	AL	TP	
MO	10240007	South Fork Big Nemaha	3	Pole Cr Near St. Benedict	R	NM	SC756	AL	TSS	
MO	10240007	South Fork Big Nemaha	4a	Sabetha City Lake	L	NM	LM011501	AL	EU	Low
MO	10240007	South Fork Big Nemaha	5	Sabetha City Lake	L	NM	LM011501	AL	Atr	2023
MO	10240007	South Fork Big Nemaha	5	South Fork Nemaha R Near Bern	R	NM, JA	SC234	AL	Atr	2023
MO	10240007	South Fork Big Nemaha	5	South Fork Nemaha R Near Bern	R	NM, JA	SC234	AL	TP	2023
MO	10240007	South Fork Big Nemaha	4a	South Fork Nemaha R Near Bern	R	NM, JA	SC234	AL	Bio	High
MO	10240007	South Fork Big Nemaha	4a	South Fork Nemaha R Near Bern	R	NM, JA	SC234	REC	ECB	High
MO	10240007	South Fork Big Nemaha	4a	South Fork Nemaha R Near Seneca	R	NM, PT	SC682	AL	Se	Low
MO	10240007	South Fork Big Nemaha	5	South Fork Nemaha R Near Seneca	R	NM, PT	SC682	REC	ECB	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
MO	10240007	South Fork Big Nemaha	5	Turkey Cr Near Bern	R	MS, NM	SC601	AL	TP	2023
MO	10240007	South Fork Big Nemaha	4a	Turkey Cr Near Bern	R	MS, NM	SC601	AL	Atr	Medium
MO	10240007	South Fork Big Nemaha	4a	Turkey Cr Near Bern	R	MS, NM	SC601	REC	FCB	Low
MO	10240008	Big Nemaha	4a	Pony Cr Lake	L	BR	LM073001	AL	EU	High
MO	10240008	Big Nemaha	5	Pony Cr Near Reserve	R	NM, BR	SC291	AL	Se	2023
MO	10240008	Big Nemaha	3	Pony Cr Near Reserve	R	NM, BR	SC291	REC	ECB	
MO	10240008	Big Nemaha	3	Roys Cr Near Reserve	R	BR, DP	SC552	WS	NO23	
MO	10240008	Big Nemaha	5	Walnut Cr Near Reserve	R	BR, DP	SC292	AL	TP	2023
MO	10240008	Big Nemaha	5	Walnut Cr Near Reserve	R	BR, DP	SC292	AL	TSS	2023
MO	10240008	Big Nemaha	3	Walnut Cr Near Reserve	R	BR, DP	SC292	AL	Atr	
MO	10240008	Big Nemaha	4a	Walnut Cr Near Reserve	R	BR, DP	SC292	REC	FCB	High
MO	10240011	Independence-Sugar	5	Atchison Co. SFL	L	AT	LM012601	AL	Cu	2023
MO	10240011	Independence-Sugar	4a	Atchison Co. SFL	L	AT	LM012601	AL	DO	Low
MO	10240011	Independence-Sugar	4a	Atchison Co. SFL	L	AT	LM012601	AL	EU	Medium
MO	10240011	Independence-Sugar	4a	Atchison Co. SFL	L	AT	LM012601	AL	pH	Medium
MO	10240011	Independence-Sugar	5	Atchison Co. SFL	L	AT	LM012601	AL	Atr	2023
MO	10240011	Independence-Sugar	4a	Atchison Co. SFL	L	AT	LM012601	REC	AP	Low
MO	10240011	Independence-Sugar	4a	Atchison Co. SFL	L	AT	LM012601	WS	Silt	High
MO	10240011	Independence-Sugar	4a	Big Eleven Lake	L	WY	LM067101	AL	EU	Low
MO	10240011	Independence-Sugar	3	Independence Cr Near Atchison	R	DP, AT	SC553	REC	ECB	
MO	10240011	Independence-Sugar	4a	Jerry's Lake	L	LV	LM067801	AL	EU	Low
MO	10240011	Independence-Sugar	5	Lake Warnock (Atchison City Lake)	L	AT	LM039801	AL	EU	2023
MO	10240011	Independence-Sugar	4a	Lansing City Lake	L	LV	LM067201	AL	pH	Low
MO	10240011	Independence-Sugar	4a	Lansing City Lake	L	LV	LM067201	AL	EU	Low
MO	10240011	Independence-Sugar	3	Lansing City Lake	L	LV	LM067201	AL	Cu	
MO	10240011	Independence-Sugar	5	Merrit Lake	L	LV	LM020801	AL	EU	2023
MO	10240011	Independence-Sugar	5	Smith Lake	L	LV	LM020701	AL	EU	2023
MO	10240011	Independence-Sugar	4a	Wyandotte Co. Lake	L	WY	LM042401	AL	EU	High
MO	10300101	Lower Missouri-Crooked	3	Blue R Near Stanley	R	JO	SC205	AL	Diaz	
MO	10300101	Lower Missouri-Crooked	4a	Blue R Near Stanley	R	JO	SC205	AL	Bio	Medium
MO	10300101	Lower Missouri-Crooked	5	Blue R Near Stanley	R	JO	SC205	AL	DO	2023
MO	10300101	Lower Missouri-Crooked	5	Blue R Near Stanley	R	JO	SC205	FP	Hg	2023
MO	10300101	Lower Missouri-Crooked	4a	Blue R Near Stanley	R	JO	SC205	REC	ECB	Medium

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
MO	10300101	Lower Missouri-Crooked	5	Heritage Park Lake	L	JO	LM062401	AL	EU	2023
MO	10300101	Lower Missouri-Crooked	3	Indian Cr Near Leawood	R	JO	SC204	AL	Diaz	
MO	10300101	Lower Missouri-Crooked	5	Indian Cr Near Leawood	R	JO	SC204	AL	TP	2023
MO	10300101	Lower Missouri-Crooked	4a	Indian Cr Near Leawood	R	JO	SC204	REC	ECB	Medium
MO	10300101	Lower Missouri-Crooked	4a	Indian Cr Near Leawood	R	JO	SC204	WS	NO23	High
MO	10300101	Lower Missouri-Crooked	5	Indian Cr Near Leawood	R	JO	SC204	WS	Cl	2023
MO	10300101	Lower Missouri-Crooked	4a	South Lake Park	L	JO	LM067501	AL	EU	Low
MO	10300101	Lower Missouri-Crooked	3	Stohl Park Lake	L	JO	LM062801	AL	Pb	
NE	11070201	Neosho Headwaters	4a	Allen Cr Near Emporia	R	LY	SC628	AL	DO	Medium
NE	11070201	Neosho Headwaters	4a	Council Grove Lake	L	MR	LM022001	AL	EU	High
NE	11070201	Neosho Headwaters	4a	Council Grove Lake	L	MR	LM022001	WS	Silt	High
NE	11070201	Neosho Headwaters	5	Eagle Cr Near Olpe	R	LY	SC634	AL	Atr	2023
NE	11070201	Neosho Headwaters	4a	Eagle Cr Near Olpe	R	LY	SC634	AL	DO	High
NE	11070201	Neosho Headwaters	5	Flint Hills N.W.R.	L	CF	LM072401	WS	Silt	2023
NE	11070201	Neosho Headwaters	3	Four Mile Cr Near Council Grove	R	MR	SC630	AL	Bio	
NE	11070201	Neosho Headwaters	5	Four Mile Cr Near Council Grove	R	MR	SC630	AL	Cd	2023
NE	11070201	Neosho Headwaters	4a	John Redmond Lake	L	LY, CF	LM026001	AL	EU	Medium
NE	11070201	Neosho Headwaters	4a	John Redmond Lake	L	LY, CF	LM026001	WS	Silt	Medium
NE	11070201	Neosho Headwaters	4a	Jones Park Lake	L	LY	LM068701	AL	EU	Low
NE	11070201	Neosho Headwaters	5	Lake Kahola	L	MR	LM043401	AL	EU	2014
NE	11070201	Neosho Headwaters	5	Munkers Cr Near Council Grove	R	WB, MR, LY	SC631	AL	DO	2017
NE	11070201	Neosho Headwaters	5	Neosho R At Neosho Rapids	R	LY	SC273	AL	TP	2014
NE	11070201	Neosho Headwaters	3	Neosho R At Neosho Rapids	R	LY	SC273	REC	ECB	
NE	11070201	Neosho Headwaters	4a	Neosho R At Parkerville	R	MR	SC675	REC	FCB	Medium
NE	11070201	Neosho Headwaters	3	Neosho R Near Americus	R	MR, LY	SC581	REC	ECB	
NE	11070201	Neosho Headwaters	4a	Neosho R Near Parkerville	R	MR	SC637	AL	Cu	Low
NE	11070201	Neosho Headwaters	5	Neosho R Near Parkerville	R	MR	SC637	AL	TP	2014
NE	11070201	Neosho Headwaters	4a	Olpe City Lake	L	LY	LM041001	AL	EU	High
NE	11070201	Neosho Headwaters	4a	Olpe City Lake	L	LY	LM041001	WS	Silt	High
NE	11070202	Upper Cottonwood	3	Clear Cr Near Marion	R	MR, MN	SC690	AL	Atr	
NE	11070202	Upper Cottonwood	3	Clear Cr Near Marion	R	MR, MN	SC690	AL	Ala	

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
NE	11070202	Upper Cottonwood	4a	Clear Cr Near Marion	R	MR, MN	SC690	WS	SO4	Low
NE	11070202	Upper Cottonwood	4a	French Cr Near Hillsboro	R	MN	SC676	AL	DO	Medium
NE	11070202	Upper Cottonwood	5	Hillsboro City Lake	L	MN	LM020901	AL	EU	2023
NE	11070202	Upper Cottonwood	4a	Marion Co. Lake	L	MN	LM012101	AL	DO	Medium
NE	11070202	Upper Cottonwood	4a	Marion Co. Lake	L	MN	LM012101	AL	EU	Medium
NE	11070202	Upper Cottonwood	4a	Marion Lake	L	MN	LM020001	AL	EU	High
NE	11070202	Upper Cottonwood	5	Mud Cr Near Marion	R	MN	SC691	AL	Atr	2023
NE	11070202	Upper Cottonwood	4a	Mud Cr Near Marion	R	MN	SC691	REC	ECB	High
NE	11070202	Upper Cottonwood	5	Mud Cr Near Marion	R	MN	SC691	WS	SO4	2023
NE	11070202	Upper Cottonwood	5	North Cottonwood R Near Durham	R	MP, MN, HV	SC636	WS	SO4	2023
NE	11070202	Upper Cottonwood	5	South Cottonwood R Near Canada	R	MN, CS	SC635	AL	Atr	2023
NE	11070202	Upper Cottonwood	5	South Cottonwood R Near Canada	R	MN, CS	SC635	AL	TP	2023
NE	11070203	Lower Cottonwood	5	Bloody Cr Near Saffordville	R	CS	SC689	WS	SO4	2023
NE	11070203	Lower Cottonwood	5	Cottonwood R Near Elmdale	R	MN, CS	SC627	AL	TSS	2023
NE	11070203	Lower Cottonwood	5	Cottonwood R Near Elmdale	R	MN, CS	SC627	AL	Atr	2023
NE	11070203	Lower Cottonwood	4a	Cottonwood R Near Elmdale	R	MN, CS	SC627	WS	SO4	Low
NE	11070203	Lower Cottonwood	5	Cottonwood R Near Emporia	R	LY, CS	SC274	AL	TP	2014
NE	11070203	Lower Cottonwood	3	Cottonwood R Near Emporia	R	LY, CS	SC274	WS	NO23	
NE	11070203	Lower Cottonwood	5	Cottonwood R Near Plymouth	R	CS	SC275	AL	TSS	2023
NE	11070203	Lower Cottonwood	3	Diamond Cr Near Strong City	R	MR, CS	SC625	REC	ECB	
NE	11070203	Lower Cottonwood	4a	Fox Cr Near Strong City	R	CS	SC718	AL	Bio	Medium
NE	11070203	Lower Cottonwood	3	Middle Cr Near Elmdale	R	MN, CS	SC626	REC	ECB	
NE	11070203	Lower Cottonwood	4a	Palmer Cr Near Strong City	R	CS	SC719	AL	Bio	Medium
NE	11070203	Lower Cottonwood	5	Peter Pan Lake	L	LY	LM068901	AL	EU	2023
NE	11070203	Lower Cottonwood	3	Rock Cr near Bazaar	R	CS	SC760	AL	TSS	
NE	11070203	Lower Cottonwood	4a	South Fork Cottonwood R Near Bazaar	R	CS	SC582	AL	Bio	Medium
NE	11070204	Upper Neosho	5	Big Cr Near Chanute	R	AL, NO	SC611	AL	DO	2017
NE	11070204	Upper Neosho	3	Big Cr Near Chanute	R	AL, NO	SC611	REC	ECB	
NE	11070204	Upper Neosho	4a	Chanute Santa Fe Lake	L	NO	LM044401	AL	DO	Medium
NE	11070204	Upper Neosho	4a	Chanute Santa Fe Lake	L	NO	LM044401	AL	EU	Medium
NE	11070204	Upper Neosho	4a	Chanute Santa Fe Lake	L	NO	LM044401	AL	pH	Medium
NE	11070204	Upper Neosho	5	Circle Lake	L	WO	LM021101	AL	EU	2023
NE	11070204	Upper Neosho	5	Deer Cr Near Iola	R	AN, AL	SC609	AL	DO	2017
NE	11070204	Upper Neosho	4a	Deer Cr Near Iola	R	AN, AL	SC609	REC	FCB	Medium
NE	11070204	Upper Neosho	4a	Gridley City Lake	L	CF	LM045601	AL	EU	Medium
NE	11070204	Upper Neosho	4a	Gridley City Lake	L	CF	LM045601	AL	DO	Medium

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
NE	11070204	Upper Neosho	5	Leonard's Lake	L	WO	LM021301	AL	EU	2023
NE	11070204	Upper Neosho	5	Long Cr Near Le Roy	R	CF	SC695	AL	Atr	2023
NE	11070204	Upper Neosho	5	Long Cr Near Le Roy	R	CF	SC695	AL	DO	2017
NE	11070204	Upper Neosho	5	Neosho Falls City Lake	L	WO	LM021401	AL	EU	2023
NE	11070204	Upper Neosho	5	Owl Cr Near Humboldt	R	WO, WL	SC610	AL	DO	2017
NE	11070204	Upper Neosho	4a	Owl Cr Near Humboldt	R	WO, WL	SC610	AL	Cu	Low
NE	11070204	Upper Neosho	4a	Turkey Cr Near Le Roy	R	CF, WO	SC614	REC	ECB	High
NE	11070204	Upper Neosho	3	Wolf Cr Lake	L	CF	LM039601	AL	Se	
NE	11070205	Middle Neosho	4a	Altamont City Main Lake (#1)	L	LB	LM068001	AL	EU	Low
NE	11070205	Middle Neosho	4a	Altamont City West Lake (#3)	L	LB	LM068201	AL	EU	Low
NE	11070205	Middle Neosho	4a	Bachelor Cr Near Labette	R	LB	SC698	AL	DO	High
NE	11070205	Middle Neosho	4a	Bartlett City Lake	L	LB	LM045401	AL	EU	Low
NE	11070205	Middle Neosho	4a	Canville Cr Near Shaw	R	AL, NO	SC612	AL	DO	Medium
NE	11070205	Middle Neosho	4a	Cherry Cr Near Faulkner	R	CK	SC605	AL	DO	High
NE	11070205	Middle Neosho	3	Cherry Cr Near Faulkner	R	CK	SC605	REC	ECB	
NE	11070205	Middle Neosho	5	Cherry Cr Near Faulkner	R	CK	SC605	WS	SO4	2023
NE	11070205	Middle Neosho	3	Labette Cr Near Chetopa	R	LB	SC571	REC	ECB	
NE	11070205	Middle Neosho	4a	Labette Cr Near Labette	R	NO, LB	SC564	AL	DO	High
NE	11070205	Middle Neosho	5	Labette Cr Near Labette	R	NO, LB	SC564	AL	TP	2014
NE	11070205	Middle Neosho	5	Labette Cr Near Labette	R	NO, LB	SC564	AL	Diaz	2023
NE	11070205	Middle Neosho	3	Labette Cr Near Labette	R	NO, LB	SC564	REC	ECB	
NE	11070205	Middle Neosho	5	Lightning Cr Near Oswego	R	CR, CK	SC565	AL	Temp	2023
NE	11070205	Middle Neosho	5	Lightning Cr Near Oswego	R	CR, CK	SC565	AL	Atr	2023
NE	11070205	Middle Neosho	3	Lightning Cr Near Oswego	R	CR, CK	SC565	REC	ECB	
NE	11070205	Middle Neosho	4a	Mined Land Lake WA	L	CK	LM038841	AL	DO	Low
NE	11070205	Middle Neosho	5	Mined Land Lake WA	L	CK	LM038841	WS	Silt	2023
NE	11070205	Middle Neosho	4a	Mined Land Lake WA	L	CK	LM038841	WS	SO4	Low
NE	11070205	Middle Neosho	4a	Mined Land Lake 12	L	CK	LM035901	WS	SO4	Low
NE	11070205	Middle Neosho	5	Mined Land Lake 14	L	CK	LM036101	AL	EU	2023
NE	11070205	Middle Neosho	4a	Mined Land Lake 17	L	CK	LM048201	WS	SO4	Low
NE	11070205	Middle Neosho	5	Mined Land Lake 19	L	CK	LM036501	AL	EU	2023
NE	11070205	Middle Neosho	5	Mined Land Lake 22	L	CK	LM036801	FP	Perch	2023
NE	11070205	Middle Neosho	4a	Mined Land Lake 22	L	CK	LM036801	WS	SO4	Low
NE	11070205	Middle Neosho	4a	Mined Land Lake 23	L	CK	LM036901	WS	SO4	Low
NE	11070205	Middle Neosho	5	Mined Land Lake 24	L	CK	LM037001	AL	EU	2023
NE	11070205	Middle Neosho	5	Mined Land Lake 25	L	CK	LM037101	AL	EU	2023
NE	11070205	Middle Neosho	5	Mined Land Lake 26	L	CK	LM037201	AL	EU	2023
NE	11070205	Middle Neosho	4a	Mined Land Lake 27	L	CK	LM037301	WS	SO4	Low
NE	11070205	Middle Neosho	4a	Mined Land Lake 30	L	CK	LM037601	WS	SO4	Low
NE	11070205	Middle Neosho	5	Mined Land Lake 31	L	CK	LM037701	AL	EU	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
NE	11070205	Middle Neosho	5	Mined Land Lake 34	L	CK	LM038001	AL	EU	2023
NE	11070205	Middle Neosho	5	Mined Land Lake 35	L	CK	LM038101	AL	EU	2023
NE	11070205	Middle Neosho	5	Mined Land Lake 36	L	CK	LM038201	AL	EU	2023
NE	11070205	Middle Neosho	5	Mined Land Lake 40	L	CK	LM038601	AL	EU	2023
NE	11070205	Middle Neosho	5	Mined Land Lake 41	L	CK	LM038701	AL	EU	2023
NE	11070205	Middle Neosho	4a	Mined Land Lake 44	L	CK	LM048401	WS	SO4	Low
NE	11070205	Middle Neosho	4a	Neosho Co. SFL	L	NO	LM044601	AL	EU	Medium
NE	11070205	Middle Neosho	4a	Neosho Co. SFL	L	NO	LM044601	AL	pH	Medium
NE	11070205	Middle Neosho	4a	Neosho Co. SFL	L	NO	LM044601	AL	DO	Medium
NE	11070205	Middle Neosho	5	Neosho R near Chetopa	R	LB	SC214	AL	Bio	2014
NE	11070205	Middle Neosho	4a	Neosho W.A.	L	NO	LM053401	AL	pH	Medium
NE	11070205	Middle Neosho	4a	Neosho W.A.	L	NO	LM053401	AL	Pb	Medium
NE	11070205	Middle Neosho	4a	Neosho W.A.	L	NO	LM053401	AL	EU	Medium
NE	11070205	Middle Neosho	3	Neosho W.A.	L	NO	LM053401	AL	Atr	
NE	11070205	Middle Neosho	5	Neosho W.A.	L	NO	LM053401	AL	Cu	2023
NE	11070205	Middle Neosho	4a	Neosho W.A.	L	NO	LM053401	WS	Silt	Medium
NE	11070205	Middle Neosho	4a	Parsons Lake	L	NO	LM041401	AL	EU	Medium
NE	11070205	Middle Neosho	5	Parsons Lake	L	NO	LM041401	AL	Pb	2023
NE	11070205	Middle Neosho	4a	Parsons Lake	L	NO	LM041401	WS	Silt	Medium
NE	11070206	Lake O' The Cherokees	4a	Tar Cr At Pitcher, Oklahoma	R	CK	SC110	AL	Cd	Medium
NE	11070206	Lake O' The Cherokees	4a	Tar Cr At Pitcher, Oklahoma	R	CK	SC110	AL	Pb	Medium
NE	11070206	Lake O' The Cherokees	4a	Tar Cr At Pitcher, Oklahoma	R	CK	SC110	AL	Zn	Medium
NE	11070207	Spring	5	Cow Cr Near Lawton	R	CR, CK	SC567	AL	TP	2014
NE	11070207	Spring	4a	Cow Cr Near Lawton	R	CR, CK	SC567	WS	SO4	Low
NE	11070207	Spring	5	Mined Land Lake 01	L	CR	LM035101	AL	EU	2023
NE	11070207	Spring	3	Mined Land Lake 04	L	CR	LM035401	AL	pH	
NE	11070207	Spring	3	Mined Land Lake 04	L	CR	LM035401	WS	SO4	
NE	11070207	Spring	5	Mined Land Lake 06	L	CR	LM047601	AL	EU	2023
NE	11070207	Spring	4a	Mined Land Lake 06	L	CR	LM047601	WS	SO4	Low
NE	11070207	Spring	4a	Mined Land Lake 07	L	CR	LM047801	WS	SO4	Low
NE	11070207	Spring	5	Mined Land Lake 08	L	CR	LM035501	AL	EU	2023
NE	11070207	Spring	5	Mined Land Lake 09	L	CK	LM035601	AL	EU	2023
NE	11070207	Spring	4a	Pittsburg College Lake	L	CR	LM073301	AL	pH	Low
NE	11070207	Spring	4a	Pittsburg College Lake	L	CR	LM073301	AL	EU	Low
NE	11070207	Spring	4a	Playter's Lake	L	CR	LM069001	AL	EU	Low
NE	11070207	Spring	4a	Shawnee Cr Near Crestline	R	CK	SC569	AL	Cu	High
NE	11070207	Spring	4a	Shawnee Cr Near Crestline	R	CK	SC569	AL	Cd	High
NE	11070207	Spring	4a	Shawnee Cr Near Crestline	R	CK	SC569	AL	Zn	High
NE	11070207	Spring	4a	Shawnee Cr Near Crestline	R	CK	SC569	AL	Pb	High
NE	11070207	Spring	4a	Shawnee Cr Near Crestline	R	CK	SC569	AL	DO	High

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NE	11070207	Spring	4a	Shoal Cr Near Galena	R	CK	SC212	AL	Pb	High
NE	11070207	Spring	4a	Shoal Cr Near Galena	R	CK	SC212	AL	Zn	High
NE	11070207	Spring	5	Shoal Cr Near Galena	R	CK	SC212	AL	TP	2014
NE	11070207	Spring	4a	Shoal Cr Near Galena	R	CK	SC212	AL	Bio	
NE	11070207	Spring	4a	Short Cr Near Galena	R	CK	SC570	AL	Cu	High
NE	11070207	Spring	4a	Short Cr Near Galena	R	CK	SC570	AL	Cd	High
NE	11070207	Spring	4a	Short Cr Near Galena	R	CK	SC570	AL	Pb	High
NE	11070207	Spring	4a	Short Cr Near Galena	R	CK	SC570	AL	Zn	High
NE	11070207	Spring	5	Short Cr Near Galena	R	CK	SC570	AL	Se	2023
NE	11070207	Spring	5	Short Cr Near Galena	R	CK	SC570	AL	TP	2014
NE	11070207	Spring	5	Short Cr Near Galena	R	CK	SC570	WS	F	2023
NE	11070207	Spring	4a	Spring R Near Baxter Springs	R	CK	SC213	AL	Bio	High
NE	11070207	Spring	4a	Spring R Near Baxter Springs	R	CK	SC213	AL	Zn	High
NE	11070207	Spring	4a	Spring R Near Baxter Springs	R	CK	SC213	AL	Pb	High
NE	11070207	Spring	4a	Spring R Near Baxter Springs	R	CK	SC213	AL	Cd	
NE	11070207	Spring	4a	Spring R Near Baxter Springs	R	CK	SC213	AL	Cu	High
NE	11070207	Spring	4a	Spring R Near Crestline	R	CK	SC568	AL	Bio	High
NE	11070207	Spring	4a	Spring R Near Crestline	R	CK	SC568	AL	Cu	High
NE	11070207	Spring	4a	Spring R Near Crestline	R	CK	SC568	AL	Pb	High
NE	11070207	Spring	4a	Spring R Near Crestline	R	CK	SC568	AL	Zn	High
NE	11070207	Spring	3	Spring R Near Crestline	R	CK	SC568	REC	ECB	
NE	11070207	Spring	4a	Turkey Cr Near Joplin, Missouri	R	MISSOURI	SC211	AL	Zn	High
NE	11070207	Spring	4a	Turkey Cr Near Joplin, Missouri	R	MISSOURI	SC211	AL	Pb	High
NE	11070207	Spring	4a	Turkey Cr Near Joplin, Missouri	R	MISSOURI	SC211	AL	Cu	High
NE	11070207	Spring	4a	Turkey Cr Near Joplin, Missouri	R	MISSOURI	SC211	AL	Cd	High
NE	11070207	Spring	4a	Willow Cr Near Baxter Springs	R	CK	SC747	AL	Zn	
SS	10260001	Smoky Hill Headwaters	5	Willow Cr Near Weskan	R	WA	SC724	AL	DO	2023
SS	10260001	Smoky Hill Headwaters	5	Willow Cr Near Weskan	R	WA	SC724	WS	F	2023
SS	10260002	North Fork Smoky Hill	4a	Smoky Hill Garden Lake	L	SH	LM070101	AL	EU	Low
SS	10260002	North Fork Smoky Hill	3	Smoky Hill Garden Lake	L	SH	LM070101	WS	F	
SS	10260003	Upper Smoky Hill	4a	Cedar Bluff Lake	L	TR, NS	LM013001	AL	EU	Medium
SS	10260003	Upper Smoky Hill	4a	Cedar Bluff Lake	L	TR, NS	LM013001	WS	SO4	Low
SS	10260003	Upper Smoky Hill	5	Smoky Hill R At Elkader	R	LG, WA, WH	SC224	AL	Cd	2023
SS	10260003	Upper Smoky Hill	4a	Smoky Hill R At Elkader	R	LG, WA, WH	SC224	AL	Se	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
SS	10260003	Upper Smoky Hill	5	Smoky Hill R At Elkader	R	LG, WA, WH	SC224	AL	TSS	2023
SS	10260003	Upper Smoky Hill	4a	Smoky Hill R At Elkader	R	LG, WA, WH	SC224	WS	F	Low
SS	10260003	Upper Smoky Hill	4a	Smoky Hill R At Elkader	R	LG, WA, WH	SC224	WS	SO4	Low
SS	10260003	Upper Smoky Hill	4a	Smoky Hill R Near Gove	R	LG, GO, SC, LE	SC739	AL	DO	Medium
SS	10260003	Upper Smoky Hill	4a	Smoky Hill R Near Gove	R	LG, GO, SC, LE	SC739	AL	Se	Low
SS	10260003	Upper Smoky Hill	5	Smoky Hill R Near Gove	R	LG, GO, SC, LE	SC739	WS	F	2023
SS	10260003	Upper Smoky Hill	4a	Smoky Hill R Near Gove	R	LG, GO, SC, LE	SC739	WS	SO4	Low
SS	10260003	Upper Smoky Hill	5	Smoky Hill R Near Trego	R	LG, GO, TR	SC550	AL	Cd	2023
SS	10260003	Upper Smoky Hill	4a	Smoky Hill R Near Trego	R	LG, GO, TR	SC550	AL	Se	Low
SS	10260003	Upper Smoky Hill	5	Smoky Hill R Near Trego	R	LG, GO, TR	SC550	REC	ECB	2023
SS	10260003	Upper Smoky Hill	4a	Smoky Hill R Near Trego	R	LG, GO, TR	SC550	WS	SO4	Low
SS	10260004	Ladder Creek	4a	Lake Scott State Park	L	SC	LM011201	AL	EU	High
SS	10260004	Ladder Creek	4a	Lake Scott State Park	L	SC	LM011201	AL	pH	High
SS	10260004	Ladder Creek	4a	Lake Scott State Park	L	SC	LM011201	REC	AP	High
SS	10260004	Ladder Creek	5	Lake Scott State Park	L	SC	LM011201	WS	Ars	2023
SS	10260004	Ladder Creek	5	Lake Scott State Park	L	SC	LM011201	WS	F	2023
SS	10260006	Middle Smoky Hill	4a	Beaver Cr Near Dorrance	R	RS, BT	SC734	WS	SO4	Low
SS	10260006	Middle Smoky Hill	4a	Beaver Cr Near Dorrance	R	RS, BT	SC734	WS	Cl	Low
SS	10260006	Middle Smoky Hill	5	Coal Cr Near Wilson	R	RS, BT	SC733	AL	Se	2023
SS	10260006	Middle Smoky Hill	5	Coal Cr Near Wilson	R	RS, BT	SC733	AL	TSS	2023
SS	10260006	Middle Smoky Hill	5	Coal Cr Near Wilson	R	RS, BT	SC733	AL	DO	2023
SS	10260006	Middle Smoky Hill	4a	Coal Cr Near Wilson	R	RS, BT	SC733	WS	Cl	Low
SS	10260006	Middle Smoky Hill	4a	Coal Cr Near Wilson	R	RS, BT	SC733	WS	SO4	Low
SS	10260006	Middle Smoky Hill	5	Fossil Cr Near Russell	R	RS	SC713	AL	Se	2023
SS	10260006	Middle Smoky Hill	5	Fossil Cr Near Russell	R	RS	SC713	AL	TP	2023
SS	10260006	Middle Smoky Hill	4a	Fossil Cr Near Russell	R	RS	SC713	WS	SO4	Low
SS	10260006	Middle Smoky Hill	5	Fossil Cr Near Russell	R	RS	SC713	WS	Ars	2023
SS	10260006	Middle Smoky Hill	4a	Fossil Cr Near Russell	R	RS	SC713	WS	Cl	Low
SS	10260006	Middle Smoky Hill	4a	Fossil Lake	L	RS	LM052601	AL	EU	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
SS	10260006	Middle Smoky Hill	4a	Fossil Lake	L	RS	LM052601	WS	Silt	Low
SS	10260006	Middle Smoky Hill	4a	Kanopolis Lake	L	EW	LM016001	AL	EU	High
SS	10260006	Middle Smoky Hill	4a	Kanopolis Lake	L	EW	LM016001	WS	SO4	Low
SS	10260006	Middle Smoky Hill	4a	Kanopolis Lake	L	EW	LM016001	WS	Cl	Low
SS	10260006	Middle Smoky Hill	5	Landon Cr Near Russell	R	RS, BT	SC714	AL	Se	2023
SS	10260006	Middle Smoky Hill	4a	Landon Cr Near Russell	R	RS, BT	SC714	WS	SO4	Low
SS	10260006	Middle Smoky Hill	4a	Landon Cr Near Russell	R	RS, BT	SC714	WS	Cl	Low
SS	10260006	Middle Smoky Hill	5	Sellens Cr Near Russell	R	RS, BT	SC736	AL	Se	2023
SS	10260006	Middle Smoky Hill	5	Smoky Hill R At Ellsworth	R	EW	SC269	AL	Se	2023
SS	10260006	Middle Smoky Hill	5	Smoky Hill R At Ellsworth	R	EW	SC269	AL	Bio	2023
SS	10260006	Middle Smoky Hill	4a	Smoky Hill R At Ellsworth	R	EW	SC269	WS	SO4	Low
SS	10260006	Middle Smoky Hill	4a	Smoky Hill R At Ellsworth	R	EW	SC269	WS	Cl	Low
SS	10260006	Middle Smoky Hill	5	Smoky Hill R Near Russell	R	RS, EL, RH	SC007	AL	TP	2023
SS	10260006	Middle Smoky Hill	5	Smoky Hill R Near Russell	R	RS, EL, RH	SC007	AL	Se	2023
SS	10260006	Middle Smoky Hill	4a	Smoky Hill R Near Russell	R	RS, EL, RH	SC007	WS	SO4	Low
SS	10260006	Middle Smoky Hill	4a	Smoky Hill R Near Russell	R	RS, EL, RH	SC007	WS	Cl	Low
SS	10260006	Middle Smoky Hill	5	Smoky Hill R Near Schoenchen	R	EL, TR	SC539	AL	Se	2023
SS	10260006	Middle Smoky Hill	4a	Smoky Hill R Near Schoenchen	R	EL, TR	SC539	WS	SO4	Low
SS	10260006	Middle Smoky Hill	5	Smoky Hill R Near Wilson	R	BT	SC723	AL	Se	2023
SS	10260006	Middle Smoky Hill	4a	Smoky Hill R Near Wilson	R	BT	SC723	WS	SO4	Low
SS	10260006	Middle Smoky Hill	4a	Smoky Hill R Near Wilson	R	BT	SC723	WS	Cl	Low
SS	10260007	Big Creek	4a	Big Cr Near Hays	R	GO, EL, TR	SC541	AL	TP	High
SS	10260007	Big Creek	5	Big Cr Near Hays	R	GO, EL, TR	SC541	AL	Se	2023
SS	10260007	Big Creek	3	Big Cr Near Hays	R	GO, EL, TR	SC541	REC	ECB	
SS	10260007	Big Creek	4a	Big Cr Near Munjor	R	EL, TR	SC540	AL	TP	Low
SS	10260007	Big Creek	4a	Big Cr Near Munjor	R	EL, TR	SC540	AL	TSS	Low
SS	10260007	Big Creek	4a	Big Cr Near Munjor	R	EL, TR	SC540	REC	ECB	Low
SS	10260007	Big Creek	5	Big Cr Near Munjor	R	EL, TR	SC540	WS	SO4	2023
SS	10260007	Big Creek	4a	Big Cr Near Munjor	R	EL, TR	SC540	WS	NO23	Low
SS	10260007	Big Creek	4a	Big Cr near Russell	R	RS, EL	SC752	AL	TP	
SS	10260007	Big Creek	4a	Big Cr Oxbow	L	EL	LM070301	AL	EU	Low
SS	10260007	Big Creek	4a	Ellis City Lake	L	EL	LM069601	AL	EU	Low
SS	10260007	Big Creek	4a	North Fork Big Cr Near Walker	R	EL	SC715	AL	TP	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
SS	10260007	Big Creek	4a	North Fork Big Cr Near Walker	R	EL	SC715	WS	Cl	Low
SS	10260008	Lower Smoky Hill	4a	Carry Cr Near Lyona	R	DK	SC708	WS	SO4	Low
SS	10260008	Lower Smoky Hill	5	Chapman Cr Near Sutphen	R	CY, OT, DK	SC515	AL	TSS	2023
SS	10260008	Lower Smoky Hill	4a	Chapman Cr Near Sutphen	R	CY, OT, DK	SC515	WS	SO4	Low
SS	10260008	Lower Smoky Hill	4a	Geary Co. SFL	L	GE	LM043201	AL	EU	Medium
SS	10260008	Lower Smoky Hill	4a	Gypsum Cr Near Solomon	R	SA, MP	SC641	WS	SO4	Low
SS	10260008	Lower Smoky Hill	4a	Herington City Lake	L	DK	LM069701	AL	EU	Low
SS	10260008	Lower Smoky Hill	3	Herington City Lake	L	DK	LM069701	WS	Ars	
SS	10260008	Lower Smoky Hill	4a	Herington City Park Lake	L	DK	LM072801	AL	EU	Low
SS	10260008	Lower Smoky Hill	4a	Herington Reservoir	L	DK	LM047201	AL	EU	High
SS	10260008	Lower Smoky Hill	4a	Herington Reservoir	L	DK	LM047201	AL	Atr	Medium
SS	10260008	Lower Smoky Hill	4a	Herington Reservoir	L	DK	LM047201	AL	DO	High
SS	10260008	Lower Smoky Hill	5	Herington Reservoir	L	DK	LM047201	WS	Silt	2023
SS	10260008	Lower Smoky Hill	3	Herington Reservoir	L	DK	LM047201	WS	Ars	
SS	10260008	Lower Smoky Hill	4a	Holland Cr Near Sand Springs	R	DK	SC642	AL	DO	High
SS	10260008	Lower Smoky Hill	5	Holland Cr Near Sand Springs	R	DK	SC642	AL	Se	2023
SS	10260008	Lower Smoky Hill	5	Holland Cr Near Sand Springs	R	DK	SC642	REC	ECB	2023
SS	10260008	Lower Smoky Hill	4a	Holland Cr Near Sand Springs	R	DK	SC642	WS	SO4	Low
SS	10260008	Lower Smoky Hill	4a	Lakewood Park Lake	L	SA	LM069801	AL	EU	Low
SS	10260008	Lower Smoky Hill	3	Lakewood Park Lake	L	SA	LM069801	AL	Pb	
SS	10260008	Lower Smoky Hill	3	Lakewood Park Lake	L	SA	LM069801	WS	Silt	
SS	10260008	Lower Smoky Hill	4a	McPherson Co. SFL	L	MP	LM013501	AL	EU	Medium
SS	10260008	Lower Smoky Hill	4a	McPherson Co. SFL	L	MP	LM013501	AL	pH	Medium
SS	10260008	Lower Smoky Hill	4a	McPherson Co. SFL	L	MP	LM013501	AL	DO	Medium
SS	10260008	Lower Smoky Hill	4a	McPherson Co. SFL	L	MP	LM013501	REC	AP	Medium
SS	10260008	Lower Smoky Hill	5	Mud Cr Near Abilene	R	DK	SC643	AL	TP	2018
SS	10260008	Lower Smoky Hill	4a	Mud Cr Near Abilene	R	DK	SC643	WS	SO4	Low
SS	10260008	Lower Smoky Hill	5	Sharps Cr Near Freemount	R	MP, RC	SC749	AL	TP	2018
SS	10260008	Lower Smoky Hill	4a	Smoky Hill R At Enterprise	R	DK, SA	SC265	AL	TSS	Low
SS	10260008	Lower Smoky Hill	4a	Smoky Hill R At Enterprise	R	DK, SA	SC265	AL	Bio	Medium
SS	10260008	Lower Smoky Hill	5	Smoky Hill R At Enterprise	R	DK, SA	SC265	AL	TP	2018
SS	10260008	Lower Smoky Hill	4a	Smoky Hill R At Enterprise	R	DK, SA	SC265	WS	Cl	Low
SS	10260008	Lower Smoky Hill	4a	Smoky Hill R At Enterprise	R	DK, SA	SC265	WS	SO4	Low
SS	10260008	Lower Smoky Hill	5	Smoky Hill R At Junction City	R	GE, DK	SC264	AL	TP	2018
SS	10260008	Lower Smoky Hill	5	Smoky Hill R At Junction City	R	GE, DK	SC264	AL	Bio	2021
SS	10260008	Lower Smoky Hill	4a	Smoky Hill R At Junction City	R	GE, DK	SC264	AL	TSS	Low
SS	10260008	Lower Smoky Hill	3	Smoky Hill R At Junction City	R	GE, DK	SC264	REC	ECB	
SS	10260008	Lower Smoky Hill	4a	Smoky Hill R At Junction City	R	GE, DK	SC264	WS	Cl	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
SS	10260008	Lower Smoky Hill	4a	Smoky Hill R At Junction City	R	GE, DK	SC264	WS	SO4	Low
SS	10260008	Lower Smoky Hill	4a	Smoky Hill R Near Mentor	R	SA, EW, MP	SC514	AL	TSS	Low
SS	10260008	Lower Smoky Hill	4a	Smoky Hill R Near Mentor	R	SA, EW, MP	SC514	REC	ECB	High
SS	10260008	Lower Smoky Hill	4a	Smoky Hill R Near Salina	R	SA, MP	SC268	AL	Bio	Medium
SS	10260008	Lower Smoky Hill	4a	Smoky Hill R Near Salina	R	SA, MP	SC268	AL	TSS	Low
SS	10260008	Lower Smoky Hill	5	Smoky Hill R Near Salina	R	SA, MP	SC268	AL	TP	2018
SS	10260008	Lower Smoky Hill	5	Smoky Hill R Near Salina	R	SA, MP	SC268	WS	NO23	2018
SS	10260008	Lower Smoky Hill	4a	Turkey Cr Near Abilene	R	DK, MN	SC644	WS	SO4	Low
SS	10260009	Upper Saline	4a	Paradise Cr Near Waldo	R	OB, RO, RS	SC538	AL	Se	Low
SS	10260009	Upper Saline	5	Paradise Cr Near Waldo	R	OB, RO, RS	SC538	AL	DO	2023
SS	10260009	Upper Saline	5	Paradise Cr Near Waldo	R	OB, RO, RS	SC538	AL	TSS	2023
SS	10260009	Upper Saline	4a	Paradise Cr Near Waldo	R	OB, RO, RS	SC538	WS	SO4	Low
SS	10260009	Upper Saline	4a	Paradise Cr Near Waldo	R	OB, RO, RS	SC538	WS	Cl	Low
SS	10260009	Upper Saline	4a	Plainville Township Lake	L	RO	LM070001	AL	EU	Low
SS	10260009	Upper Saline	4a	Saline R Near Hays	R	TH, RO, SD, GH, EL, TR	SC548	AL	Se	Low
SS	10260009	Upper Saline	5	Saline R Near Hays	R	TH, RO, SD, GH, EL, TR	SC548	AL	DO	2023
SS	10260009	Upper Saline	3	Saline R Near Hays	R	TH, RO, SD, GH, EL, TR	SC548	REC	ECB	
SS	10260009	Upper Saline	4a	Saline R Near Hays	R	TH, RO, SD, GH, EL, TR	SC548	WS	SO4	Low
SS	10260009	Upper Saline	4a	Saline R Near Russell	R	RO, RS, EL	SC011	AL	Se	Low
SS	10260009	Upper Saline	4a	Saline R Near Russell	R	RO, RS, EL	SC011	WS	Cl	Low
SS	10260009	Upper Saline	4a	Saline R Near Russell	R	RO, RS, EL	SC011	WS	SO4	Low
SS	10260009	Upper Saline	4a	Sheridan W.A.	L	SD	LM014501	AL	pH	Low
SS	10260009	Upper Saline	4a	Sheridan W.A.	L	SD	LM014501	REC	FCB	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
SS	10260009	Upper Saline	4a	Wilson Lake	L	RS	LM014001	WS	SO4	Low
SS	10260009	Upper Saline	4a	Wilson Lake	L	RS	LM014001	WS	Cl	Low
SS	10260010	Lower Saline	3	Bullfoot Cr Near Lincoln	R	LC, EW	SC672	REC	ECB	
SS	10260010	Lower Saline	4a	Bullfoot Cr Near Lincoln	R	LC, EW	SC672	WS	SO4	Low
SS	10260010	Lower Saline	4a	Elkhorn Cr Near Lincoln	R	LC, EW	SC671	WS	SO4	Low
SS	10260010	Lower Saline	5	Mulberry Cr Near Salina	R	SA, EW, MP	SC640	AL	TP	2023
SS	10260010	Lower Saline	5	Mulberry Cr Near Salina	R	SA, EW, MP	SC640	AL	Cu	2023
SS	10260010	Lower Saline	3	Saline Co. SFL	L	SA	LM013701	WS	Silt	
SS	10260010	Lower Saline	5	Saline R Near Beverly	R	LC	SC513	AL	TSS	2023
SS	10260010	Lower Saline	5	Saline R Near Beverly	R	LC	SC513	AL	Se	2023
SS	10260010	Lower Saline	4a	Saline R Near Beverly	R	LC	SC513	WS	Cl	Low
SS	10260010	Lower Saline	4a	Saline R Near Beverly	R	LC	SC513	WS	SO4	Low
SS	10260010	Lower Saline	5	Saline R Near New Cambria	R	OT, LC, SA	SC267	AL	TP	2018
SS	10260010	Lower Saline	5	Saline R Near New Cambria	R	OT, LC, SA	SC267	AL	Bio	2023
SS	10260010	Lower Saline	5	Saline R Near New Cambria	R	OT, LC, SA	SC267	AL	TSS	2023
SS	10260010	Lower Saline	3	Saline R Near New Cambria	R	OT, LC, SA	SC267	REC	ECB	
SS	10260010	Lower Saline	4a	Saline R Near New Cambria	R	OT, LC, SA	SC267	WS	SO4	Low
SS	10260010	Lower Saline	4a	Saline R Near New Cambria	R	OT, LC, SA	SC267	WS	Cl	Low
SS	10260010	Lower Saline	5	Spillman Cr Near Lincoln	R	MC, LC	SC673	AL	TP	2023
SS	10260010	Lower Saline	4a	Spillman Cr Near Lincoln	R	MC, LC	SC673	AL	DO	High
SS	10260010	Lower Saline	3	Spillman Cr Near Lincoln	R	MC, LC	SC673	AL	Atr	
SS	10260010	Lower Saline	5	Spillman Cr Near Lincoln	R	MC, LC	SC673	AL	TSS	2023
SS	10260010	Lower Saline	5	Spillman Cr Near Lincoln	R	MC, LC	SC673	WS	Ars	2023
SS	10260010	Lower Saline	5	Wolf Cr Near Sylvan Grove	R	OB, RS	SC537	AL	DO	2023
SS	10260010	Lower Saline	4a	Wolf Cr Near Sylvan Grove	R	OB, RS	SC537	AL	Se	Low
SS	10260010	Lower Saline	5	Wolf Cr Near Sylvan Grove	R	OB, RS	SC537	AL	TSS	2023
SS	10260010	Lower Saline	4a	Wolf Cr Near Sylvan Grove	R	OB, RS	SC537	WS	Cl	Low
SS	10260010	Lower Saline	4a	Wolf Cr Near Sylvan Grove	R	OB, RS	SC537	WS	SO4	Low
SO	10250016	Middle Republican	5	Lake Jewell	L	JW	LM062901	AL	EU	2023
SO	10260011	Upper North Fork Solomon	4a	Bow Cr Near Stockton	R	PL, RO, SD, GH	SC545	AL	Se	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
SO	10260011	Upper North Fork Solomon	5	Bow Cr Near Stockton	R	PL, RO, SD, GH	SC545	AL	TP	2023
SO	10260011	Upper North Fork Solomon	5	Bow Cr Near Stockton	R	PL, RO, SD, GH	SC545	WS	SO4	2023
SO	10260011	Upper North Fork Solomon	4a	Kirwin Lake	L	PL, RO	LM011001	AL	DO	Medium
SO	10260011	Upper North Fork Solomon	4a	Kirwin Lake	L	PL, RO	LM011001	AL	EU	Medium
SO	10260011	Upper North Fork Solomon	3	Kirwin Lake	L	PL, RO	LM011001	WS	Ars	
SO	10260011	Upper North Fork Solomon	4a	Logan City Lake	L	PL	LM069301	AL	EU	Low
SO	10260011	Upper North Fork Solomon	5	North Fork Solomon R Near Glade	R	PL, NT, TH, SD	SC546	AL	TP	2023
SO	10260011	Upper North Fork Solomon	4a	North Fork Solomon R Near Glade	R	PL, NT, TH, SD	SC546	AL	Se	Low
SO	10260011	Upper North Fork Solomon	4a	North Fork Solomon R Near Glade	R	PL, NT, TH, SD	SC546	WS	SO4	Low
SO	10260011	Upper North Fork Solomon	5	North Fork Solomon R Near Glade	R	PL, NT, TH, SD	SC546	WS	Ars	2023
SO	10260012	Lower North Fork Solomon	4a	Beaver Cr Near Gaylord	R	SM	SC670	AL	Se	Low
SO	10260012	Lower North Fork Solomon	5	Beaver Cr Near Gaylord	R	SM	SC670	AL	DO	2023
SO	10260012	Lower North Fork Solomon	5	Beaver Cr Near Gaylord	R	SM	SC670	AL	TP	2023
SO	10260012	Lower North Fork Solomon	4a	Beaver Cr Near Gaylord	R	SM	SC670	WS	SO4	Low
SO	10260012	Lower North Fork Solomon	5	Beaver Cr Near Gaylord	R	SM	SC670	WS	Ars	2023
SO	10260012	Lower North Fork Solomon	5	Cedar Cr near Cedar	R	SM	SC753	AL	TP	2023
SO	10260012	Lower North Fork Solomon	5	Cedar Cr near Cedar	R	SM	SC753	AL	Se	2023
SO	10260012	Lower North Fork Solomon	5	Deer Cr Near Kirwin	R	PL	SC721	AL	DO	2023
SO	10260012	Lower North Fork Solomon	5	Deer Cr Near Kirwin	R	PL	SC721	AL	TP	2023
SO	10260012	Lower North Fork Solomon	4a	Deer Cr Near Kirwin	R	PL	SC721	AL	Se	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
SO	10260012	Lower North Fork Solomon	4a	Deer Cr Near Kirwin	R	PL	SC721	WS	SO4	Low
SO	10260012	Lower North Fork Solomon	5	Deer Cr Near Kirwin	R	PL	SC721	WS	Ars	2023
SO	10260012	Lower North Fork Solomon	4a	North Fork Solomon R At Portis	R	SM, PL	SC014	AL	Se	Low
SO	10260012	Lower North Fork Solomon	5	North Fork Solomon R At Portis	R	SM, PL	SC014	AL	TSS	2023
SO	10260012	Lower North Fork Solomon	5	North Fork Solomon R At Portis	R	SM, PL	SC014	AL	TP	2023
SO	10260012	Lower North Fork Solomon	5	North Fork Solomon R At Portis	R	SM, PL	SC014	AL	Bio	2023
SO	10260012	Lower North Fork Solomon	4a	North Fork Solomon R At Portis	R	SM, PL	SC014	REC	ECB	Low
SO	10260012	Lower North Fork Solomon	5	North Fork Solomon R At Portis	R	SM, PL	SC014	WS	Ars	2023
SO	10260012	Lower North Fork Solomon	4a	North Fork Solomon R At Portis	R	SM, PL	SC014	WS	SO4	Low
SO	10260012	Lower North Fork Solomon	5	Oak Cr Near Cawker City	R	JW, SM	SC544	AL	TP	2023
SO	10260012	Lower North Fork Solomon	4a	Oak Cr Near Cawker City	R	JW, SM	SC544	AL	Se	Low
SO	10260012	Lower North Fork Solomon	5	Oak Cr Near Cawker City	R	JW, SM	SC544	AL	DO	2023
SO	10260012	Lower North Fork Solomon	4a	Oak Cr Near Cawker City	R	JW, SM	SC544	WS	SO4	Low
SO	10260012	Lower North Fork Solomon	5	Twelve Mile Cr Near Downs	R	SM, OB	SC674	AL	TP	2023
SO	10260012	Lower North Fork Solomon	4a	Twelve Mile Cr Near Downs	R	SM, OB	SC674	WS	SO4	Low
SO	10260013	Upper South Fork Solomon	5	Antelope Lake	L	GH	LM069501	AL	EU	2023
SO	10260013	Upper South Fork Solomon	4a	Sheridan Co. SFL	L	SD	LM069401	AL	EU	Medium
SO	10260013	Upper South Fork Solomon	4a	Sheridan Co. SFL	L	SD	LM069401	AL	DO	Medium
SO	10260013	Upper South Fork Solomon	5	Sheridan Co. SFL	L	SD	LM069401	WS	Ars	2023
SO	10260013	Upper South Fork Solomon	4a	South Fork Solomon R Near Damar	R	TH, SD, GH	SC547	AL	Se	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
SO	10260013	Upper South Fork Solomon	4a	South Fork Solomon R Near Damar	R	TH, SD, GH	SC547	WS	SO4	Low
SO	10260013	Upper South Fork Solomon	3	Webster Lake	L	RO	LM012001	AL	Se	
SO	10260013	Upper South Fork Solomon	4a	Webster Lake	L	RO	LM012001	AL	EU	Medium
SO	10260013	Upper South Fork Solomon	5	Webster Lake	L	RO	LM012001	WS	Silt	2023
SO	10260013	Upper South Fork Solomon	4a	Webster Lake	L	RO	LM012001	WS	SO4	Low
SO	10260013	Upper South Fork Solomon	3	Webster Lake	L	RO	LM012001	WS	Ars	
SO	10260014	Lower South Fork Solomon	5	Carr Cr Near Cawker City	R	OB, MC	SC669	AL	TP	2023
SO	10260014	Lower South Fork Solomon	4a	Carr Cr Near Cawker City	R	OB, MC	SC669	AL	Se	Low
SO	10260014	Lower South Fork Solomon	5	Carr Cr Near Cawker City	R	OB, MC	SC669	AL	TSS	2023
SO	10260014	Lower South Fork Solomon	4a	Carr Cr Near Cawker City	R	OB, MC	SC669	WS	SO4	Low
SO	10260014	Lower South Fork Solomon	4a	Covert Cr Near Osborne	R	OB	SC666	AL	Se	Low
SO	10260014	Lower South Fork Solomon	4a	Covert Cr Near Osborne	R	OB	SC666	WS	SO4	Low
SO	10260014	Lower South Fork Solomon	4a	Kill Cr Near Bloomington	R	OB	SC665	AL	Se	Low
SO	10260014	Lower South Fork Solomon	4a	Kill Cr Near Bloomington	R	OB	SC665	WS	SO4	Low
SO	10260014	Lower South Fork Solomon	4a	Rooks Co. SFL	L	RO	LM011901	AL	DO	Medium
SO	10260014	Lower South Fork Solomon	4a	Rooks Co. SFL	L	RO	LM011901	AL	EU	Medium
SO	10260014	Lower South Fork Solomon	4a	South Fork Solomon R Near Osborne	R	OB, RO, RS	SC542	AL	Bio	Medium
SO	10260014	Lower South Fork Solomon	4a	South Fork Solomon R Near Osborne	R	OB, RO, RS	SC542	AL	Se	Low
SO	10260014	Lower South Fork Solomon	5	South Fork Solomon R Near Osborne	R	OB	SC543	AL	TSS	2023
SO	10260014	Lower South Fork Solomon	4a	South Fork Solomon R Near Osborne	R	OB	SC543	AL	Se	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
SO	10260014	Lower South Fork Solomon	4a	South Fork Solomon R Near Osborne	R	OB	SC543	AL	Bio	Medium
SO	10260014	Lower South Fork Solomon	5	South Fork Solomon R Near Osborne	R	OB	SC543	AL	TP	2023
SO	10260014	Lower South Fork Solomon	4a	South Fork Solomon R Near Osborne	R	OB, RO, RS	SC542	REC	ECB	Low
SO	10260014	Lower South Fork Solomon	4a	South Fork Solomon R Near Osborne	R	OB	SC543	REC	ECB	Low
SO	10260014	Lower South Fork Solomon	4a	South Fork Solomon R Near Osborne	R	OB, RO, RS	SC542	WS	SO4	Low
SO	10260014	Lower South Fork Solomon	4a	South Fork Solomon R Near Osborne	R	OB	SC543	WS	SO4	Low
SO	10260014	Lower South Fork Solomon	4a	South Fork Solomon R Near Woodston	R	RO	SC737	AL	Se	Low
SO	10260014	Lower South Fork Solomon	5	South Fork Solomon R Near Woodston	R	RO	SC737	AL	DO	2023
SO	10260014	Lower South Fork Solomon	4a	South Fork Solomon R Near Woodston	R	RO	SC737	WS	SO4	Low
SO	10260014	Lower South Fork Solomon	4a	Twin Cr Near Corinth	R	OB	SC668	AL	DO	Medium
SO	10260014	Lower South Fork Solomon	4a	Twin Cr Near Corinth	R	OB	SC668	WS	SO4	Low
SO	10260015	Solomon River	5	Jewell Co. SFL	L	JW	LM012801	AL	EU	2023
SO	10260015	Solomon River	5	Jewell Co. SFL	L	JW	LM012801	WS	Silt	2023
SO	10260015	Solomon River	5	Limestone Cr Near Glen Elder	R	JW	SC667	AL	TP	2023
SO	10260015	Solomon River	4a	Limestone Cr Near Glen Elder	R	JW	SC667	AL	Se	Low
SO	10260015	Solomon River	3	Limestone Cr Near Glen Elder	R	JW	SC667	AL	Atr	
SO	10260015	Solomon River	4a	Limestone Cr Near Glen Elder	R	JW	SC667	AL	DO	High
SO	10260015	Solomon River	4a	Limestone Cr Near Glen Elder	R	JW	SC667	WS	SO4	Low
SO	10260015	Solomon River	4a	Ottawa Co. SFL	L	OT	LM014101	AL	EU	Medium
SO	10260015	Solomon River	4a	Ottawa Co. SFL	L	OT	LM014101	AL	DO	Medium
SO	10260015	Solomon River	4a	Ottawa Co. SFL	L	OT	LM014101	REC	AP	Medium
SO	10260015	Solomon River	5	Pipe Cr Near Minneapolis	R	CD, OT, SA	SC651	AL	DO	2023
SO	10260015	Solomon River	5	Salt Cr Near Minneapolis	R	MC, OT, LC	SC512	AL	TP	2023
SO	10260015	Solomon River	5	Salt Cr Near Minneapolis	R	MC, OT, LC	SC512	AL	TSS	2023
SO	10260015	Solomon River	5	Salt Cr Near Minneapolis	R	MC, OT, LC	SC512	AL	DO	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
SO	10260015	Solomon River	4a	Salt Cr Near Minneapolis	R	MC, OT, LC	SC512	WS	Cl	Low
SO	10260015	Solomon River	4a	Salt Cr Near Minneapolis	R	MC, OT, LC	SC512	WS	SO4	Low
SO	10260015	Solomon River	3	Solomon R at Beloit	R	MC	PWS2012301	AL	Atr	
SO	10260015	Solomon River	5	Solomon R At Niles	R	CD, OT, SA	SC266	AL	TP	2023
SO	10260015	Solomon River	4a	Solomon R At Niles	R	CD, OT, SA	SC266	AL	TSS	Low
SO	10260015	Solomon River	4a	Solomon R At Niles	R	CD, OT, SA	SC266	WS	Cl	Low
SO	10260015	Solomon River	4a	Solomon R At Niles	R	CD, OT, SA	SC266	WS	SO4	Low
SO	10260015	Solomon River	5	Solomon R Near Glasco	R	JW, CD, MC	SC511	AL	TSS	2023
SO	10260015	Solomon River	5	Solomon R Near Glasco	R	JW, CD, MC	SC511	AL	TP	2023
SO	10260015	Solomon River	5	Solomon R Near Glasco	R	JW, CD, MC	SC511	AL	Se	2023
SO	10260015	Solomon River	4a	Solomon R Near Glasco	R	JW, CD, MC	SC511	WS	Cl	Low
SO	10260015	Solomon River	4a	Solomon R Near Glasco	R	JW, CD, MC	SC511	WS	SO4	Low
SO	10260015	Solomon River	4a	Waconda Lake	L	OB, MC	LM018001	AL	EU	Medium
SO	10260015	Solomon River	4a	Waconda Lake	L	OB, MC	LM018001	WS	SO4	Low
UA	11030001	Middle Arkansas-Lake McKinney	4a	Arkansas R At Coolidge	R	HM	SC223	AL	Se	High
UA	11030001	Middle Arkansas-Lake McKinney	4a	Arkansas R At Coolidge	R	HM	SC223	WS	B	Medium
UA	11030001	Middle Arkansas-Lake McKinney	4a	Arkansas R At Coolidge	R	HM	SC223	WS	SO4	Medium
UA	11030001	Middle Arkansas-Lake McKinney	5	Arkansas R At Coolidge	R	HM	SC223	WS	F	2023
UA	11030001	Middle Arkansas-Lake McKinney	3	Arkansas R At Coolidge	R	HM	SC223	WS	NO23	
UA	11030001	Middle Arkansas-Lake McKinney	5	Arkansas R At Coolidge	R	HM	SC223	WS	GA	2023
UA	11030001	Middle Arkansas-Lake McKinney	5	Arkansas R Near Deerfield	R	KE, HM	SC598	AL	TSS	2023
UA	11030001	Middle Arkansas-Lake McKinney	4a	Arkansas R Near Deerfield	R	KE, HM	SC598	AL	Se	High

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
UA	11030001	Middle Arkansas-Lake McKinney	5	Arkansas R Near Deerfield	R	KE, HM	SC598	WS	F	2023
UA	11030001	Middle Arkansas-Lake McKinney	4a	Arkansas R Near Deerfield	R	KE, HM	SC598	WS	SO4	Medium
UA	11030001	Middle Arkansas-Lake McKinney	4a	Arkansas R Near Deerfield	R	KE, HM	SC598	WS	B	Medium
UA	11030001	Middle Arkansas-Lake McKinney	3	Beymer Lake	L	JO	LM071001	AL	Se	
UA	11030001	Middle Arkansas-Lake McKinney	3	Beymer Lake	L	JO	LM071001	WS	F	
UA	11030001	Middle Arkansas-Lake McKinney	4a	Hamilton Co. SFL	L	HM	LM016101	AL	EU	Low
UA	11030001	Middle Arkansas-Lake McKinney	5	Hamilton Co. SFL	L	HM	LM016101	AL	DO	2023
UA	11030001	Middle Arkansas-Lake McKinney	4a	Hamilton Co. SFL	L	HM	LM016101	REC	AP	Low
UA	11030001	Middle Arkansas-Lake McKinney	4a	Hamilton Co. SFL	L	HM	LM016101	WS	Cl	Low
UA	11030001	Middle Arkansas-Lake McKinney	4a	Hamilton Co. SFL	L	HM	LM016101	WS	Silt	Low
UA	11030001	Middle Arkansas-Lake McKinney	4a	Hamilton Co. SFL	L	HM	LM016101	WS	SO4	Low
UA	11030001	Middle Arkansas-Lake McKinney	4a	Hamilton W.A.	L	HM	LM016141	AL	EU	Low
UA	11030001	Middle Arkansas-Lake McKinney	4a	Hamilton W.A.	L	HM	LM016141	AL	DO	Low
UA	11030001	Middle Arkansas-Lake McKinney	4a	Hamilton W.A.	L	HM	LM016141	WS	Cl	Low
UA	11030001	Middle Arkansas-Lake McKinney	4a	Hamilton W.A.	L	HM	LM016141	WS	Silt	Low
UA	11030001	Middle Arkansas-Lake McKinney	4a	Hamilton W.A.	L	HM	LM016141	WS	SO4	Low
UA	11030003	Arkansas-Dodge City	4a	Arkansas R At Pierceville	R	FI, KE	SC286	AL	pH	Medium
UA	11030003	Arkansas-Dodge City	4a	Arkansas R At Pierceville	R	FI, KE	SC286	AL	Se	High
UA	11030003	Arkansas-Dodge City	4c	Arkansas R At Pierceville	R	FI, KE	SC286	AL	TP	Low
UA	11030003	Arkansas-Dodge City	4c	Arkansas R At Pierceville	R	FI, KE	SC286	AL	TSS	Low
UA	11030003	Arkansas-Dodge City	4a	Arkansas R At Pierceville	R	FI, KE	SC286	REC	FCB	High
UA	11030003	Arkansas-Dodge City	4a	Arkansas R At Pierceville	R	FI, KE	SC286	WS	B	Medium
UA	11030003	Arkansas-Dodge City	4a	Arkansas R At Pierceville	R	FI, KE	SC286	WS	SO4	Medium
UA	11030003	Arkansas-Dodge City	4a	Lake Charles	L	FO	LM071101	AL	EU	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
UA	11030004	Arkansas-Pickerel	5	Arkansas R Near Dundee	R	PN, ED, FO	SC584	AL	Se	2023
UA	11030004	Arkansas-Pickerel	4a	Arkansas R Near Dundee	R	PN, ED, FO	SC584	REC	ECB	High
UA	11030004	Arkansas-Pickerel	4a	Arkansas R Near Dundee	R	PN, ED, FO	SC584	WS	SO4	Medium
UA	11030004	Arkansas-Pickerel	5	Arkansas R Near Ford	R	GY, FO, HS	SC594	AL	Se	2023
UA	11030004	Arkansas-Pickerel	5	Arkansas R Near Ford	R	GY, FO, HS	SC594	AL	TP	2023
UA	11030004	Arkansas-Pickerel	4a	Arkansas R Near Ford	R	GY, FO, HS	SC594	REC	ECB	High
UA	11030004	Arkansas-Pickerel	4a	Arkansas R Near Ford	R	GY, FO, HS	SC594	WS	SO4	Medium
UA	11030004	Arkansas-Pickerel	5	Arkansas R Near Ford	R	GY, FO, HS	SC594	WS	F	2023
UA	11030004	Arkansas-Pickerel	5	Arkansas R Near Great Bend	R	BT, SF	SC284	AL	TP	2023
UA	11030004	Arkansas-Pickerel	5	Arkansas R Near Great Bend	R	BT, SF	SC284	AL	Se	2023
UA	11030004	Arkansas-Pickerel	4a	Arkansas R Near Great Bend	R	BT, SF	SC284	AL	Bio	Medium
UA	11030004	Arkansas-Pickerel	4a	Arkansas R Near Great Bend	R	BT, SF	SC284	REC	FCB	High
UA	11030004	Arkansas-Pickerel	4a	Arkansas R Near Great Bend	R	BT, SF	SC284	WS	SO4	Medium
UA	11030004	Arkansas-Pickerel	5	Arkansas R Near Kinsley	R	ED, FO	SC587	AL	Se	2023
UA	11030004	Arkansas-Pickerel	4a	Arkansas R Near Kinsley	R	ED, FO	SC587	REC	ECB	High
UA	11030004	Arkansas-Pickerel	4a	Arkansas R Near Kinsley	R	ED, FO	SC587	WS	F	Medium
UA	11030004	Arkansas-Pickerel	4a	Mulberry Cr Near Ford	R	FO	SC700	AL	DO	Low
UA	11030004	Arkansas-Pickerel	5	Mulberry Cr Near Ford	R	FO	SC700	AL	TSS	2023
UA	11030005	Pawnee	4a	Concannon SFL	L	FI	LM053601	AL	EU	Low
UA	11030005	Pawnee	3	Concannon SFL	L	FI	LM053601	WS	Ars	
UA	11030005	Pawnee	5	Concannon SFL	L	FI	LM053601	WS	B	2023
UA	11030005	Pawnee	5	Concannon SFL	L	FI	LM053601	WS	F	2023
UA	11030005	Pawnee	5	Concannon SFL	L	FI	LM053601	WS	SO4	2023
UA	11030005	Pawnee	5	Pawnee R Near Burdett	R	NX, FI, HG	SC586	AL	TP	2023
UA	11030005	Pawnee	5	Pawnee R Near Burdett	R	NX, FI, HG	SC586	AL	TSS	2023
UA	11030005	Pawnee	4a	Pawnee R Near Burdett	R	NX, FI, HG	SC586	AL	DO	Low
UA	11030005	Pawnee	4a	Pawnee R Near Burdett	R	NX, FI, HG	SC586	AL	Cu	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
UA	11030005	Pawnee	4a	Pawnee R Near Burdett	R	NX, FI, HG	SC586	AL	Atr	Medium
UA	11030005	Pawnee	4a	Pawnee R Near Burdett	R	NX, FI, HG	SC586	AL	Pb	Low
UA	11030005	Pawnee	4a	Pawnee R Near Burdett	R	NX, FI, HG	SC586	REC	ECB	High
UA	11030005	Pawnee	4a	Pawnee R Near Larned	R	PN	SC585	AL	Cu	Low
UA	11030005	Pawnee	5	Pawnee R Near Larned	R	PN	SC585	AL	TP	2023
UA	11030005	Pawnee	4a	Pawnee R Near Larned	R	PN	SC585	AL	DO	Low
UA	11030005	Pawnee	4a	Pawnee R Near Larned	R	PN	SC585	AL	Atr	Low
UA	11030005	Pawnee	4a	Pawnee R Near Larned	R	PN	SC585	AL	Pb	Low
UA	11030005	Pawnee	4a	Pawnee R Near Larned	R	PN	SC585	REC	FCB	High
UA	11030006	Buckner	3	Boy Scout Lake	L	HG	LM070601	AL	EU	
UA	11030006	Buckner	4a	Ford Co. Lake	L	FO	LM070801	AL	DO	High
UA	11030006	Buckner	4a	Ford Co. Lake	L	FO	LM070801	AL	EU	High
UA	11030006	Buckner	4a	Ford Co. Lake	L	FO	LM070801	AL	pH	High
UA	11030006	Buckner	5	Hain SFL	L	FO	LM070901	AL	EU	2023
UA	11030006	Buckner	5	Horsethief Canyon Lake	L	HG	LM055001	AL	EU	2023
UA	11030006	Buckner	4a	Jetmore Lake	L	HG	LM073901	AL	EU	Low
UA	11030006	Buckner	4a	Jetmore Lake	L	HG	LM073901	REC	AP	Low
UA	11030007	Upper Walnut Creek	4a	Walnut Cr At Ness City	R	SC, LE, NS	SC595	AL	Se	Low
UA	11030007	Upper Walnut Creek	4a	Walnut Cr At Ness City	R	SC, LE, NS	SC595	WS	SO4	Low
UA	11030008	Lower Walnut Creek	5	Goodman SFL	L	NS	LM052401	AL	EU	2023
UA	11030008	Lower Walnut Creek	3	Goodman SFL	L	NS	LM052401	AL	Se	
UA	11030008	Lower Walnut Creek	5	Goodman SFL	L	NS	LM052401	WS	SO4	2023
UA	11030008	Lower Walnut Creek	4a	Memorial Park Lake	L	BT	LM071501	AL	EU	Low
UA	11030008	Lower Walnut Creek	4a	Stone Lake	L	BT	LM074001	AL	EU	Low
UA	11030008	Lower Walnut Creek	5	Walnut Cr Near Alexander	R	LE, NS	SC596	AL	TSS	2023
UA	11030008	Lower Walnut Creek	4a	Walnut Cr Near Alexander	R	LE, NS	SC596	AL	DO	Low
UA	11030008	Lower Walnut Creek	4a	Walnut Cr Near Alexander	R	LE, NS	SC596	AL	Se	High
UA	11030008	Lower Walnut Creek	4a	Walnut Cr Near Alexander	R	LE, NS	SC596	WS	SO4	Low
UA	11030008	Lower Walnut Creek	5	Walnut Cr Near Heizer	R	RH, BT	SC597	AL	TP	2023
UA	11030008	Lower Walnut Creek	5	Walnut Cr Near Heizer	R	RH, BT	SC597	AL	TSS	2023
UA	11030008	Lower Walnut Creek	4a	Walnut Cr Near Heizer	R	RH, BT	SC597	AL	DO	High
UA	11030008	Lower Walnut Creek	4a	Walnut Cr Near Heizer	R	RH, BT	SC597	AL	Se	High
UA	11030008	Lower Walnut Creek	3	Walnut Cr Near Heizer	R	RH, BT	SC597	REC	ECB	
UA	11030008	Lower Walnut Creek	4a	Walnut Cr Near Heizer	R	RH, BT	SC597	WS	SO4	Low
UA	11030008	Lower Walnut Creek	5	Walnut Cr Near Heizer	R	RH, BT	SC597	WS	NO23	2023

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
UR	10250001	Arikaree	5	Arikaree R Near Haigler, Nebraska	R	CN	SC226	AL	DO	2023
UR	10250001	Arikaree	4a	Arikaree R Near Haigler, Nebraska	R	CN	SC226	AL	Se	Low
UR	10250001	Arikaree	3	Arikaree R Near Haigler, Nebraska	R	CN	SC226	REC	ECB	
UR	10250001	Arikaree	4a	Arikaree R Near Haigler, Nebraska	R	CN	SC226	WS	F	Low
UR	10250003	South Fork Republican	3	Saint Francis W.A.	L	CN	LM071401	AL	Cu	
UR	10250003	South Fork Republican	3	Saint Francis W.A.	L	CN	LM071401	AL	EU	
UR	10250003	South Fork Republican	4a	South Fork Republican R Near Benkelman, Nebraska	R	CN	SC227	WS	F	Low
UR	10250003	South Fork Republican	3	South Fork Republican R Near St. Francis	R	CN	SC225	AL	Bio	
UR	10250003	South Fork Republican	4a	South Fork Republican R Near St. Francis	R	CN	SC225	WS	F	Low
UR	10250011	Lower Sappa	5	Sappa Cr Near Beaver City, Nebraska	R	RA, DC, NT, SH, TH	SC229	AL	TP	2023
UR	10250011	Lower Sappa	5	Sappa Cr Near Beaver City, Nebraska	R	RA, DC, NT, SH, TH	SC229	AL	DO	2023
UR	10250011	Lower Sappa	5	Sappa Cr Near Beaver City, Nebraska	R	RA, DC, NT, SH, TH	SC229	AL	Se	2023
UR	10250011	Lower Sappa	5	Sappa Cr Near Beaver City, Nebraska	R	RA, DC, NT, SH, TH	SC229	WS	Ars	2023
UR	10250012	South Fork Beaver	3	Atwood Township Lake	L	RA	LM071201	AL	EU	
UR	10250012	South Fork Beaver	3	Atwood Township Lake	L	RA	LM071201	WS	SO4	
UR	10250012	South Fork Beaver	3	Atwood Township Lake	L	RA	LM071201	WS	F	
UR	10250014	Beaver Creek	3	Beaver Cr At Cedar Bluffs	R	CN, RA, DC, SH	SC228	AL	TP	
UR	10250014	Beaver Creek	4a	Beaver Cr At Cedar Bluffs	R	CN, RA, DC, SH	SC228	AL	DO	Low
UR	10250014	Beaver Creek	4a	Beaver Cr At Cedar Bluffs	R	CN, RA, DC, SH	SC228	WS	F	Low
UR	10250015	Prairie Dog Creek	4a	Colby City Lake	L	TH	LM071301	AL	EU	Low
UR	10250015	Prairie Dog Creek	3	Colby City Lake	L	TH	LM071301	AL	Pb	
UR	10250015	Prairie Dog Creek	4a	Norton Lake (Sebelius Lake)	L	NT	LM010001	AL	EU	High
UR	10250015	Prairie Dog Creek	4a	Norton Lake (Sebelius Lake)	L	NT	LM010001	AL	pH	Low

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
UR	10250015	Prairie Dog Creek	4a	Norton Lake (Sebelius Lake)	L	NT	LM010001	AL	DO	Low
UR	10250015	Prairie Dog Creek	5	Prairie Dog Cr Near Dellvale	R	DC, TH	SC549	AL	DO	2023
UR	10250015	Prairie Dog Creek	4a	Prairie Dog Cr Near Dellvale	R	DC, TH	SC549	AL	TP	Low
UR	10250015	Prairie Dog Creek	5	Prairie Dog Cr Near Dellvale	R	DC, TH	SC549	WS	Ars	2023
UR	10250015	Prairie Dog Creek	4a	Prairie Dog Cr Near Woodruff	R	PL, NT	SC230	AL	DO	High
UR	10250015	Prairie Dog Creek	5	Prairie Dog Cr Near Woodruff	R	PL, NT	SC230	AL	TP	2023
UR	10250015	Prairie Dog Creek	5	Prairie Dog Cr Near Woodruff	R	PL, NT	SC230	WS	Ars	2023
VE	11070101	Upper Verdigris	4a	Chetopa Cr Near Neodesha	R	WL, NO	SC696	AL	DO	Medium
VE	11070101	Upper Verdigris	4a	Chetopa Cr Near Neodesha	R	WL, NO	SC696	REC	FCB	Medium
VE	11070101	Upper Verdigris	4a	Eureka Lake	L	GW	LM040201	AL	EU	Medium
VE	11070101	Upper Verdigris	4a	Eureka Lake	L	GW	LM040201	WS	Silt	Medium
VE	11070101	Upper Verdigris	5	Toronto Lake	L	GW, WO	LM024001	AL	Pb	2023
VE	11070101	Upper Verdigris	4a	Toronto Lake	L	GW, WO	LM024001	AL	EU	High
VE	11070101	Upper Verdigris	4a	Toronto Lake	L	GW, WO	LM024001	AL	DO	High
VE	11070101	Upper Verdigris	4a	Toronto Lake	L	GW, WO	LM024001	WS	Silt	High
VE	11070101	Upper Verdigris	5	Verdigris R Near Virgil	R	LY, CS, GW	SC289	REC	ECB	2023
VE	11070101	Upper Verdigris	4a	Wilson Co. SFL	L	WL	LM015101	AL	DO	Medium
VE	11070101	Upper Verdigris	4a	Wilson Co. SFL	L	WL	LM015101	AL	EU	Medium
VE	11070101	Upper Verdigris	4a	Woodson W.A.	L	WO	LM011841	AL	EU	Medium
VE	11070101	Upper Verdigris	4a	Woodson W.A.	L	WO	LM011841	AL	DO	Medium
VE	11070101	Upper Verdigris	4a	Woodson W.A.	L	WO	LM011841	REC	FCB	Medium
VE	11070101	Upper Verdigris	5	Woodson W.A.	L	WO	LM011841	WS	Silt	2023
VE	11070102	Fall River	4a	Fall R Lake	L	GW	LM023001	AL	DO	High
VE	11070102	Fall River	4a	Fall R Lake	L	GW	LM023001	WS	Silt	High
VE	11070102	Fall River	4a	Fall R Near Climax	R	GW, BU	SC575	REC	FCB	High
VE	11070103	Middle Verdigris	4a	Big Hill Cr Near Avian	R	MG, LB	SC607	AL	DO	Medium
VE	11070103	Middle Verdigris	4a	Big Hill Cr Near Avian	R	MG, LB	SC607	REC	ECB	Medium
VE	11070103	Middle Verdigris	4a	Big Hill Lake	L	NO, LB	LM031001	AL	EU	High
VE	11070103	Middle Verdigris	5	Drum Cr Near Independence	R	NO, MG	SC699	AL	DO	2023
VE	11070103	Middle Verdigris	3	Drum Cr Near Independence	R	NO, MG	SC699	REC	ECB	
VE	11070103	Middle Verdigris	4a	La Claire Lake	L	MG	LM072901	AL	EU	Low
VE	11070103	Middle Verdigris	4a	Lake Tanko (Cherryvale City Lake)	L	MG	LM071601	AL	EU	Low
VE	11070103	Middle Verdigris	4a	Montgomery Co. SFL	L	MG	LM010701	AL	pH	Medium
VE	11070103	Middle Verdigris	4a	Montgomery Co. SFL	L	MG	LM010701	AL	EU	Medium

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
VE	11070103	Middle Verdigris	4a	Montgomery Co. SFL	L	MG	LM010701	AL	DO	Medium
VE	11070103	Middle Verdigris	4a	Onion Cr Near Coffeyville	R	MG	SC608	AL	DO	Medium
VE	11070103	Middle Verdigris	4a	Pumpkin Cr Near Coffeyville	R	LB	SC606	AL	DO	Medium
VE	11070103	Middle Verdigris	3	Pumpkin Cr Near Coffeyville	R	LB	SC606	REC	ECB	
VE	11070103	Middle Verdigris	4a	Verdigris R Near Coffeyville	R	MG	SC215	AL	Bio	Medium
VE	11070103	Middle Verdigris	5	Verdigris R Near Coffeyville	R	MG	SC215	AL	Se	2023
VE	11070103	Middle Verdigris	4a	Verdigris R Near Coffeyville	R	MG	SC215	REC	FCB	Medium
VE	11070103	Middle Verdigris	4a	Verdigris R Near Independence	R	MG	SC563	AL	Bio	Medium
VE	11070103	Middle Verdigris	4a	Verdigris R Near Independence	R	MG	SC563	REC	FCB	Medium
VE	11070103	Middle Verdigris	5	Verdigris R Near Sycamore	R	WL, MG	SC105	AL	Bio	2023
VE	11070103	Middle Verdigris	3	Verdigris R Near Sycamore	R	WL, MG	SC105	REC	ECB	
VE	11070104	Elk River	4a	Elk City Lake	L	EK, MG, CQ	LM025001	AL	EU	Medium
VE	11070104	Elk River	4a	Elk City Lake	L	EK, MG, CQ	LM025001	WS	Silt	Medium
VE	11070104	Elk River	4a	Elk R Near Howard	R	EK, MG	SC693	AL	DO	Medium
VE	11070104	Elk River	4a	Elk R Near Howard	R	EK, MG	SC693	REC	FCB	Medium
VE	11070104	Elk River	5	Polk Daniels Lake (Elk Co. SFL)	L	EK	LM012701	AL	EU	2023
VE	11070106	Caney River	5	Little Caney R Near Caney	R	MG, CQ	SC572	WS	NO23	2023
VE	11070106	Caney River	5	Middle Caney Cr Near Sedan	R	CQ	SC694	AL	DO	2023
VE	11070106	Caney River	5	Sedan City North Lake	L	CQ	LM048601	AL	EU	2023
WA	11030017	Upper Walnut River	5	Augusta City Lake	L	BU	LM040001	AL	EU	2014
WA	11030017	Upper Walnut River	4a	Augusta Santa Fe Lake	L	BU	LM041601	AL	EU	Medium
WA	11030017	Upper Walnut River	4a	Augusta Santa Fe Lake	L	BU	LM041601	AL	DO	Medium
WA	11030017	Upper Walnut River	5	Augusta Santa Fe Lake	L	BU	LM041601	AL	Pb	2023
WA	11030017	Upper Walnut River	4a	Augusta Santa Fe Lake	L	BU	LM041601	WS	Silt	Medium
WA	11030017	Upper Walnut River	4a	El Dorado Lake	L	BU	LM033001	AL	EU	High
WA	11030017	Upper Walnut River	4a	El Dorado Lake	L	BU	LM033001	WS	Silt	High
WA	11030017	Upper Walnut River	3	Harvey Co. East Lake	L	HV	LM052001	AL	Atr	
WA	11030017	Upper Walnut River	4a	Harvey Co. East Lake	L	HV	LM052001	AL	EU	Medium
WA	11030017	Upper Walnut River	5	Walnut R Near El Dorado	R	BU	SC279	AL	TP	2014
WA	11030017	Upper Walnut River	5	Walnut R Near El Dorado	R	BU	SC279	AL	DO	2014
WA	11030017	Upper Walnut River	5	Walnut R Near El Dorado	R	BU	SC279	AL	Se	2023
WA	11030017	Upper Walnut River	4a	Walnut R Near El Dorado	R	BU	SC279	REC	ECB	High
WA	11030017	Upper Walnut River	5	Whitewater R At Towanda	R	HV, BU, SG	SC038	AL	TP	2014
WA	11030017	Upper Walnut River	4a	Whitewater R At Towanda	R	HV, BU, SG	SC038	REC	ECB	High
WA	11030018	Lower Walnut River	4a	Butler Co. SFL	L	BU	LM049401	AL	EU	Medium
WA	11030018	Lower Walnut River	5	Eight Mile Cr Near Douglas	R	BU	SC704	AL	TP	2014

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Impair-ment	Priority
WA	11030018	Lower Walnut River	5	Eight Mile Cr Near Douglas	R	BU	SC704	AL	DO	2014
WA	11030018	Lower Walnut River	3	Eight Mile Cr Near Douglas	R	BU	SC704	REC	ECB	
WA	11030018	Lower Walnut River	5	Four Mile Cr Near Gordon	R	BU, SG	SC744	AL	TP	2014
WA	11030018	Lower Walnut River	4a	Four Mile Cr Near Gordon	R	BU, SG	SC744	WS	SO4	Low
WA	11030018	Lower Walnut River	4a	Little Walnut R Near Douglas	R	BU	SC655	REC	ECB	High
WA	11030018	Lower Walnut River	4a	Rock Cr Near Rock	R	BU, CL	SC654	REC	ECB	High
WA	11030018	Lower Walnut River	3	Timber Cr Near Winfield	R	CL	SC653	REC	ECB	
WA	11030018	Lower Walnut River	4a	Walnut R At Gordon	R	BU	SC106	AL	Bio	Medium
WA	11030018	Lower Walnut River	5	Walnut R At Gordon	R	BU	SC106	AL	TP	2014
WA	11030018	Lower Walnut River	4a	Walnut R At Gordon	R	BU	SC106	WS	SO4	Low
WA	11030018	Lower Walnut River	4a	Walnut R Near Hackney	R	BU, CL	SC532	AL	Bio	Medium
WA	11030018	Lower Walnut River	3	Walnut R Near Hackney	R	BU, CL	SC532	REC	ECB	
WA	11030018	Lower Walnut River	4a	Winfield City Lake	L	CL	LM050801	AL	EU	High
WA	11030018	Lower Walnut River	4a	Winfield Park Lagoon	L	CL	LM072301	AL	EU	Low

Appendix B-2: Previously impaired waters, now in Category 2.

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
CI	11040002	Upper Cimarron	2	Cimarron Lake (Moss Lake Middle)	L	MT	LM060401	AL	EU
CI	11040007	Crooked Creek	2	Crooked Cr	F	ME	NPDES22802	AL	NH3
CI	11040008	Upper Cimarron-Bluff	2	Bluff Cr Near Protection	R	CA, CM	SC593	AL	Temp
CI	11040008	Upper Cimarron-Bluff	2	Bluff Cr Near Protection	R	CA, CM	SC593	WS	SO4
CI	11040008	Upper Cimarron-Bluff	2	Cimarron R Near Protection	R	ME, CA	SC592	AL	Temp
CI	11040008	Upper Cimarron-Bluff	2	Cimarron R Near Protection	R	ME, CA	SC592	WS	SO4
CI	11040008	Upper Cimarron-Bluff	2	Day Cr Near Sitka	R	CA, CM	SC701	WS	SO4
KR	10250016	Middle Republican	2	Republican R Near Hardy, Nebraska	R	JW, SM	SC231	AL	pH
KR	10250017	Lower Republican	2	Buffalo Cr	F	JW	NPDES95231	AL	NH3
KR	10250017	Lower Republican	2	Buffalo Cr Near Concordia	R	JW, CD	SC509	WS	Cl
KR	10250017	Lower Republican	2	Elm Cr Near Ames	R	CD	SC709	AL	Pb
KR	10250017	Lower Republican	2	Mulberry Cr Near Clifton	R	CD, CY	SC710	AL	Zn
KR	10250017	Lower Republican	2	Mulberry Cr Near Clifton	R	CD, CY	SC710	AL	Pb
KR	10250017	Lower Republican	2	Peats Cr Near Clifton	R	WS	SC649	AL	Pb
KR	10250017	Lower Republican	2	Peats Cr Near Clifton	R	WS	SC649	REC	FCB
KR	10250017	Lower Republican	2	Republican R below Milford Dam	F	GE	NPDES34011	AL	NH3
KR	10250017	Lower Republican	2	Republican R below Milford Dam	F	GE	NPDES34011	REC	FCB
KR	10250017	Lower Republican	2	Republican R Near Clay Center	R	CY	SC503	AL	Pb
KR	10250017	Lower Republican	2	Republican R Near Clay Center	R	RP, WS, CD, CY	SC504	AL	Pb
KR	10250017	Lower Republican	2	Salt Cr	F	RP	NPDES27529	AL	NH3
KR	10270101	Upper Kansas	2	Clarks Cr Near Grandview Plaza	R	GE, MR	SC517	AL	Bio
KR	10270101	Upper Kansas	2	Clarks Cr Near Grandview Plaza	R	GE, MR	SC517	REC	FCB
KR	10270101	Upper Kansas	2	Kansas R Near Ogden	R	RL, GE	SC518	WS	Cl
KR	10270101	Upper Kansas	2	Wildcat Cr Near Manhattan	R	RL	SC652	AL	DO
KR	10270102	Middle Kansas	2	Doyle Cr	F	PT	NPDES20974	AL	NH3
KR	10270102	Middle Kansas	2	Doyle Cr	F	PT	NPDES20974	REC	FCB
KR	10270102	Middle Kansas	2	Illinois Cr Near Alma	R	WB	SC726	REC	FCB
KR	10270102	Middle Kansas	2	Kansas R At Wamego	R	Rl, PT, WB	SC260	AL	Zn
KR	10270102	Middle Kansas	2	Kansas R At Willard	R	PT, SN, WB	SC259	AL	Pb
KR	10270102	Middle Kansas	2	Kansas R At Willard	R	PT, SN, WB	SC259	AL	Zn

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
KR	10270102	Middle Kansas	2	Kansas R At Willard	R	PT, SN, WB	SC259	AL	Cu
KR	10270102	Middle Kansas	2	Mill Cr Near Maple Hill	R	WB	SC521	REC	FCB
KR	10270102	Middle Kansas	2	Mission Cr Near Valencia	R	SN, WB	SC648	AL	Cu
KR	10270102	Middle Kansas	2	Muddy Cr Near Grantville	R	JA, JF, SN	SC639	AL	Cu
KR	10270102	Middle Kansas	2	Shunganunga Cr Near Topeka	R	SN	SC238	AL	DO
KR	10270102	Middle Kansas	2	Soldier Cr Near Topeka	R	JA, SN	SC239	AL	Bio
KR	10270102	Middle Kansas	2	Wabaunsee Co. Lake	L	WB	LM042001	AL	EU
KR	10270102	Middle Kansas	2	West Branch Mill Cr Near Alma	R	GE, WB	SC506	REC	FCB
KR	10270103	Delaware	2	Banner Cr	F	JA	NPDES03271	AL	NH3
KR	10270103	Delaware	2	Banner Cr Lake	L	JA	LM032001	AL	EU
KR	10270103	Delaware	2	Elk Cr Near Larkinburg	R	JA, PT	SC604	AL	NH3
KR	10270103	Delaware	2	Grasshopper Cr Near Muscotah	R	BR, AT	SC603	AL	Zn
KR	10270103	Delaware	2	Grasshopper Cr Near Muscotah	R	BR, AT	SC603	AL	Cu
KR	10270103	Delaware	2	Upper Delaware R (Cedar Cr)	F	NM	NPDES24724	REC	FCB
KR	10270103	Delaware	2	Upper Delaware R (Cedar Cr)	F	NM	NPDES24724	AL	NH3
KR	10270103	Delaware	2	Upper Delaware R (Cedar Cr)	F	NM	NPDES24724	AL	DO
KR	10270104	Lower Kansas	2	Antioch Park Lake	L	JO	LM067701	FP	Chl
KR	10270104	Lower Kansas	2	Captain Cr Near Eudora	R	DG, JO	SC638	AL	Cu
KR	10270104	Lower Kansas	2	Captain Cr Near Eudora	R	DG, JO	SC638	AL	Pb
KR	10270104	Lower Kansas	2	Gardner City Lake	L	JO	LM040401	AL	Cu
KR	10270104	Lower Kansas	2	Hog Cr	F	LV	NPDES94382	AL	NH3
KR	10270104	Lower Kansas	2	Kansas R At Desoto	R	LV, JO	SC254	AL	Pb
KR	10270104	Lower Kansas	2	Kansas R At Desoto	R	LV, JO	SC254	AL	Cu
KR	10270104	Lower Kansas	2	Kansas R At Desoto	R	LV, JO	SC254	FP	Chl
KR	10270104	Lower Kansas	2	Kansas R At Eudora	R	JF, LV, DG	SC255	AL	Cu
KR	10270104	Lower Kansas	2	Kansas R At Eudora	R	JF, LV, DG	SC255	AL	Pb
KR	10270104	Lower Kansas	2	Kansas R At Eudora	R	JF, LV, DG	SC255	FP	Chl
KR	10270104	Lower Kansas	2	Kansas R At Eudora	R	JF, LV, DG	SC255	FP	Hg
KR	10270104	Lower Kansas	2	Kansas R At Kansas City, Kansas	R	LV, WY, JO	SC203	AL	Cu
KR	10270104	Lower Kansas	2	Kansas R At Kansas City, Kansas	R	LV, WY, JO	SC203	AL	Pb
KR	10270104	Lower Kansas	2	Kansas R At Kansas City, Kansas	R	LV, WY, JO	SC203	FP	Chl

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
KR	10270104	Lower Kansas	2	Kansas R at Lawrence	F	DG	NPDES38644	AL	NH3
KR	10270104	Lower Kansas	2	Kansas R At Lecompton	R	JF, SN, DG	SC257	AL	Pb
KR	10270104	Lower Kansas	2	Kansas R At Lecompton	R	JF, SN, DG	SC257	WS	Be
KR	10270104	Lower Kansas	2	Kansas R At Lecompton	R	JF, SN, DG	SC257	AL	NH3
KR	10270104	Lower Kansas	2	Kansas R At Lecompton	R	JF, SN, DG	SC257	FP	Hg
KR	10270104	Lower Kansas	2	Kill Cr At Desoto	R	JO	SC253	FP	Chl
KR	10270104	Lower Kansas	2	Kill Cr At Desoto	R	JO	SC253	AL	Cu
KR	10270104	Lower Kansas	2	Lake Dabanawa	L	JF	LM054001	AL	EU
KR	10270104	Lower Kansas	2	Mill Cr Near Shawnee	R	JO	SC251	AL	Zn
KR	10270104	Lower Kansas	2	Nine Mile Cr Near Linwood	R	JF, LV, DG	SC680	AL	Zn
KR	10270104	Lower Kansas	2	Nine Mile Cr Near Linwood	R	JF, LV, DG	SC680	AL	TP
KR	10270104	Lower Kansas	2	Potter's Lake	L	DG	LM073401	AL	pH
KR	10270104	Lower Kansas	2	Stranger Cr Near Linwood	R	LV	SC501	WS	Be
KR	10270104	Lower Kansas	2	Stranger Cr Near Linwood	R	LV	SC501	AL	Cu
KR	10270104	Lower Kansas	2	Upper Wakarusa R	F	SN	NPDES94650	AL	NH3
KR	10270205	Lower Big Blue	2	Big Blue R Near Blue Rapids	R	MS	SC240	WS	Be
KR	10270205	Lower Big Blue	2	Big Blue R Near Blue Rapids	R	MS	SC240	AL	Pb
KR	10270205	Lower Big Blue	2	Big Blue R Near Oketo	R	MS	SC233	AL	Pb
KR	10270205	Lower Big Blue	2	Black Vermillion R Near Frankfort	R	MS,NM	SC505	AL	Pb
KR	10270205	Lower Big Blue	2	Black Vermillion R Near Frankfort	R	MS,NM	SC505	AL	Cu
KR	10270205	Lower Big Blue	2	Centralia Lake	L	NM	LM073701	AL	Atr
KR	10270205	Lower Big Blue	2	Horseshoe Cr Near Marysville	R	MR, CS	SC717	AL	Pb
KR	10270205	Lower Big Blue	2	Horseshoe Cr Near Marysville	R	MR, CS	SC717	AL	Cu
KR	10270205	Lower Big Blue	2	Horseshoe Cr Near Marysville	R	MR, CS	SC717	AL	TSS
KR	10270207	Lower Little Blue	2	Little Blue R Near Hollenberg	R	RP, WS	SC232	AL	Pb
KR	10270207	Lower Little Blue	2	Little Blue R Near Waterville	R	WS, MS	SC741	AL	Cu
KR	10270207	Lower Little Blue	2	Little Blue R Near Waterville	R	WS, MS	SC741	AL	Pb
KR	10270207	Lower Little Blue	2	Mill Cr Near Hanover	R	RP, WS	SC507	AL	Cu
KR	10270207	Lower Little Blue	2	Mill Cr Near Hanover	R	RP, WS	SC507	AL	Pb
KR	10270207	Lower Little Blue	2	Rose Cr Near Narka	R	RP	SC712	AL	TSS
KR	10270207	Lower Little Blue	2	Rose Cr Near Narka	R	RP	SC712	AL	Pb
LA	11030009	Rattlesnake	2	Rattlesnake Cr Near Hudson	R	SF, ED, KW	SC660	WS	SO4

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
LA	11030009	Rattlesnake	2	Rattlesnake Cr Near Hudson	R	SF, ED, KW	SC660	WS	Cl
LA	11030009	Rattlesnake	2	Rattlesnake Cr Near Raymond	R	SF	SC030	WS	Cl
LA	11030009	Rattlesnake	2	Rattlesnake Cr Near Raymond	R	SF	SC030	WS	SO4
LA	11030010	Gar-Peace	2	Arkansas R Near Hutchinson	R	RC, RN	SC523	WS	SO4
LA	11030010	Gar-Peace	2	Arkansas R Near Hutchinson	R	RC, RN	SC523	AL	pH
LA	11030010	Gar-Peace	2	Arkansas R Near Maize	R	RN, SG	SC536	AL	TP
LA	11030010	Gar-Peace	2	Arkansas R Near Maize	R	RN, SG	SC536	AL	pH
LA	11030010	Gar-Peace	2	Arkansas R Near Maize	R	RN, SG	SC536	WS	SO4
LA	11030010	Gar-Peace	2	Arkansas R Near Maize	R	RN, SG	SC536	FP	Chl
LA	11030010	Gar-Peace	2	Arkansas R Near Maize	R	RN, SG	SC536	AL	Atr
LA	11030010	Gar-Peace	2	Arkansas R Near Yoder	R	RN	SC524	AL	pH
LA	11030010	Gar-Peace	2	Arkansas R Near Yoder	R	RN	SC524	FP	Chl
LA	11030010	Gar-Peace	2	Arkansas R Near Yoder	R	RN	SC524	WS	SO4
LA	11030011	Cow Creek	2	Cheyenne Bottoms	L	BT	LM050401	WS	Cl
LA	11030011	Cow Creek	2	Cheyenne Bottoms	L	BT	LM050401	WS	SO4
LA	11030011	Cow Creek	2	Cow Cr Near Hutchinson	R	RN	SC287	FP	Chl
LA	11030011	Cow Creek	2	Cow Cr Near Lyons	R	EW, BT, RC	SC657	AL	DO
LA	11030011	Cow Creek	2	Cow Cr Near Willowbrook	R	RC, RN	SC522	FP	Chl
LA	11030011	Cow Creek	2	Cow Cr Near Willowbrook	R	RC, RN	SC522	AL	DO
LA	11030011	Cow Creek	2	Cow Cr Near Willowbrook	R	RC, RN	SC522	AL	Pb
LA	11030011	Cow Creek	2	Cow Cr Near Willowbrook	R	RC, RN	SC522	AL	Zn
LA	11030011	Cow Creek	2	Little Cow Cr Near Lyons	R	EW, RC	SC656	AL	Cu
LA	11030011	Cow Creek	2	Little Cow Cr Near Lyons	R	EW, RC	SC656	AL	Atr
LA	11030011	Cow Creek	2	Little Cow Cr Near Lyons	R	EW, RC	SC656	AL	NH3
LA	11030011	Cow Creek	2	Little Cow Cr Near Lyons	R	EW, RC	SC656	AL	Pb
LA	11030012	Little Arkansas	2	Black Kettle Cr Near Halstead	R	MP, HV	SC705	AL	Pb
LA	11030012	Little Arkansas	2	Emma Cr Near Sedgwick	R	MP, MN, HV	SC534	AL	Pb
LA	11030012	Little Arkansas	2	Emma Cr Near Sedgwick	R	MP, MN, HV	SC534	AL	Cu
LA	11030012	Little Arkansas	2	Inman Lake	L	MP	LM050301	AL	EU
LA	11030012	Little Arkansas	2	Kisiwa Cr Near Halstead	R	HV, RN	SC703	AL	Pb
LA	11030012	Little Arkansas	2	Kisiwa Cr Near Halstead	R	HV, RN	SC703	AL	Cu
LA	11030012	Little Arkansas	2	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	AL	Pb
LA	11030012	Little Arkansas	2	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	WS	F

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
LA	11030012	Little Arkansas	2	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	AL	NH3
LA	11030012	Little Arkansas	2	Little Arkansas R At Alta Mills	R	MP, RC, RN	SC246	AL	Cu
LA	11030012	Little Arkansas	2	Little Arkansas R At Valley Center	R	HV, SG	SC282	AL	Pb
LA	11030012	Little Arkansas	2	Little Arkansas R At Valley Center	R	HV, SG	SC282	AL	Cu
LA	11030012	Little Arkansas	2	Little Arkansas R At Valley Center	R	HV, SG	SC282	FP	Chl
LA	11030012	Little Arkansas	2	Little Arkansas R At Wichita	R	SG, SU	SC728	AL	Pb
LA	11030012	Little Arkansas	2	Little Arkansas R At Wichita	R	SG, SU	SC728	AL	Cu
LA	11030012	Little Arkansas	2	Little Arkansas R At Wichita	R	SG, SU	SC728	FP	Chl
LA	11030012	Little Arkansas	2	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	AL	Pb
LA	11030012	Little Arkansas	2	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	AL	Zn
LA	11030012	Little Arkansas	2	Turkey Cr Near Alta Mills	R	MP, RC, RN	SC533	WS	F
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Derby	R	SG	SC281	FP	Chl
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Derby	R	SG	SC281	AL	TSS
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Derby	R	SG	SC281	AL	Pb
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Derby	R	SG	SC281	AL	Atr
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Derby	R	SG	SC281	WS	SO4
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Oxford	R	SG, SU, CL	SC527	AL	Pb
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Oxford	R	SG, SU, CL	SC527	FP	Chl
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Oxford	R	SG, SU, CL	SC527	WS	SO4
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Wichita	R	SG, SU	SC729	FP	Chl
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Wichita	R	SG, SU	SC729	AL	pH
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Wichita	R	SG, SU	SC729	AL	Pb
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Wichita	R	SG, SU	SC729	AL	Cu
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Wichita	R	SG, SU	SC729	AL	Atr
LA	11030013	Middle Arkansas-Slate	2	Arkansas R At Wichita	R	SG, SU	SC729	WS	SO4
LA	11030013	Middle Arkansas-Slate	2	Arkansas R below Arkansas City	F	CL	NPDES44831	REC	FCB
LA	11030013	Middle Arkansas-Slate	2	Arkansas R Near Arkansas City	R	SU, CL	SC218	WS	SO4
LA	11030013	Middle Arkansas-Slate	2	Arkansas R Near Arkansas City	R	SU, CL	SC218	AL	Pb
LA	11030013	Middle Arkansas-Slate	2	Cowskin Cr At Wichita	R	SG, SU	SC730	AL	Pb

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
LA	11030013	Middle Arkansas-Slate	2	Cowskin Cr At Wichita	R	SG, SU	SC730	AL	pH
LA	11030013	Middle Arkansas-Slate	2	Cowskin Cr At Wichita	R	SG, SU	SC730	AL	Atr
LA	11030013	Middle Arkansas-Slate	2	Cowskin Cr At Wichita	R	SG, SU	SC730	FP	Chl
LA	11030013	Middle Arkansas-Slate	2	Cowskin Cr In Wichita-Valley Center Floodway	R	SG	SC288	AL	Cu
LA	11030013	Middle Arkansas-Slate	2	Cowskin Cr In Wichita-Valley Center Floodway	R	SG	SC288	AL	pH
LA	11030013	Middle Arkansas-Slate	2	Cowskin Cr In Wichita-Valley Center Floodway	R	SG	SC288	FP	Chl
LA	11030013	Middle Arkansas-Slate	2	Cowskin Cr In Wichita-Valley Center Floodway	R	SG	SC288	AL	Pb
LA	11030013	Middle Arkansas-Slate	2	Cowskin Cr Near Belle Plaine	R	SG, SU	SC702	AL	Cu
LA	11030013	Middle Arkansas-Slate	2	Cowskin Cr Near Belle Plaine	R	SG, SU	SC702	AL	Pb
LA	11030013	Middle Arkansas-Slate	2	Cowskin Cr Near Belle Plaine	R	SG, SU	SC702	FP	Chl
LA	11030013	Middle Arkansas-Slate	2	Slate Cr Near Wellington	R	SU	SC528	WS	Cl
LA	11030013	Middle Arkansas-Slate	2	Slate Cr Near Wellington	R	SU	SC528	AL	Pb
LA	11030013	Middle Arkansas-Slate	2	Slate Cr W.A.	L	SU	LM014201	WS	F
LA	11030013	Middle Arkansas-Slate	2	Slate Cr W.A.	L	SU	LM014201	WS	B
LA	11030014	North Fork Ninnescah	2	North Fork Ninnescah R Near Castleton	R	SF, RN, PR	SC525	WS	B
LA	11030014	North Fork Ninnescah	2	North Fork Ninnescah R Near Castleton	R	SF, RN, PR	SC525	AL	Atr
LA	11030014	North Fork Ninnescah	2	North Fork Ninnescah R Near Castleton	R	SF, RN, PR	SC525	REC	FCB
LA	11030014	North Fork Ninnescah	2	Red Rock Cr	R	RN	USGS07144730	AL	Atr
LA	11030015	South Fork Ninnescah	2	Kingman W.A.	L	KM	LM010441	WS	Silt
LA	11030015	South Fork Ninnescah	2	Kingman W.A.	L	KM	LM010441	AL	EU
LA	11030015	South Fork Ninnescah	2	Ninnescah R, South Fork	F	PR	NPDES49751	AL	NH3
LA	11030015	South Fork Ninnescah	2	Smoots Cr Near Murdock	R	RN, KM	SC661	REC	FCB
LA	11030015	South Fork Ninnescah	2	South Fork Ninnescah R Near Murdock	R	PR, KM	SC036	AL	pH
LA	11030015	South Fork Ninnescah	2	Texas Lake W.A.	L	PR	LM053001	WS	Silt
LA	11030015	South Fork Ninnescah	2	Texas Lake W.A.	L	PR	LM053001	AL	pH
LA	11030015	South Fork Ninnescah	2	Texas Lake W.A.	L	PR	LM053001	AL	EU
LA	11030016	Ninnescah	2	Ninnescah R Near Belle Plaine	R	SG, KM, SU	SC280	AL	TSS
LA	11060001	Kaw Lake	2	Silver Cr Near Silverdale	R	CL	SC706	AL	Cu
LA	11060002	Upper Salt Fork Arkansas	2	Mule Cr Near Aetna	R	KW, BA, CM	SC622	WS	SO4

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
LA	11060002	Upper Salt Fork Arkansas	2	Mule Cr Near Aetna	R	KW, BA, CM	SC622	AL	Temp
LA	11060002	Upper Salt Fork Arkansas	2	Salt Fork Arkansas R Near Hardtner	R	BA, CM	SC591	WS	SO4
LA	11060002	Upper Salt Fork Arkansas	2	Salt Fork Arkansas R Near Hardtner	R	BA, CM	SC591	WS	Cl
LA	11060003	Medicine Lodge	2	Elm Cr Near Medicine Lodge	R	PR, BA	SC590	AL	NH3
LA	11060003	Medicine Lodge	2	Little Mule Cr Near Kiowa	R	BA	SC621	WS	SO4
LA	11060003	Medicine Lodge	2	Medicine Lodge R Near Belvidere	R	KW	SC588	WS	SO4
LA	11060003	Medicine Lodge	2	Medicine Lodge R Near Kiowa	R	BA	SC220	WS	SO4
LA	11060003	Medicine Lodge	2	Medicine Lodge R Near Kiowa	R	BA	SC220	AL	Temp
LA	11060003	Medicine Lodge	2	Medicine Lodge R Near Medicine Lodge	R	PR, KW, BA	SC589	AL	Se
LA	11060004	Lower Salt Fork Arkansas	2	Little Sandy Cr Near Corwin	R	BA, HP	SC620	REC	FCB
LA	11060004	Lower Salt Fork Arkansas	2	Sandy Cr Near Ruella	R	HP	SC619	REC	FCB
LA	11060005	Chikaskia	2	Bluff Cr Near Bluff City	R	HP	SC618	AL	Se
LA	11060005	Chikaskia	2	Bluff Cr Near Caldwell	R	HP	SC530	AL	Se
LA	11060005	Chikaskia	2	Bluff Cr Near Caldwell	R	HP	SC530	AL	Pb
LA	11060005	Chikaskia	2	Bluff Cr Near Caldwell	R	HP	SC530	AL	DO
LA	11060005	Chikaskia	2	Chikaskia R Near Corbin	R	SU	SC529	WS	Be
LA	11060005	Chikaskia	2	Chikaskia R Near Corbin	R	SU	SC529	AL	Pb
LA	11060005	Chikaskia	2	Fall Cr Near Caldwell	R	SU	SC662	AL	NH3
LA	11060005	Chikaskia	2	Sandy Cr	F	KM	NPDES30643	AL	DO
LA	11060005	Chikaskia	2	Sandy Cr	F	KM	NPDES30643	AL	NH3
LA	11060005	Chikaskia	2	Sandy Cr	F	KM	NPDES30643	REC	FCB
LA	11060005	Chikaskia	2	Wellington Lake	L	SU	LM042201	AL	EU
MC	10290101	Upper Marais Des Cygnes	2	110 Mile Cr Below Pomona Lake Dam	R	OS, WB	SC244	AL	Pb
MC	10290101	Upper Marais Des Cygnes	2	110 Mile Cr Below Pomona Lake Dam	R	OS, WB	SC244	AL	Cu
MC	10290101	Upper Marais Des Cygnes	2	110 Mile Cr Below Pomona Lake Dam	R	OS, WB	SC244	REC	FCB
MC	10290101	Upper Marais Des Cygnes	2	110 Mile Cr Near Scranton	R	OS, FR	SC633	AL	Zn
MC	10290101	Upper Marais Des Cygnes	2	Dragoon Cr Near Burlingame	R	WB, OS	SC577	AL	DO
MC	10290101	Upper Marais Des Cygnes	2	Marais Des Cygnes R	F	FR	NPDES97535	AL	NH3
MC	10290101	Upper Marais Des Cygnes	2	Marais Des Cygnes R Near Ottawa	R	DG, FR	SC270	AL	Cu
MC	10290101	Upper Marais Des Cygnes	2	Marais Des Cygnes R Near Ottawa	R	DG, FR	SC270	AL	DO

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
MC	10290101	Upper Marais Des Cygnes	2	Marais Des Cygnes R Near Quenemo	R	OS, CF	SC720	AL	TSS
MC	10290101	Upper Marais Des Cygnes	2	Marais Des Cygnes R Near Quenemo	R	OS, CF	SC720	AL	Se
MC	10290101	Upper Marais Des Cygnes	2	Marais Des Cygnes R Near Reading	R	WB, LY	SC742	AL	DO
MC	10290101	Upper Marais Des Cygnes	2	Marais Des Cygnes R Near Richter	R	OS, FR	SC555	AL	Se
MC	10290101	Upper Marais Des Cygnes	2	Marais Des Cygnes R Near Richter	R	OS, FR	SC555	AL	Cu
MC	10290101	Upper Marais Des Cygnes	2	Marais Des Cygnes R Near Richter	R	OS, FR	SC555	AL	Zn
MC	10290101	Upper Marais Des Cygnes	2	One Hundred Forty Two Mile Cr Near Reading	R	LY	SC579	AL	Atr
MC	10290101	Upper Marais Des Cygnes	2	One Hundred Forty Two Mile Cr Near Reading	R	LY	SC579	AL	Cu
MC	10290101	Upper Marais Des Cygnes	2	One Hundred Forty Two Mile Cr Near Reading	R	LY	SC579	AL	Zn
MC	10290101	Upper Marais Des Cygnes	2	Ottawa Cr Near Ottawa	R	DG, FR	SC616	AL	Cu
MC	10290101	Upper Marais Des Cygnes	2	Pottawatomie Cr	F	AN	NPDES24830	REC	FCB
MC	10290101	Upper Marais Des Cygnes	2	Pottawatomie Cr, South Fork	F	AN	NPDES96377	REC	FCB
MC	10290101	Upper Marais Des Cygnes	2	Salt Cr	F	OS	NPDES24821	AL	NH3
MC	10290101	Upper Marais Des Cygnes	2	Switzler Cr Near Burlingame	R	OS	SC687	AL	Zn
MC	10290101	Upper Marais Des Cygnes	2	Switzler Cr Near Burlingame	R	OS	SC687	AL	Pb
MC	10290101	Upper Marais Des Cygnes	2	Switzler Cr Near Burlingame	R	OS	SC687	AL	Se
MC	10290101	Upper Marais Des Cygnes	2	Tauy Cr, East Fork	F	DG	NPDES46361	REC	FCB
MC	10290101	Upper Marais Des Cygnes	2	Walnut Cr	F	FR	NPDES24651	AL	NH3
MC	10290101	Upper Marais Des Cygnes	2	Westphalia Lake	L	AN	LM066901	AL	EU
MC	10290102	Lower Marais Des Cygnes	2	Blue Mound City Lake	L	LN	LM046401	AL	EU
MC	10290102	Lower Marais Des Cygnes	2	Bull Cr Near Henson	R	MI	SC557	AL	Zn
MC	10290102	Lower Marais Des Cygnes	2	Louisburg Old Lake	L	MI	LM065701	AL	EU
MC	10290102	Lower Marais Des Cygnes	2	Marais Des Cygnes Near Trading Post	R	MI, LN	SC206	AL	Cu
MC	10290102	Lower Marais Des Cygnes	2	Marais Des Cygnes R Near Henson	R	FR, MI	SC743	AL	Pb
MC	10290102	Lower Marais Des Cygnes	2	Marais Des Cygnes W.A.	L	LN	LM053201	AL	Zn
MC	10290102	Lower Marais Des Cygnes	2	Parker City Lake	L	LN	LM066301	AL	EU
MC	10290103	Little Osage	2	Little Osage R Near Fulton	R	AN, LN, AL, BB	SC207	AL	Pb

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
MC	10290103	Little Osage	2	Little Osage R Near Fulton	R	AN, LN, AL, BB	SC207	AL	Cu
MC	10290104	Marmaton	2	Marmaton R	F	BB	NPDES52116	REC	FCB
MC	10290104	Marmaton	2	Marmaton R	F	BB	NPDES52116	AL	NH3
MC	10290104	Marmaton	2	Marmaton R Near Fort Scott	R	BB	SC208	AL	Zn
MO	10240005	Tarkio-Wolf	2	Wolf R	F	BR	NPDES80667	AL	DO
MO	10240005	Tarkio-Wolf	2	Wolf R	F	BR	NPDES80667	AL	NH3
MO	10240005	Tarkio-Wolf	2	Wolf R, North Fork	F	BR	NPDES23698	AL	DO
MO	10240005	Tarkio-Wolf	2	Wolf R, North Fork	F	BR	NPDES23698	AL	NH3
MO	10240007	South Fork Big Nemaha	2	Big Nemaha R, South Fork	F	NM	NPDES47538	AL	DO
MO	10240007	South Fork Big Nemaha	2	Turkey Cr Near Bern	R	MS, NM	SC601	AL	Cu
MO	10240008	Big Nemaha	2	Roys Cr Near Reserve	R	BR, DP	SC552	AL	Cu
MO	10240008	Big Nemaha	2	Roys Cr Near Reserve	R	BR, DP	SC552	AL	Zn
MO	10240011	Independence-Sugar	2	Independence Cr Near Atchison	R	DP, AT	SC553	AL	Cu
MO	10240011	Independence-Sugar	2	Whiskey Cr	F	AT	NPDES39128	AL	NH3
MO	10300101	Lower Missouri-Crooked	2	Blue R Near Stanley	R	JO	SC205	FP	Chl
NE	11070201	Neosho Headwaters	2	Allen Cr Near Emporia	R	LY	SC628	REC	ECB
NE	11070201	Neosho Headwaters	2	Allen Cr Near Emporia	R	LY	SC628	AL	Cu
NE	11070201	Neosho Headwaters	2	Eagle Cr Near Hartford	R	LY	SC740	AL	Cu
NE	11070201	Neosho Headwaters	2	Eagle Cr Near Hartford	R	LY	SC740	AL	DO
NE	11070201	Neosho Headwaters	2	Eagle Cr Near Olpe	R	LY	SC634	AL	Cu
NE	11070201	Neosho Headwaters	2	Four Mile Cr Near Council Grove	R	MR	SC630	REC	FCB
NE	11070201	Neosho Headwaters	2	Four Mile Cr Near Council Grove	R	MR	SC630	AL	Zn
NE	11070201	Neosho Headwaters	2	Four Mile Cr Near Council Grove	R	MR	SC630	AL	Atr
NE	11070201	Neosho Headwaters	2	Lairds Cr Near Kelso	R	MR	SC632	AL	Zn
NE	11070201	Neosho Headwaters	2	Lake Kahola	L	MR	LM043401	WS	Silt
NE	11070201	Neosho Headwaters	2	Munkers Cr Near Council Grove	R	WB, MR, LY	SC631	AL	Cu
NE	11070201	Neosho Headwaters	2	Neosho R At Parkerville	R	MR	SC675	AL	Cu
NE	11070201	Neosho Headwaters	2	Neosho R Near Emporia	R	LY	SC580	AL	DO
NE	11070201	Neosho Headwaters	2	Neosho R Near Parkerville	R	MR	SC637	REC	ECB
NE	11070201	Neosho Headwaters	2	Rock Cr Near Dunlap	R	WB, MR, LY	SC629	REC	FCB
NE	11070201	Neosho Headwaters	2	Rock Cr Near Dunlap	R	WB, MR, LY	SC629	AL	DO
NE	11070202	Upper Cottonwood	2	Cedar Cr Near Cedar Point	R	MN, CS	SC583	AL	Cu
NE	11070202	Upper Cottonwood	2	Cedar Cr Near Cedar Point	R	MN, CS	SC583	AL	Zn
NE	11070202	Upper Cottonwood	2	Doyle Cr	F	MN	NPDES51705	AL	DO
NE	11070202	Upper Cottonwood	2	Doyle Cr	F	MN	NPDES51705	REC	FCB
NE	11070202	Upper Cottonwood	2	Doyle Cr	F	MN	NPDES51705	AL	NH3

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
NE	11070202	Upper Cottonwood	2	Doyle Cr Near Florence	R	HV	SC120	WS	SO4
NE	11070202	Upper Cottonwood	2	French Cr Near Hillsboro	R	MN	SC676	WS	SO4
NE	11070202	Upper Cottonwood	2	North Cottonwood R Near Durham	R	MP, MN, HV	SC636	AL	Zn
NE	11070202	Upper Cottonwood	2	North Cottonwood R Near Durham	R	MP, MN, HV	SC636	AL	Cu
NE	11070202	Upper Cottonwood	2	South Cottonwood R Near Canada	R	MN, CS	SC635	WS	SO4
NE	11070202	Upper Cottonwood	2	South Cottonwood R Near Canada	R	MN, CS	SC635	REC	ECB
NE	11070202	Upper Cottonwood	2	South Cottonwood R Near Canada	R	MN, CS	SC635	FP	Hg
NE	11070203	Lower Cottonwood	2	Cottonwood R	F	LY	NPDES46728	REC	FCB
NE	11070203	Lower Cottonwood	2	Cottonwood R Near Elmdale	R	MN, CS	SC627	REC	ECB
NE	11070203	Lower Cottonwood	2	Cottonwood R Near Emporia	R	LY, CS	SC274	AL	Bio
NE	11070203	Lower Cottonwood	2	Cottonwood R Near Emporia	R	LY, CS	SC274	FP	Chl
NE	11070203	Lower Cottonwood	2	Cottonwood R Near Emporia	R	LY, CS	SC274	REC	ECB
NE	11070203	Lower Cottonwood	2	Cottonwood R Near Plymouth	R	CS	SC275	WS	SO4
NE	11070203	Lower Cottonwood	2	Cottonwood R Near Plymouth	R	CS	SC275	REC	ECB
NE	11070203	Lower Cottonwood	2	Middle Cr Near Elmdale	R	MN, CS	SC626	AL	Pb
NE	11070203	Lower Cottonwood	2	Palmer Cr Near Strong City	R	CS	SC719	AL	DO
NE	11070204	Upper Neosho	2	Big Cr Near Chanute	R	AL, NO	SC611	AL	Cu
NE	11070204	Upper Neosho	2	Big Cr Near Le Roy	R	CF	SC615	REC	ECB
NE	11070204	Upper Neosho	2	Big Cr Near Le Roy	R	CF	SC615	AL	Cu
NE	11070204	Upper Neosho	2	Deer Cr Near Iola	R	AN, AL	SC609	AL	Zn
NE	11070204	Upper Neosho	2	Gridley City Lake	L	CF	LM045601	WS	Be
NE	11070204	Upper Neosho	2	Little Turkey Cr	F	NO	NPDES80837	REC	FCB
NE	11070204	Upper Neosho	2	Little Turkey Cr	F	NO	NPDES80837	AL	NH3
NE	11070204	Upper Neosho	2	Neosho R Near Chanute	R	WL, NO	SC271	AL	Cu
NE	11070204	Upper Neosho	2	Neosho R Near Chanute	R	WL, NO	SC271	AL	pH
NE	11070204	Upper Neosho	2	Neosho R Near Chanute	R	WL, NO	SC271	AL	Zn
NE	11070204	Upper Neosho	2	Neosho R Near Chanute	R	CF, AN, WO, AL	SC560	AL	Pb
NE	11070204	Upper Neosho	2	Neosho R Near Chanute	R	CF, AN, WO, AL	SC560	AL	Zn
NE	11070204	Upper Neosho	2	Neosho R Near Chanute	R	CF, AN, WO, AL	SC560	AL	pH
NE	11070204	Upper Neosho	2	Neosho R Near Chanute	R	CF, AN, WO, AL	SC560	AL	Cu

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
NE	11070204	Upper Neosho	2	Neosho R Near Chanute	R	CF, AN, WO, AL	SC560	REC	ECB
NE	11070204	Upper Neosho	2	New Strawn Park Lake	L	CF	LM073101	WS	Silt
NE	11070204	Upper Neosho	2	Owl Cr	F	WO	NPDES97446	AL	NH3
NE	11070204	Upper Neosho	2	Owl Cr Near Humboldt	R	WO, WL	SC610	AL	Zn
NE	11070204	Upper Neosho	2	Owl Cr Near Humboldt	R	WO, WL	SC610	AL	Pb
NE	11070204	Upper Neosho	2	Owl Cr Near Humboldt	R	WO, WL	SC610	REC	ECB
NE	11070204	Upper Neosho	2	Turkey Cr Near Le Roy	R	CF, WO	SC614	AL	Cu
NE	11070204	Upper Neosho	2	Turkey Cr Near Le Roy	R	CF, WO	SC614	AL	DO
NE	11070204	Upper Neosho	2	Turkey Cr Near Le Roy	R	CF, WO	SC614	AL	Pb
NE	11070204	Upper Neosho	2	Turkey Cr Near Le Roy	R	CF, WO	SC614	AL	Zn
NE	11070205	Middle Neosho	2	Canville Cr Near Shaw	R	AL, NO	SC612	AL	Cu
NE	11070205	Middle Neosho	2	Cherry Cr Near Faulkner	R	CK	SC605	AL	Atr
NE	11070205	Middle Neosho	2	Cherry Cr Near Faulkner	R	CK	SC605	AL	Pb
NE	11070205	Middle Neosho	2	Flat Rock Cr Near St. Paul	R	BB, NO, CR	SC613	AL	Cu
NE	11070205	Middle Neosho	2	Labette Cr	F	LB	NPDES97560	AL	NH3
NE	11070205	Middle Neosho	2	Labette Cr	F	LB	NPDES97560	REC	FCB
NE	11070205	Middle Neosho	2	Labette Cr Near Chetopa	R	LB	SC571	AL	Pb
NE	11070205	Middle Neosho	2	Labette Cr Near Chetopa	R	LB	SC571	AL	Cu
NE	11070205	Middle Neosho	2	Labette Cr Near Chetopa	R	LB	SC571	AL	DO
NE	11070205	Middle Neosho	2	Labette Cr Near Chetopa	R	LB	SC571	AL	Atr
NE	11070205	Middle Neosho	2	Labette Cr Near Labette	R	NO, LB	SC564	AL	Zn
NE	11070205	Middle Neosho	2	Labette Cr Near Labette	R	NO, LB	SC564	AL	Cu
NE	11070205	Middle Neosho	2	Mined Land Lake 12	L	CK	LM035901	WS	Silt
NE	11070205	Middle Neosho	2	Mined Land Lake 12	L	CK	LM035901	AL	pH
NE	11070205	Middle Neosho	2	Mined Land Lake 17	L	CK	LM048201	WS	Silt
NE	11070205	Middle Neosho	2	Mined Land Lake 30	L	CK	LM037601	WS	Silt
NE	11070205	Middle Neosho	2	Neosho R Near Oswego	R	NO, CR, LB	SC566	AL	pH
NE	11070206	Lake O' The Cherokees	2	Tar Cr At Pitcher, Oklahoma	R	CK	SC110	WS	SO4
NE	11070207	Spring	2	Cow Cr	F	CR	NPDES38954	REC	FCB
NE	11070207	Spring	2	Cow Cr Near Lawton	R	CR, CK	SC567	FP	Chl
NE	11070207	Spring	2	Cow Cr Near Lawton	R	CR, CK	SC567	AL	DO
NE	11070207	Spring	2	Empire Lake	L	CK	LM074101	AL	EU
NE	11070207	Spring	2	Empire Lake	L	CK	LM074101	WS	Silt
NE	11070207	Spring	2	Shawnee Cr Near Crestline	R	CK	SC569	REC	FCB
NE	11070207	Spring	2	Shawnee Cr Near Crestline	R	CK	SC569	REC	ECB
SS	10260003	Upper Smoky Hill	2	Smoky Hill R At Elkader	R	LG, WA, WH	SC224	AL	DO

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
SS	10260003	Upper Smoky Hill	2	Smoky Hill R At Elkader	R	LG, WA, WH	SC224	AL	pH
SS	10260003	Upper Smoky Hill	2	Smoky Hill R At Elkader	R	LG, WA, WH	SC224	REC	ECB
SS	10260003	Upper Smoky Hill	2	Smoky Hill R Near Trego	R	LG, GO, TR	SC550	AL	DO
SS	10260003	Upper Smoky Hill	2	Smoky Hill R Near Trego	R	LG, GO, TR	SC550	AL	pH
SS	10260006	Middle Smoky Hill	2	Landon Cr Near Russell	R	RS, BT	SC714	AL	TP
SS	10260006	Middle Smoky Hill	2	Sellens Cr Near Russell	R	RS, BT	SC736	WS	SO4
SS	10260006	Middle Smoky Hill	2	Sellens Cr Near Russell	R	RS, BT	SC736	WS	Cl
SS	10260006	Middle Smoky Hill	2	Smoky Hill R Near Russell	R	RS, EL, RH	SC007	REC	FCB
SS	10260007	Big Creek	2	Big Cr Near Hays	R	GO, EL, TR	SC541	AL	DO
SS	10260007	Big Creek	2	Big Cr Near Munjor	R	EL, TR	SC540	AL	Se
SS	10260007	Big Creek	2	North Fork Big Cr Near Walker	R	EL	SC715	WS	Ars
SS	10260007	Big Creek	2	North Fork Big Cr Near Walker	R	EL	SC715	AL	Se
SS	10260007	Big Creek	2	North Fork Big Cr Near Walker	R	EL	SC715	WS	SO4
SS	10260008	Lower Smoky Hill	2	Chapman Cr Near Sutphen	R	CY, OT, DK	SC515	REC	ECB
SS	10260008	Lower Smoky Hill	2	Gypsum Cr Near Solomon	R	SA, MP	SC641	AL	DO
SS	10260008	Lower Smoky Hill	2	Lyon Cr Near Wreford	R	GE, CK, MR, MN	SC516	AL	TP
SS	10260008	Lower Smoky Hill	2	Lyon Cr Near Wreford	R	GE, CK, MR, MN	SC516	REC	FCB
SS	10260008	Lower Smoky Hill	2	Mud Cr Near Abilene	R	DK	SC643	AL	DO
SS	10260008	Lower Smoky Hill	2	Mud Cr Near Abilene	R	DK	SC643	REC	FCB
SS	10260008	Lower Smoky Hill	2	Mud Cr Near Abilene	R	DK	SC643	WS	Cl
SS	10260008	Lower Smoky Hill	2	Smoky Hill R At Enterprise	R	DK, SA	SC265	REC	ECB
SS	10260008	Lower Smoky Hill	2	Smoky Hill R At Junction City	R	GE, DK	SC264	WS	Be
SS	10260008	Lower Smoky Hill	2	Smoky Hill R At Junction City	R	GE, DK	SC264	AL	Pb
SS	10260008	Lower Smoky Hill	2	Smoky Hill R Near Mentor	R	SA, EW, MP	SC514	WS	SO4
SS	10260008	Lower Smoky Hill	2	Turkey Cr Near Abilene	R	DK, MN	SC644	AL	DO
SS	10260009	Upper Saline	2	Saline R Near Russell	R	RO, RS, EL	SC011	REC	FCB
SS	10260009	Upper Saline	2	Sheridan W.A.	L	SD	LM014501	AL	DO
SS	10260009	Upper Saline	2	Sheridan W.A.	L	SD	LM014501	WS	Silt
SS	10260010	Lower Saline	2	Bullfoot Cr Near Lincoln	R	LC, EW	SC672	AL	DO

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
SS	10260010	Lower Saline	2	Elkhorn Cr Near Lincoln	R	LC, EW	SC671	REC	FCB
SS	10260010	Lower Saline	2	Mulberry Cr Near Salina	R	SA, EW, MP	SC640	REC	ECB
SS	10260010	Lower Saline	2	Saline R Near Beverly	R	LC	SC513	REC	FCB
SS	10260010	Lower Saline	2	Spillman Cr Near Lincoln	R	MC, LC	SC673	REC	ECB
SS	10260010	Lower Saline	2	Spillman Cr Near Lincoln	R	MC, LC	SC673	REC	FCB
SS	10260010	Lower Saline	2	Spillman Cr Near Lincoln	R	MC, LC	SC673	AL	Pb
SS	10260010	Lower Saline	2	Spillman Cr Near Lincoln	R	MC, LC	SC673	AL	Cu
SS	10260010	Lower Saline	2	Spillman Cr Near Lincoln	R	MC, LC	SC673	WS	Be
SO	10260011	Upper North Fork Solomon	2	Bow Cr Near Stockton	R	PL, RO, SD, GH	SC545	REC	FCB
SO	10260011	Upper North Fork Solomon	2	Bow Cr Near Stockton	R	PL, RO, SD, GH	SC545	REC	ECB
SO	10260011	Upper North Fork Solomon	2	Bow Cr Near Stockton	R	PL, RO, SD, GH	SC545	AL	TSS
SO	10260011	Upper North Fork Solomon	2	North Fork Solomon R Near Glade	R	PL, NT, TH, SD	SC546	AL	TSS
SO	10260012	Lower North Fork Solomon	2	Beaver Cr Near Gaylord	R	SM	SC670	REC	FCB
SO	10260012	Lower North Fork Solomon	2	Beaver Cr Near Gaylord	R	SM	SC670	AL	TSS
SO	10260012	Lower North Fork Solomon	2	Beaver Cr Near Gaylord	R	SM	SC670	REC	ECB
SO	10260012	Lower North Fork Solomon	2	Deer Cr Near Kirwin	R	PL	SC721	REC	FCB
SO	10260012	Lower North Fork Solomon	2	Oak Cr Near Cawker City	R	JW, SM	SC544	REC	FCB
SO	10260012	Lower North Fork Solomon	2	Twelve Mile Cr Near Downs	R	SM, OB	SC674	AL	TSS
SO	10260013	Upper South Fork Solomon	2	Sheridan Co. SFL	L	SD	LM069401	REC	AP
SO	10260013	Upper South Fork Solomon	2	Webster Lake	L	RO	LM012001	WS	Cl
SO	10260014	Lower South Fork Solomon	2	Carr Cr Near Cawker City	R	OB, MC	SC669	REC	FCB
SO	10260014	Lower South Fork Solomon	2	Carr Cr Near Cawker City	R	OB, MC	SC669	REC	ECB
SO	10260014	Lower South Fork Solomon	2	Rooks Co. SFL	L	RO	LM011901	REC	AP
SO	10260014	Lower South Fork Solomon	2	South Fork Solomon R Near Osborne	R	OB, RO, RS	SC542	REC	FCB
SO	10260014	Lower South Fork Solomon	2	Twin Cr Near Corinth	R	OB	SC668	REC	FCB
SO	10260014	Lower South Fork Solomon	2	Twin Cr Near Corinth	R	OB	SC668	REC	ECB
SO	10260014	Lower South Fork Solomon	2	Twin Cr Near Corinth	R	OB	SC668	AL	Se
SO	10260015	Solomon River	2	Browns Cr Near Solomon Rapids	R	WS, MS	SC716	REC	FCB
SO	10260015	Solomon River	2	Browns Cr Near Solomon Rapids	R	WS, MS	SC716	AL	DO
SO	10260015	Solomon River	2	Limestone Cr Near Glen Elder	R	JW	SC667	AL	TSS
SO	10260015	Solomon River	2	Limestone Cr Near Glen Elder	R	JW	SC667	REC	ECB
SO	10260015	Solomon River	2	Pipe Cr Near Minneapolis	R	CD, OT, SA	SC651	REC	FCB

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
SO	10260015	Solomon River	2	Pipe Cr Near Minneapolis	R	CD, OT, SA	SC651	AL	Zn
SO	10260015	Solomon River	2	Pipe Cr Near Minneapolis	R	CD, OT, SA	SC651	AL	Cu
SO	10260015	Solomon River	2	Salt Cr Near Minneapolis	R	MC, OT, LC	SC512	REC	FCB
SO	10260015	Solomon River	2	Solomon R At Niles	R	CD, OT, SA	SC266	REC	ECB
SO	10260015	Solomon River	2	Solomon R At Niles	R	CD, OT, SA	SC266	AL	Zn
SO	10260015	Solomon River	2	Solomon R Near Glasco	R	JW, CD, MC	SC511	REC	FCB
UA	11030001	Middle Arkansas-Lake McKinney	2	Arkansas R	F	FI	NPDES38962	AL	NH3
UA	11030004	Arkansas-Pickerel	2	Arkansas R Near Dundee	R	PN, ED, FO	SC584	AL	TP
UA	11030004	Arkansas-Pickerel	2	Arkansas R Near Dundee	R	PN, ED, FO	SC584	AL	NH3
UA	11030004	Arkansas-Pickerel	2	Arkansas R Near Ford	R	GY, FO, HS	SC594	AL	DO
UA	11030004	Arkansas-Pickerel	2	Arkansas R Near Ford	R	GY, FO, HS	SC594	AL	pH
UA	11030004	Arkansas-Pickerel	2	Arkansas R Near Ford	R	GY, FO, HS	SC594	AL	TSS
UA	11030004	Arkansas-Pickerel	2	Arkansas R Near Ford	R	GY, FO, HS	SC594	WS	B
UA	11030004	Arkansas-Pickerel	2	Arkansas R Near Kinsley	R	ED, FO	SC587	WS	SO4
UA	11030004	Arkansas-Pickerel	2	Mulberry Cr Near Ford	R	FO	SC700	AL	Pb
UA	11030007	Upper Walnut Creek	2	Walnut Cr At Ness City	R	SC, LE, NS	SC595	REC	FCB
UA	11030008	Lower Walnut Creek	2	Walnut Cr Near Heizer	R	RH, BT	SC597	AL	Cu
UR	10250001	Arikaree	2	Arikaree R Near Haigler, Nebraska	R	CN	SC226	AL	pH
UR	10250001	Arikaree	2	Arikaree R Near Haigler, Nebraska	R	CN	SC226	WS	Ars
UR	10250001	Arikaree	2	Arikaree R Near Haigler, Nebraska	R	CN	SC226	WS	SO4
UR	10250003	South Fork Republican	2	South Fork Republican R Near Benkelman, Nebraska	R	CN	SC227	AL	pH
UR	10250003	South Fork Republican	2	South Fork Republican R Near St. Francis	R	CN	SC225	AL	pH

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
UR	10250014	Beaver Creek	2	Beaver Cr At Cedar Bluffs	R	CN, RA, DC, SH	SC228	REC	FCB
UR	10250014	Beaver Creek	2	Beaver Cr At Cedar Bluffs	R	CN, RA, DC, SH	SC228	AL	pH
UR	10250015	Prairie Dog Creek	2	Prairie Dog Cr Near Dellvale	R	DC, TH	SC549	AL	pH
UR	10250015	Prairie Dog Creek	2	Prairie Dog Cr Near Woodruff	R	PL, NT	SC230	REC	ECB
VE	11070101	Upper Verdigris	2	Verdigris R Near Virgil	R	LY, CS, GW	SC289	AL	DO
VE	11070101	Upper Verdigris	2	Verdigris R Near Virgil	R	LY, CS, GW	SC289	AL	Bio
VE	11070101	Upper Verdigris	2	Walnut Cr Near Neal	R	GW	SC576	AL	DO
VE	11070101	Upper Verdigris	2	West Cr Near Quincy	R	GW	SC290	AL	DO
VE	11070102	Fall River	2	Fall R Lake	L	GW	LM023001	AL	EU
VE	11070102	Fall River	2	Fall R Near Climax	R	GW, BU	SC575	AL	DO
VE	11070103	Middle Verdigris	2	Big Hill Cr Near Avian	R	MG, LB	SC607	AL	Cu
VE	11070103	Middle Verdigris	2	Big Hill Cr Near Avian	R	MG, LB	SC607	AL	Pb
VE	11070103	Middle Verdigris	2	Drum Cr	F	MG	NPDES45951	REC	FCB
VE	11070103	Middle Verdigris	2	Drum Cr	F	MG	NPDES45951	AL	NH3
VE	11070103	Middle Verdigris	2	Lower Verdigris R	F	MG	NPDES50733	AL	NH3
VE	11070103	Middle Verdigris	2	Lower Verdigris R	F	MG	NPDES50733	REC	ECB
VE	11070103	Middle Verdigris	2	Onion Cr Near Coffeyville	R	MG	SC608	AL	Zn
VE	11070103	Middle Verdigris	2	Onion Cr Near Coffeyville	R	MG	SC608	AL	Pb
VE	11070103	Middle Verdigris	2	Onion Cr Near Coffeyville	R	MG	SC608	AL	Cu
VE	11070103	Middle Verdigris	2	Onion Cr Near Coffeyville	R	MG	SC608	REC	ECB
VE	11070103	Middle Verdigris	2	Pumpkin Cr Near Coffeyville	R	LB	SC606	AL	Cu
VE	11070103	Middle Verdigris	2	Verdigris R below Independence	F	MG	NPDES42625	AL	NH3
VE	11070104	Elk River	2	Elk R Near Howard	R	EK, MG	SC693	AL	Pb
VE	11070106	Caney River	2	Caney R Near Elgin	R	EK, CL, CQ	SC217	AL	Bio
VE	11070106	Caney River	2	Little Caney R	F	MG	NPDES27481	REC	FCB
VE	11070106	Caney River	2	Little Caney R Near Niotaze	R	CQ, EK	SC216	AL	Bio
WA	11030017	Upper Walnut River	2	Walnut R	F	BU	NPDES36676	AL	NH3
WA	11030017	Upper Walnut River	2	Whitewater R	F	BU	NPDES94561	AL	NH3
WA	11030017	Upper Walnut River	2	Whitewater R	F	BU	NPDES94561	REC	FCB
WA	11030017	Upper Walnut River	2	Whitewater R At Towanda	R	HV, BU, SG	SC038	WS	SO4
WA	11030017	Upper Walnut River	2	Whitewater R At Towanda	R	HV, BU, SG	SC038	AL	Atr
WA	11030018	Lower Walnut River	2	Eight Mile Cr Near Douglas	R	BU	SC704	WS	SO4
WA	11030018	Lower Walnut River	2	Little Walnut R Near Douglas	R	BU	SC655	AL	Cu

Basin	HUC-8 Code	HUC-8 Name	Cat	Waterbody Name	Water-body Type	Counties	Station	Desig-nated Use	Former Impair-ment
WA	11030018	Lower Walnut River	2	Little Walnut R Near Douglas	R	BU	SC655	AL	Pb
WA	11030018	Lower Walnut River	2	Timber Cr	F	CL	NPDES00000	AL	NH3
WA	11030018	Lower Walnut River	2	Timber Cr Near Winfield	R	CL	SC653	AL	Cu
WA	11030018	Lower Walnut River	2	Timber Cr Near Winfield	R	CL	SC653	AL	Pb
WA	11030018	Lower Walnut River	2	Walnut R Near Hackney	R	BU, CL	SC532	WS	SO4