



**Kansas
Environment
2002**



A Message from the Secretary of the Department of Health and Environment

Dear Reader,



The mission of the Kansas Department of Health and Environment is to protect the health of Kansans through efficient and effective public health programs and services and through preservation, protection, and remediation of natural resources and the environment. We realize that a significant part of achieving this goal is to present useful information to the public so that we as Kansans are better informed about our environment. This is why KDHE has published *Kansas Environment 2002*, a report that will hopefully become an important tool in fueling environmental interest throughout the state.

The Kansas environment is truly unique. The Flint Hills area, in east central Kansas, is the largest remaining segment of true tallgrass prairie in the United States. As citizens of Kansas and the United States, we should be committed to preserving this environment for future generations, so that they may experience the beauty of our State.

I am proud to call Kansas my home and will work diligently to provide its citizens with a healthy environment. I ask you to join me in this fight to conserve, protect, and restore our environment so that future generations can be proud to call themselves Kansans.

Clyde Graeber
Secretary, Department of Health & Environment

Front Cover: Sunset in Shawnee County
Photo by Tom Gross, BAR

A Message from the Director of the Division of Environment

Dear Reader,



The publication of the *Kansas Environment 2002* report is a milestone event for the Division of Environment and the Department of Health and Environment. During the period since the publication of the *Kansas Environment 2000* report, we have seen a number of significant changes, including the move of our Topeka offices from Forbes Field to a downtown location at 10th and Jackson directly southeast of the State Capitol. In addition, we have developed a strategic plan for the Division which is currently being implemented with the leadership of the bureau directors and participation of a number of staff. This plan will guide the Division in implementing new programs and improving existing programs in the future. In addition, the strategic plan contains specific goals to improve customer service and communication. The *Kansas Environment 2002* report is an important part of our efforts to convey the Division of Environment's message to the citizens of Kansas.

While we continue the publication of this report in a printed format, it is also being simultaneously published on the KDHE Web page to give widespread distribution in an efficient and effective manner. We invite the reader to examine the material in the report and to contact specific programs with any comments or questions. Special recognition goes to the employee committee responsible for the preparation of the report. Their efforts have again produced a understandable and eloquent report.

Ronald F. Hammerschmidt, Ph.D.
Director

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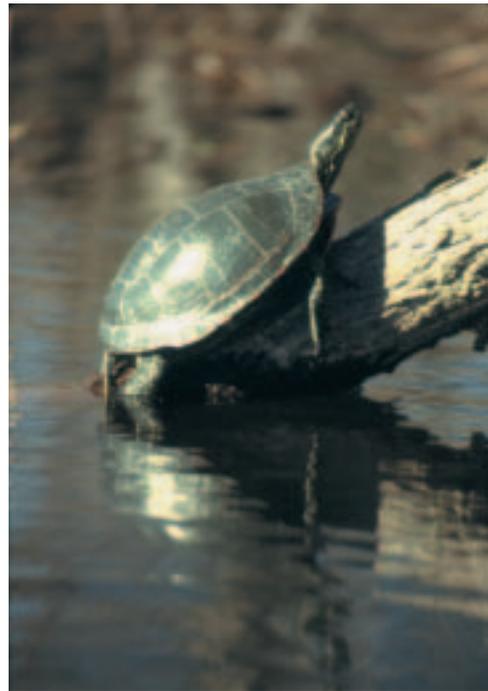


Photo by Tom Gross, BAR



Photo by Terry Franklin, BOW

Kansas Atlas

Prevailing Wind Directions:

During the warm months (late Spring and Summer), the prevailing wind direction across Kansas is from the south-southwest.

During the cold months (late Autumn and Winter), the prevailing wind direction across Kansas is from the north-northwest.

Streams

Number of Interior Stream Miles:	134,338
Percentage of Perennial Stream Miles:	18 %
Percentage of Intermittent Stream Miles:	82 %

Lakes, Ponds, and Wetlands

Number Publicly Owned:	317
Acres Publicly Owned:	188,506
Acres of Public Freshwater Wetlands:	35,607

1999 Water Use

	Groundwater	Surface Water
Recreation	11.1%	88.9%
Irrigation	98.8%	1.2%
Industrial	59.0%	41.0%
Municipal	40.7%	59.3%
Stockwater	99.4%	0.6%
Other	62.5%	37.6%

Land Use

Cropland	65%
Pastureland and Rangeland	31%
Woodland	2%
Other	2%

State Surface Area 81,778 square miles

Elevation

Highest Elevation: 4,039 feet above sea level, Mount Sunflower, Wallace County

Lowest Elevation: 679 feet above sea level, Verdigris River, Montgomery County

Approximate Mean Elevation: 2,000 feet above sea level

Weather

Average Wind Speed:	12.3 miles per hour
Normal Daily Mean Temperature:	56.2 °F
Percent of Days that are Sunny:	62 %

Precipitation

Average Precipitation	26.5 inches/year
Southeast Kansas	45.0 inches/year
Western Border	15.0 inches/year

2000 Population

2,688,418

Age and Sex

Median Age:	35.2 years
Male	49.4 %
Female	50.6 %

Ethnic Groups

White	86.1%
Black or African American	5.7%
American Indian and Alaska Native	0.9%
Asian	1.7%
Other Ethnicities	3.4%
Two or More Ethnicities	2.1%



Photo by Mark Bradbury, BEFS

About the Division of Environment

Air and Radiation

The Bureau of Air and Radiation (BAR) protects and serves the people of Kansas by administering programs which reduce or eliminate air pollution and radiation from the environment. The bureau monitors air pollutant concentrations throughout the state; regulates air pollution and radiation sources; and prevents pollution by establishing regulations and enforcing compliance. BAR also inspects sources and works with the community to preserve air quality. BAR improves the quality of life for everyone in Kansas by preventing exposure to air pollution and radiation.

Water

The mission of the Bureau of Water (BOW) is to protect and improve the health and environment of Kansas through wise regulation of waters of the state. The Bureau of Water is responsible for carrying out programs related to the Federal Clean Water Act and the Safe Drinking Water Act. The various programs carry out a number of activities that include: permitting discharges to surface water; regulating and ensuring public water supplies; providing safe, clean drinking water; water well construction; underground injection control; infrastructure financial assistance; live-stock waste management; nonpoint source pollution control; training for water and wastewater plant operators; and developing Total Maximum Daily Loads.

Waste Management

The mission of the Bureau of Waste Management (BWM) is to minimize the health and environmental impacts associated with the generation, storage, transportation, treatment, and disposal of all solid and hazardous waste in Kansas. The bureau combines traditional regulatory activities such as permitting and inspections with technical and financial assistance. Conferences, workshops, and technical newsletters target businesses and local

governments that generate or manage waste at landfills, transfer stations, incinerators, compost sites, recycling centers, and private businesses. Solid waste grant programs provide financial aid to stimulate recycling, composting, and household hazardous waste collection. The bureau also administers the “Kansas: Don’t Spoil It!” public education initiative to increase awareness regarding proper waste management methods.

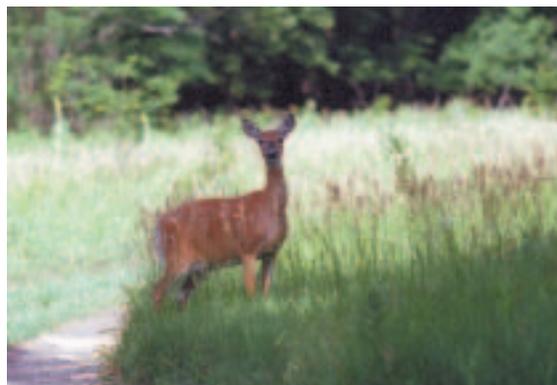


Photo by Terry Franklin, BOW

Environmental Remediation

The mission of the Bureau of Environmental Remediation (BER) is to manage environmental contamination through pollution source control, containment, or remedial actions and to respond to emergencies of an environmental nature. This is accomplished through the use of four sections: Assessment & Restoration, Remedial, Storage Tank, and Surface Mining.

Environmental Field Services

The mission of the Bureau of Environmental Field Services (BEFS) is to gather and analyze data in order to identify environmental conditions and trends for regulatory, technical and pollution prevention purposes. The Bureau maintains six District Offices and an office in Topeka. Activities include inspections and investigations of air, water, waste, and remediation sites. Routine and investigative monitoring of water quality is also conducted. The District Offices serve as a local point of contact for the Department’s programs.

Air and Radiation

The Bureau of Air and Radiation (BAR) establishes and enforces programs and regulations which prevent or reduce air pollution and minimize radiation exposure.



Photo by Adrian Walker

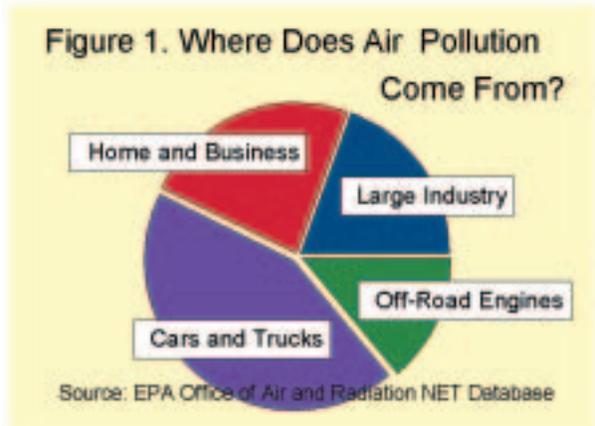
Radiation

The Radiation Control Program identifies and measures any radioactive material released to the environment from Wolf Creek Nuclear Generating Station in Burlington, Kansas; participates in exercises preparing for emergencies or incidents involving radioactive materials; educates the citizens of Kansas about radon gas; regulates the use of X-ray machines and radioactive materials in Kansas; ensures that registrants and licensees conduct radiation work in a safe and legal manner; and inspects Kansas mammography facilities. There are 2,370 active X-ray registrants and 320 radioactive materials licensees in Kansas. The Radiation Program will also inspect 132 mammography facilities this year.

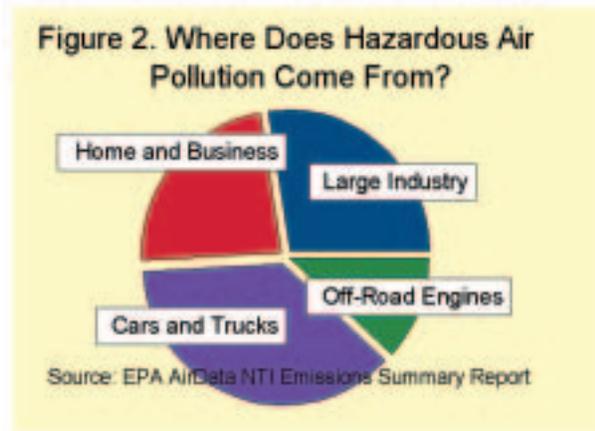
Air Quality

The Kansas Air Quality Program monitors the air quality in Kansas to assure that national ambient air quality standards are not exceeded, tracks air pollutant emissions from large sources, evaluates all large and medium sources of air pollutants prior to construction, issues operating permits to all large air pollution sources, and inspects all sources periodically to ensure all requirements are being met.

Although the population has risen, and the economy has been expanding, air pollution emissions have declined or risen only modestly. The Kansas Air Quality Program addresses air pollution generated by stationary sources, such as factories, businesses and consumer products. The federal government addresses air pollution generated by mobile sources, such as automobiles, trucks, construction equipment, and lawn and garden equipment.



The federal government has developed ambient air quality standards for carbon monoxide, nitrogen oxides, sulfur oxides, lead, volatile organic compounds, particulates, and 188 hazardous air pollutants.



Monitors throughout Kansas demonstrate that the six national ambient air quality standards are not being exceeded in Kansas. However, the federal government has proposed a new standard for ozone (a component of smog) which has been exceeded in the Kansas City area and which may soon be exceeded in Wichita. Both Kansas City and Wichita are evaluating ways to reduce air emissions which contribute to ozone formation.

There are approximately 430 large air pollution sources located in Kansas, and an additional 500 medium and small sources which require an operating permit. The Kansas Air Quality Program issues approximately 440 construction permits for new sources and modifications each year.

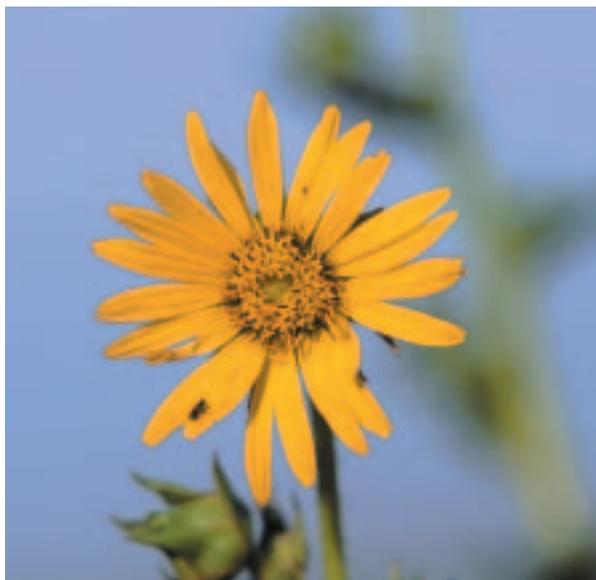
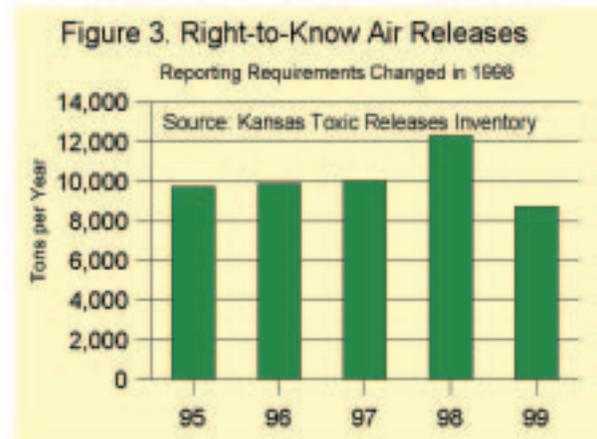


Photo by Terry Franklin, BOW

Other Programs

The Bureau of Air and Radiation also implements the Asbestos Control program and the Emergency Preparedness and Community Right-to-Know program.

The Asbestos Control program requires the Bureau of Air and Radiation be notified before any renovation or demolition project begins so the project can be inspected for asbestos. The program also requires the licensing of asbestos abatement contractors and specifies work practices for removing friable asbestos (asbestos which can enter the air and be breathed in the lungs).



The Emergency Preparedness and Community Right-to-Know program requires any entity that releases specified pollutants into the environment which exceed stated thresholds, to report those releases on an annual basis.

Small Business

Small businesses have to comply with an increasing number of complex environmental regulations. BAR assists these small businesses through the Small Business Environmental Assistance Program (SBEAP). SBEAP shares proven methods for reducing chemical pollution releases and achieving and maintaining compliance with environmental program requirements. SBEAP help is also confidential. Interested small businesses can reach SBEAP at 800-578-8898 or on-line at www.sbeap.org.

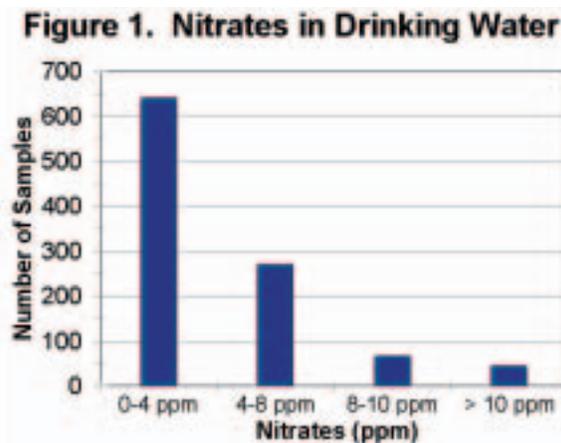
Water

Drinking Water

Each day, public water supply systems provide safe clean drinking water to approximately 2.2 million Kansas residents and visitors. There are over 1,100 public water supply systems in the state. Most water systems in Kansas are very small with 92% serving less than one thousand customers. In contrast, the largest five water utilities serve over 1.5 million people.

Water systems test for a variety of contaminants to insure the safety of their drinking water. All public water systems are required to produce an annual Consumer Confidence Report (CCR) on the quality of their water. The CCR is provided to the system's water users.

In general, the quality of drinking water in Kansas remains excellent. One contaminant of concern across the state is nitrates. High levels of nitrates can be dangerous to infants and pregnant women. Nitrate limits in drinking water are set at a Maximum Contaminant Level (MCL) of 10 mg/L. Figure 1 (below) shows the levels of nitrates found across Kansas in 2000. The data represents nitrate samples from calendar year 2000.



State Revolving Loan Funds

Kansas operates two loan programs designed to provide water and wastewater systems with low interest loans for construction and expansion. The Water Pollution Control Revolving Loan Fund has lent over \$438 million since 1989 to fund water pollution control activities across Kansas. The Public Water Supply Loan Fund has lent over \$122 million to public water supplies since 1998 for expansion and improvement of distribution systems. Both loan programs assure small utilities have access to funding.



Photo by Tom Gross, BAR

Water Quality Standards

Water Quality Standards set levels of substances allowed in rivers, creeks, lakes, reservoirs, and wetlands. Over the past several decades, significant improvements have been made in the quality of Kansas surface waters. Kansas currently has standards set for over 200 substances which can affect the quality of water in the state. Federal law requires these standards to be publicly reviewed every three years. The next review of Kansas water quality standards is set for 2002.

Ammonia and fecal coliform bacteria levels in many rivers are on the decline due to new and improved wastewater treatment plants. Improvements in water quality monitoring and a heightened awareness of water quality issues by the general public are also working to improve water quality throughout the state.



Photo by Tom Gross, BAR

Total Maximum Daily Loads

Total Maximum Daily Loads (TMDLs) are developed for surface waters when a water quality standard is exceeded. Kansas TMDLs set allowable pollution loads as a function of stream flow and establish corrective actions in order to attain and maintain the water quality standard. Kansas is on an accelerated schedule to complete TMDLs for all river basins in the near future. As of June 28, 2001, TMDLs have been developed for impaired streams in the Kansas-Lower Republican, Cimarron, Lower Arkansas, Upper Arkansas, Missouri, and Marais des Cygnes River Basins.

Water Pollution Control

The discharge of wastewater to surface waters of the state is regulated under a permit system known as the National Pollutant Discharge Elimination System (NPDES). Under the system, pollutant limits are established for each discharge in order to insure in-stream water quality standard criteria are not exceeded. Statewide, over 800 entities ranging from small towns to large corporations are regulated by the NPDES program. An additional 700 permits are issued as non-overflowing wastewater treatment facilities in the state. Those facilities, by design, do not discharge to surface waters.

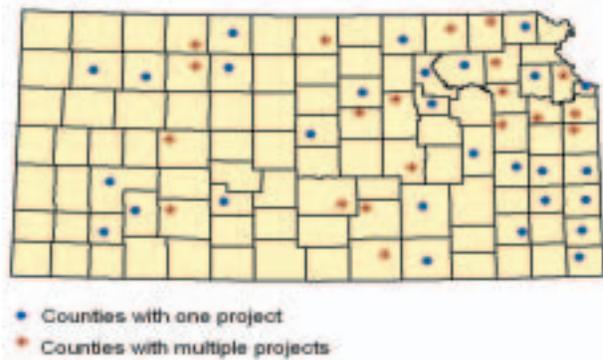
Other types of permits issued to protect water quality involve Industrial Pretreatment and Underground Injection Wells. In 2001, natural gas escaped from a Kansas underground storage

facility resulting in the loss of life and a major disruption of activities in the Hutchinson area. As a result, a greatly enhanced regulatory program covering the storage of natural gas, liquified petroleum gas, and brine solution mining was initiated through legislation in 2001.

Nonpoint Source Pollution

Although not regulated through a permit program, nonpoint sources (NPS) of pollution contribute to pollutant load in surface waters. Nonpoint sources of pollution include runoff from rainfall, snowmelt, or irrigation and can include pollutants such as motor oil, pesticides, sediments, nutrients, solid waste, and fertilizers. Technical and financial assistance is available to help control and solve nonpoint source pollution problems. Figure 2 shows the distribution of projects since 1999 to demonstrate nonpoint source controls.

Figure 2. NPS Pollution Prevention Projects



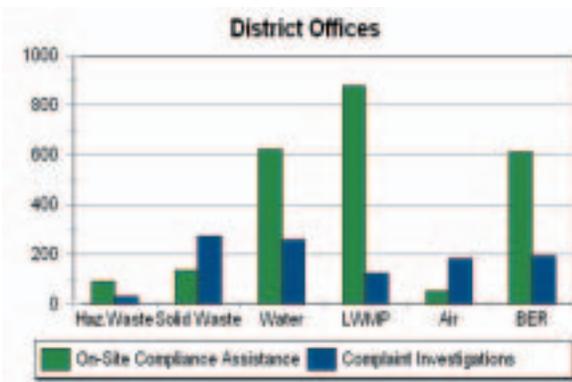
Livestock Waste Management

The Livestock Waste Management Program (LWMP) controls wastes generated from livestock breeding, rearing, feeding, and distribution facilities across the state. The program issues permits and certifications by animal type and facility size. Factors taken into account include manure management plans, odor control, nutrient control and utilization, and separation distances when applicable. Approximately 4.3 million cattle, 2.8 million hogs, and 5 million poultry are in facilities permitted under the program.

Environmental Field Services

District Offices

The Bureau of Environmental Field Services consists of six district offices-- Chanute, Wichita, Hays, Salina, Lawrence, Dodge City, and a satellite office in Ulysses--each strategically located throughout Kansas to provide services in an efficient, responsive manner and to provide accessibility to citizens across the state. Bureau field staff, who focus on air, water, waste, and remediation issues, respond to and assist the citizens of Kansas by providing regulatory services and guidance through inspection programs and compliance assistance.



Staff in each program area conduct a wide range of facility inspections, respond to complaints, and provide community assistance and support through attendance of public meetings, and by addressing concerns of citizens. Inspection programs are conducted to evaluate air emissions of facilities such as rock crushers and petroleum refineries; to assure water quality of public drinking water facilities, waste water treatment facilities, and confined animal feedlot operations; to assure compliance of solid and hazardous waste management facilities and to assure underground storage tank facilities are operated properly. Investigations are conducted to evaluate health and environmental impacts and to assure cleanup resulting from spills and releases, and to evaluate environmental impacts when fish kills occur.



Photo by Terry Franklin, BOW

Staff provide a broad range of technical expertise to the non-regulated community by being responsive to complaints and community concerns. Staff assist local governments by providing technical information pertinent to local issues and needs. On occasion, staff provide community support following natural disasters.

The Bureau of Environmental Field Services represents a field presence across Kansas. It serves as the local point of contact and is often the visible link between state government and the public. The district offices are the recommended first point of contact for assistance with questions or concerns about environmental or health issues. Please refer to the district office map on page 20 to locate the district office nearest you.



Photo by Mike Tate, BOW

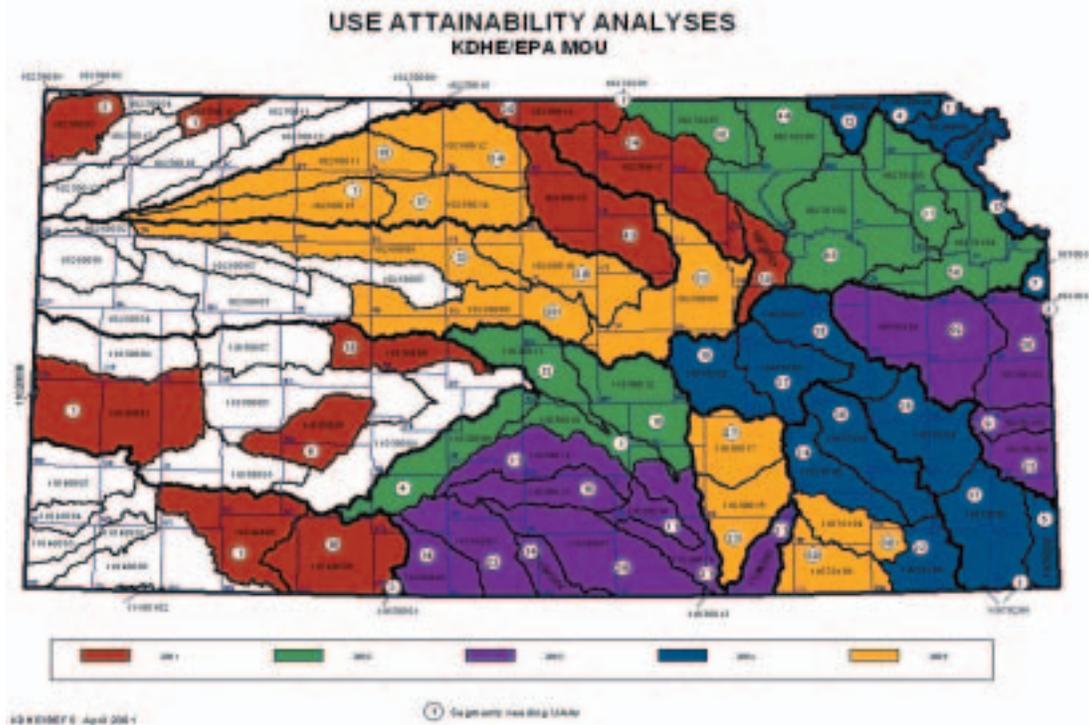
Designated Uses for Surface Waters

There are nine designated uses for surface waters in Kansas: aquatic life support, primary contact recreational, secondary contact recreational, food procurement, domestic water supply, industrial water supply, irrigation, livestock watering, and groundwater recharge. These uses are protected by implementation of surface water quality standards which establish pollutant criteria.

The *Kansas Surface Water Register* lists over 2,200 stream segments and 317 publicly owned or publicly accessed lakes and wetlands. There are 1,292 streams and 164 lakes not designated as supporting or not supporting primary contact recreation. In a Memorandum of Understanding with U.S. EPA, the Agency committed to conduct use attainability analyses (UAAs) to determine the appropriate primary contact recreation designation of the 1,456 water bodies by April 14, 2006. The accompanying map indicates, by hydrologic unit code (HUC), where primary contact recreation UAAs are scheduled.

The Kansas surface water quality standards define the primary contact recreation period as April 1 through October 31. Every attempt is made to conduct field studies under “normal” conditions and avoid extreme rainfall events and/or drought conditions. A completed UAA includes a written statement of findings and all supporting documentation. The field documentation includes: data which specifies the water body assessed, legal description, GIS coordinates, if available, field physical data, photographic exposure information (upstream and downstream) of the site, stream width, depth and flow estimations, existing uses actually observed and any other observations of unusual conditions.

Stream use designations will be adopted into regulations annually to incorporate the findings of the field evaluations. Public notice and a public hearing are a part of the regulatory process. Information about the sites reviewed including photo documentation will be on the Bureau of Environmental Field Services web page at <http://kdhe.state.ks.us/befs/index.html>.



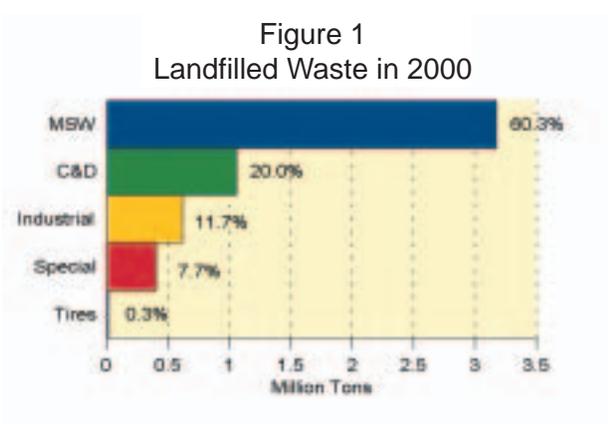
Solid and Hazardous Waste Management

Waste Quantities in Kansas

Millions of tons of solid and hazardous waste are generated and managed each year in Kansas. Nearly 5,000 businesses and institutions are registered hazardous waste generators, and every person and organization contributes to the ever-growing volume of non-hazardous solid waste.

Data on hazardous waste generation is limited because only large “EPA” generators are required to report their activities to KDHE and they only do so every two years. Based upon the most recent biennial report and estimated generation by “Kansas” generators, it is believed that **1.6 to 1.7 million tons of hazardous waste were generated in Kansas in 1999**. About 75% of that total was generated by Vulcan Chemicals in Wichita and disposed in an on-site injection well. Total statewide hazardous waste generation has remained fairly stable for several years.

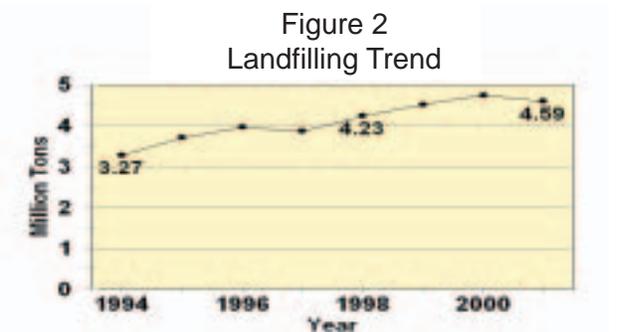
Solid waste disposal facilities annually report the amounts and types of waste they manage. Landfilled waste quantities are well-tracked because this waste is subject to the \$1.00 per ton state fee. The amounts of solid waste landfilled in 2000 are summarized in Figure 1. Overall, **5.3 million tons were landfilled**. About 700,000 tons of this total are imported, primarily from Missouri.



Solid waste “generation” in Kansas can be estimated by subtracting imports and adding

exports, recycling, and incineration. Net solid waste generation in 2000 is estimated to be about 5.2 million tons. This equals nearly **11 pounds per person per day**.

Solid waste landfilling in Kansas has steadily increased over the past four years as shown in Figure 2. With the well documented growth in recycling and composting, it is believed that most of the increase can be attributed to greater imports.



Waste Management Methods

Nearly all solid waste is landfilled, but state law prohibits the burial of hazardous waste. Except for the disposal of 1.2 million tons of hazardous waste in an on-site injection well, the remaining 430,000 to 450,000 tons of waste are shipped off-site for treatment or disposal. About 325,000 tons were exported from Kansas, and 150,000 tons were imported. **The net amount commercially managed at Kansas facilities was about 250,000 tons.** Nearly all of this waste was burned for energy recovery at the two cement kilns permitted to burn hazardous waste (Ash Grove in Chanute and LaFarge in Fredonia) and for destruction in the Safety-Kleen incinerator in Coffeyville. The Safety-Kleen facility, which was the nation’s only commercial dioxin incinerator, has now closed.

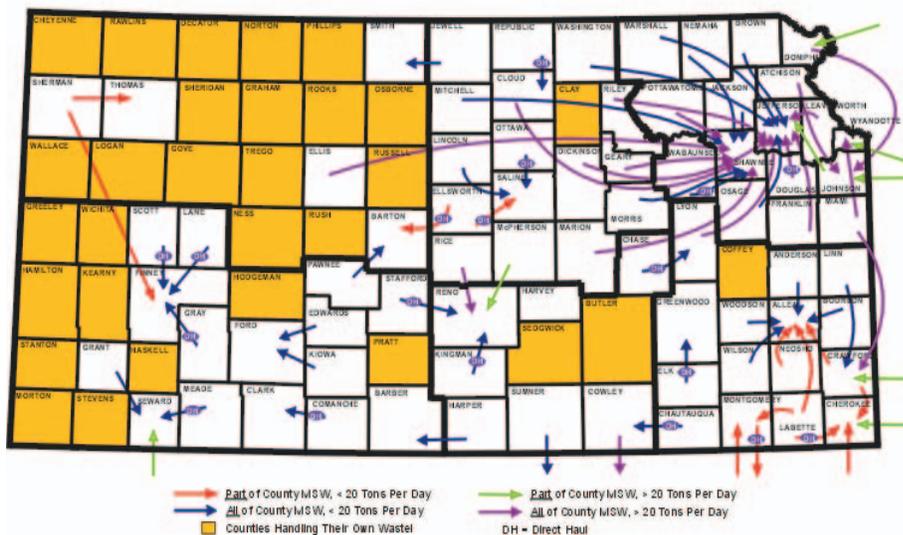
Kansas manages solid waste at over 400 permitted solid waste facilities. The types and numbers of each are listed in Table 1. In

Municipal Solid Waste Landfills (MSW)	55
Construction & Demolition Landfills (C & D)	121
Industrial Landfills	43
Waste Tire Monofills	26
Composting Facilities	87
Incinerators	3
Landfarms	4
Used Oil Processors	7
Used Oil Re-refiners	2
Transfer Stations	43
Household Hazardous Waste Facilities	35
Total	426

addition to permitted facilities, Kansas has about 15 small registered community composting programs, 1300 recycling programs, and dozens of waste wood processing operations. About **500,000 tons of recyclables and organic wastes passed through Kansas waste reduction facilities in 2000.**

Currently, a significant amount of MSW flows into Kansas and across county lines. About 50 counties transfer their MSW to regional landfills as shown in Figure 3. Several regional landfills have very large capacities, especially those landfills which are operating in active rock quarries. Even though some locations are experiencing landfill siting problems, Kansas has excellent statewide landfill capacity.

**Figure 3
Solid Waste Flows in Kansas**



Local Decision-Making

State law requires every county to develop a solid waste management plan which selects preferred waste management methods, including waste reduction activities. The state solid waste plan emphasizes that local decision-making is preferred over state mandates when establishing waste reduction goals. Local public and private entities decide what types of recycling, composting, and household hazardous waste programs are best for their area. The state ensures that waste management facilities are built and operated so that they are environmentally protective. The state also provides technical guidance and financial assistance for local projects through grants and a public education program called “*Kansas: Don’t Spoil It!*” Over \$14 million have been awarded through grant programs to public and private entities for projects related to solid waste planning, recycling, composting, and household hazardous waste collection. A major focus of the *Kansas: Don’t Spoil It!* program is educational outreach to children including in-school activities.

Illegal Dump Clean-up and Sweeps

In 2000, KDHE initiated a new illegal dump clean-up program and dozens of dumps are in various stages of clean-up. Five state-sponsored waste “sweeps” have been carried out to allow the general public, schools, and small businesses to bring common, but potentially hazardous materials to waste collection points for proper disposal by the state. Items collected have included elemental mercury or mercury-containing devices and old unwanted pesticides. A special sweep was held for pesticides containing dioxin. The state has also cleaned up over 10 million waste tires from illegal piles since 1991.

Environmental Remediation

The Remedial Process

Potentially contaminated sites are referred to KDHE's Bureau of Environmental Remediation (BER) through a variety of mechanisms, including environmental audits, spill reporting, self-reporting of contamination, referrals from U.S. EPA or other government agencies, routine sampling of water supply wells, or complaints from the public. A site priority ranking system is used to expedite actions at sites which pose the greatest risks to the general public. Threatened or impacted drinking water supplies are of primary concern and consequently receive high priority to provide safe alternate drinking water supplies. To date, approximately 425 alternate drinking water supplies have been installed with the assistance of KDHE. These alternate water supplies include replacement of public wells, installation of whole-house treatment units to impacted residents, and connection to alternate safe drinking water sources. In recent years, 24 public water supply treatment systems have been installed with assistance from the Bureau. A variety of programs exist within the Bureau to ensure that contamination is addressed in an effective and efficient manner. Table 1 identifies the numerous BER corrective action activities to address contaminated sites in the state.

Spills

Many hazardous and non-hazardous substances are routinely transported by railcar, truck, pipeline, and other modes of transportation. State law requires spills which occur in the state to be reported to KDHE in a timely manner. KDHE is responsible for all the hazardous and non-hazardous spills in the State and receives 600 to 700 spill notifications per year.

The Kansas Corporation Commission investigates spills of crude oil and salt water on active production leases.

Site Assessment

Sites with known or suspected contamination are generally assessed through the Site Assessment Program. This program allows KDHE to document releases, identify potentially responsible parties, assess threats to public health and the environment, and prioritize sites for future response activities by an appropriate KDHE remedial program.

Table 1

Program:	Site/Projects:
Management Assistance and Superfund Sites	48
Department of Defense	562
Drycleaning Trust Fund Site	55
Closed Municipal Dumps	628
Closed Permitted Landfills	82
State Water Plan	67
State Cooperative Agreements	126
Voluntary Cleanup Agreements	198
Brownfields Sites	7
Site Assessment	70/yr
UST/AST Trust Fund Sites	1,966
Abandoned Mine Land	50

Site Cleanup Programs

Although there are programs specifically for petroleum storage tanks and drycleaners, the majority of the other contaminated industrial, agricultural, and commercial sites in the state are addressed by either the State Cooperative Program or the Voluntary Cleanup and Property Redevelopment Program (VCPRP). The State Cooperative Program, established in 1991, addresses the more complex, higher priority sites.

The VCPRP program, established in 1997, provides a mechanism for property owners, facility operators, prospective buyers, and local governments to voluntarily address contaminated properties with technical and regulatory guidance from KDHE. Participants in the VCPRP can receive a No Further Action (NFA) determination from KDHE that can limit potential environmental liabilities from contamination, encourage cleanups and stimulate redevelopment of contaminated properties. The VCPRP can also benefit adjacent property owners who did not contribute to the contamination. KDHE has a Memorandum of Agreement (MOA) in place with EPA Region VII for both the VCPRP and State Cooperative programs. The accompanying graph demonstrates the increasing number of voluntary sites in the state.

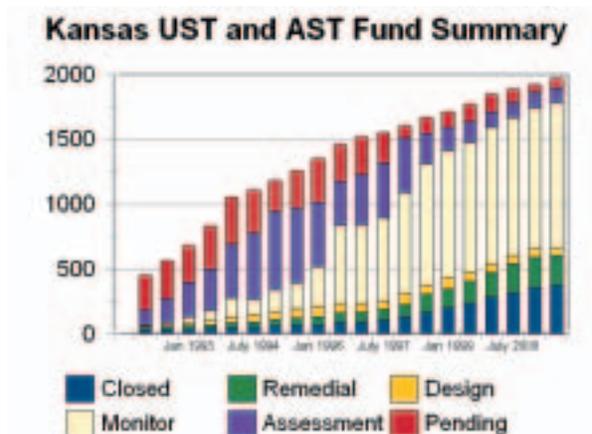


* Program started on July 1, 1997

Storage Tanks

Underground Storage Tank (UST) regulations were implemented in Kansas in 1990 requiring owners of USTs to comply with leak detection, corrosion protection, financial assurance, and registration requirements. Today approximately 3,150 facilities operating 7,000 USTs have achieved a 97% compliance rate through an annual permitting program operated by KDHE. Tank releases are addressed through the Above Ground Storage Tank (AST) and UST trust funds. Orphan USTs are addressed

using the federal Leaking Underground Storage Tank (LUST) funds which are allocated to the state by the Environmental Protection Agency (EPA). The UST and AST funds have addressed 1,966 sites since 1990 (as shown in the graph below). The emphasis of the program continues to be the protection of human health. KDHE has facilitated the replacement of three public water supply wells, provided alternative water supplies for 200 residences and businesses, and installed treatment on 24 public water supply wells which serve in excess of 125,000 Kansans. Together these treatment systems supply more than 10,000 gallons of potable water per minute while cleaning up the groundwater. The storage tank program continues to be a national leader with over 120 effective remedial systems in operation across the state. Kansas is routinely asked to present information and provide guidance to national audiences regarding the detection and treatment of Methyl tert-Butyl Ether (MtBE).



Mining Activities

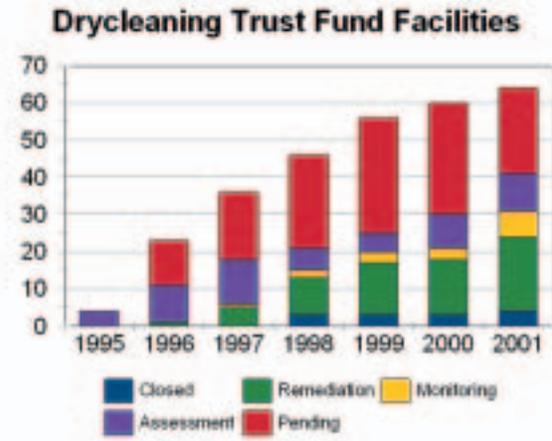
The federally-mandated active mining program ensures operator compliance with all applicable state regulations governing the mining and reclamation of coal bearing land. Program goals are achieved through permitting and monthly inspections to verify that no environmental damage is occurring through the active coal mining activities. Currently in Kansas, there is a single mining company

operating five mines and two companies with permits pending approval. The abandoned mine land (AML) program abates hazards to the health, safety and the general welfare of the public, and responds to situations of an emergency nature created by past coal mining activities. Coal mining lands eligible for reclamation are those left abandoned or inadequately reclaimed prior to August 3, 1977. Since its inception, the Surface Mining Section has remediated .8 miles of clogged streams, 106,912 linear feet of dangerous highwalls, 28.5 acres of dangerous piles and embankments, 292 vertical openings, and responded to 497 emergencies.

Dry Cleaners

The Kansas Dry Cleaning Environmental Response Act of 1995 provides funding for remediation of dry cleaning facilities. This legislation was prompted by the Kansas dry cleaning industry to create a dry cleaning trust fund to protect their constituency from bankruptcy due to environmental contamination and cleanup costs. The law requires operating facilities to have secondary containment under or around all dry cleaning machines; keep log books of inspections and maintenance activities, deliver solvents to the dry cleaning machines through a closed loop system; and prohibits disposal of any dry cleaning waste down the sanitary sewer systems. These operating requirements will reduce the number of dry cleaning contaminated sites in the future. KDHE inspects about 20 to 25 dry cleaners a year to verify all these requirements are being met.

KDHE is also responsible for the remediation of dry cleaning sites that have been accepted into the Dry Cleaning Trust Fund. To date, 41 dry cleaning facilities have been addressed through the Dry Cleaning Trust Fund and work will begin on five more sites this year. The status of these sites is depicted in the graph.



Clandestine Drug Laboratories

In 2000, KDHE established a response program in conjunction with the Kansas Bureau of Investigation (KBI) to provide response capability and technical assistance pertaining to illegal clandestine drug laboratories, primarily related to methamphetamine production. To date, KDHE has responded to 227 clandestine drug laboratory closures. The number of clandestine laboratory seizures continues to rise in Kansas. KDHE expects to respond to 300 to 400 clandestine laboratories this year because of the law change in the Chemical Control Act. The law change allows KDHE more discretion in determining what laboratories require an agency response.

In 2001, KDHE and state retailers launched a new program called "Meth Watch." This voluntary program was initiated to educate retailers about how items in their store are being used for the production of methamphetamine and how they could reduce the accessibility of some of those products.



Future Challenges



Photo by Tom Gross, BAR

Regional Haze

Visibility impairment caused by haze impacts 156 national parks and wilderness areas which are protected by the federal government's Regional Haze Rule. Haze must be addressed on a regional basis because of the long distances fine particulates can travel.

To improve visibility within these pristine areas, five regional bodies have been formed nationwide. Kansas belongs to the Central States Regional Air Planning Association (CENRAP) which is the regional planning body for Arkansas, Iowa, Kansas, Louisiana, Minnesota, Missouri, Nebraska, Oklahoma and Texas. Through CENRAP, BAR actively participates in developing proposals to improve visibility and works with tribes, local governments, industries, and the public within the region, as well as the federal government and international interests.

Education and Outreach

The entire community is responsible for air pollution. Our consumer goods, vehicles, workplaces, the manufacturers we buy from, and the utilities we use emit the bulk of regulated air pollutants. Electrical power plants, industries, and many small businesses are already working to reduce air pollution. To continue reducing pollution, Kansas needs everyone's help.

To promote voluntary action, BAR supports education and outreach programs to encourage the entire community to work together. Recently, BAR began a campaign promoting community involvement through the "Help us all breathe a little easier" campaign.

Nonpoint Sources of Pollution

Nonpoint source pollution continues to be a future challenge to Kansas surface waters. Runoff from storm events transports pollutants from land surfaces into waterways. This type of pollution may be rural in nature, with runoff from cropland and grazed grasslands; or urban, with its high proportion of concrete and asphalt surfaces. Efforts to improve water quality will need to concentrate on reducing the contributions of these sources within the watershed through focused best management practices. Reductions in existing levels for bacteria, sediment, pesticides, and nutrient pollutants will be a priority.

Zebra Mussel

The zebra mussel, *Dreissena polymorpha*, a small bivalve mollusk native to eastern Europe and Western Asia, was introduced accidentally to North America between 1985 and 1986 in the ballast water of commercial ships arriving from Europe. Recently, several dead zebra mussel specimens were recovered from the cooling water intake of a power plant located along the Missouri River near Kansas City, Kansas.



Photo by Tom Gross, BAR

Biologists believe this highly invasive exotic species has spread from the Great Lakes into the Mississippi River drainage primarily through inadvertent transport by commercial barge and recreational vessels. Deemed a non-indigenous aquatic nuisance, the zebra mussel has the potential to cost North American water users billions of dollars in monitoring and control.



Photo by Mark Bradbury, BEFS

Large colonies can form containing numerous individuals and interfere with the operations of water intake facilities, irrigation systems, and recreational boat motors. These infestations also often have negative ecological impacts on native freshwater mussels, and may disrupt normal aquatic food webs and ecosystem functions.

Cooperative monitoring efforts by state agencies and industrial and public utilities are underway to detect and track the presence of zebra mussels. Public awareness concerning the ongoing spread of zebra mussels is critical for preparing for and mitigating the potential economic and ecological impacts of these organisms. Public adherence to recommended control practices and reporting zebra mussel sightings will help prevent continual spread to our lakes and rivers.

Challenges in Waste Management

Several important waste disposal challenges lie ahead in Kansas. They are listed below:

- New construction and demolition landfill regulations need to be finalized and implemented.
- KDHE needs to gradually assume responsibility for administering the RCRA corrective action program at permitted hazardous waste treatment, storage, and disposal facilities.
- A salvage yard compliance assistance program focusing on waste program concerns needs to be implemented.
- A school laboratory chemical education and collection program needs to be planned and implemented.
- Regional efforts need to be expanded to facilitate the effectiveness and efficiency of local solid waste management practices, especially the collection, processing, and marketing of recyclables.
- KDHE procedures and responsibilities need to be developed to address waste management challenges following natural disasters such as tornadoes, and floods.
- Improvements are needed in the solid waste financial assurance laws and regulations to minimize risks to associated with the failure of financial assurance mechanisms currently used by permittees.
- Better data must be collected to estimate the Kansas statewide MSW recycling rate.
- KDHE, the livestock industry, and animal health agencies must work together to establish procedures to be followed to address major animal deaths from either disease or natural disaster.
- KDHE must actively participate in regional and national meetings and policy development as related to “producer responsibility” and “product stewardship.”

The Bureau will need to work cooperatively with many partners in waste management to successfully meet these challenges. Successful

“partnering” is also critical to the establishment and maintenance of comprehensive and efficient local solid waste management plans and implemented programs. KDHE will continue to serve as a facilitator in the development of such partnerships in solid waste management.

Challenges in Remediation

Tanks: December of 1998 was the deadline for compliance with new tank laws which required a substantial investment by the tank owners and operators. The program’s greatest challenge will be to encourage ongoing compliance with release prevention and detection requirements into the future. Many members of the regulated community assumed that once their systems were upgraded they would be done with the tank requirements. The reality is that the real work of ongoing tank system monitoring is only beginning. Staff must provide compliance assistance and regular inspection of facilities to help the industry remain in compliance and reduce the risk of future releases.

Agricultural Facilities: The Agricultural and Specialty Chemical Remediation Act was signed into law in 2000. This act created the Kansas Agricultural Remediation Program for the purpose of reimbursing eligible parties and providing low-interest rate loans to qualifying parties to address environmental contamination at their facilities. The fund is administered by a seven member Governor-appointed board, and eligible sites must be managed through a KDHE cleanup program.

Resource Conservation and Recovery Act (RCRA) Corrective Action Program: A Memorandum of Agreement between KDHE and EPA was signed by EPA in May, 2001, recognizing the capacity of KDHE to act as lead agency at some RCRA corrective action sites in the state. Currently six pilot RCRA sites are being addressed by the Bureau of Environmental Remediation.

Natural Resources Damages: The Secretary of KDHE has been appointed by the governor as the Natural Resource Trustee for the State. Natural resources of the state include groundwater, soil, surface water, terrestrial wildlife, plants, trees, and aquatic life. This requires KDHE to be actively involved with contaminated sites where there is damage to the State’s natural resources that are not adequately addressed by the remedial action. This appointment will require additional efforts from staff to assess natural resource damages at contaminated sites and seek compensation for those damages.

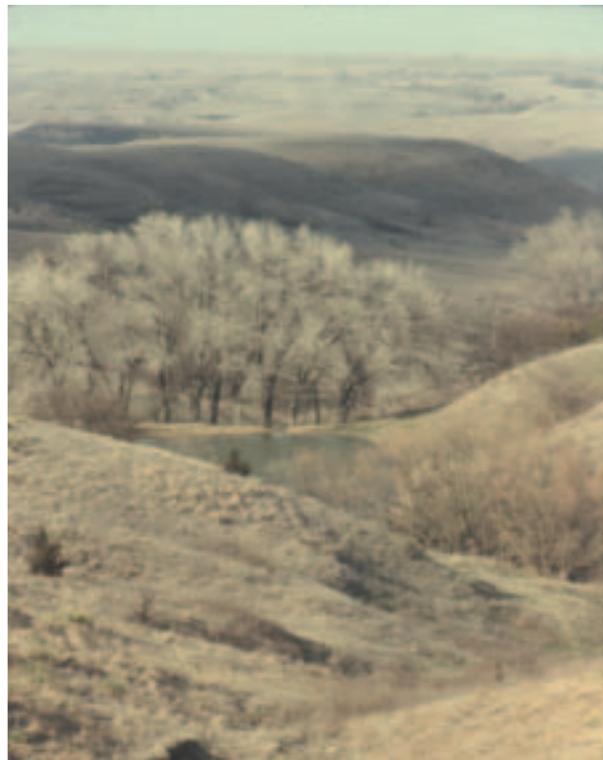


Photo by Tom Gross, BAR

Brownfields Programs: The Bureau currently provides funding to municipalities, other local governments, and non-profit organizations to conduct Phase I and Phase II environmental assessments at properties targeted for redevelopment. Additional programs are being developed to provide low interest rate loans to these entities for remediation of properties identified with contamination.

Health and Environmental Laboratories



The Division of Health and Environmental Laboratories produces public health data from laboratory tests. This report will focus on recent laboratory program developments.

They also affect about 80 laboratories located outside Kansas and two laboratories located outside of the country and accredited by ELIPO by reciprocity.

The decision to be part of this national effort and to implement the national standards in the state of Kansas was made for the following reasons:

NELAC Accreditation

In 1999, the State of Kansas, Environmental Laboratory Improvement Program Office (ELIPO) became a nationally recognized accrediting authority. This recognition was obtained as this program implemented the National Environmental Laboratory Accreditation Conference (NELAC) standards for laboratory accreditation.

NELAC is the national standard setting body for environmental laboratory accreditation and for accrediting authorities. NELAC standards have become a reality thanks to the joint effort and commitment of participants from all states, the federal government, the environmental laboratory community, and regulated industries. NELAC standards are written by participants and are approved by majority consensus. The State of Kansas is a participant and voting member in the national conference. ELIPO representatives are appointed each year by the Governor to participate in this conference.

These standards affect approximately 120 laboratories currently accredited by ELIPO located in the state.

- **Uniform standards between accreditation programs.** The lack of uniformity between federal and state programs has hindered interstate and international trade for environmental laboratories with operations in more than one state.

- **National recognition.** The work of laboratories accredited under this program will be accepted by other state and federal programs.

- **Participation.** The standards are written by interested parties (federal government, state government, environmental laboratories, and regulated industry) and approved by consensus.

- **Data quality.** The environmental laboratory improvement program believes that the implementation of NELAC standards will improve the quality of laboratory data which is provided to the Division of Environment. This is our main goal since these data are often used as the basis for environmental decisions, permitting, and enforcement actions.

Environmental Microbiology Laboratory Participates in Study

The Environmental Microbiology Laboratory has been involved in a comparison study of concentrations of fecal coliforms to *E. coli* in surface waters. This lab ran tests for a one-year period on over 205 samples and found a very positive correlation between isolated organisms.

In 1986, the Environmental Protection Agency recommended two new indicator organisms for recreational water quality assessment. They were enterococci and *Escherichia coli*. These organisms were chosen because they showed a



strong positive correlation between the organisms and the occurrence of swimming-associated gastroenteritis. At the present time, the general term “fecal coliform” is used to describe the detection of fecal coliform contamination in water. *E. coli* makes a better indicator of fecal contamination in fresh water because it is more specific to mammalian intestinal tracts. This study will be useful to the Division of Environment in determining whether *E. coli* is as good as or better than fecal coliform counts for indicating contamination of surface water.

DHEL Supports Kansas Childhood Lead Poisoning Prevention Program

Lead poisoning is caused by exposure to and absorption of lead in the body. Very small amounts of lead can cause serious harm to a child. The danger to young children is more pronounced because of increased hand to mouth activity and time spent on the floor or the ground. Lead poisoning is entirely preventable. The Kan-Be-Healthy program requires blood lead tests on children at ages 12 and 24 months. The Health and Environmental Laboratory provides blood lead testing for County Health Departments on capillary or venous blood which is analyzed for blood lead levels and determining potential risk.

The number of children being screened was seriously under projection. Four years ago, the Kansas Childhood Lead Poisoning Prevention Program (KCLPPP) and the Laboratory Improvement Program got together to improve the quality of blood lead specimens submitted to this laboratory. The two programs continued to look for ways to increase the number of at-risk children tested. A new instrument came on the market which is portable, easy to use, and provides results in less than five minutes. Since it is manufactured by the same company as the more complex instruments previously placed by KDHE, a deal was struck. The large, highly complex instruments were traded in for newer models. These smaller instruments have been placed in high-risk areas and have increased screening rates.

The locations using these instruments are regulated under the Clinical Laboratory Improvement Amendment certificate, owned by KCLPPP, and directed by a Laboratory Improvement Specialist.

Additionally, the State Laboratory now accepts blood specimens free of charge from health care providers in the state of Kansas for children in the six to 72 month age range.

The Laboratory also increased capacity to analyze environmental specimens and moved toward lead certification in the inorganic laboratory section. This cooperative program increased the number of children screened and public accessibility to blood lead screening statewide.



Photo by Colleen Peterson, DHEL

Radiological Monitoring of the Kansas Environment

The regulations for radionuclides in drinking water were revised on December 7, 2000, to include the monitoring of uranium in all community water systems. The new Radionuclide Rule also requires the separate monitoring of radium-228 and radium-226. In order to meet these requirements, the Radiochemistry Laboratory plans to implement new analytical methodologies and upgrade instrumentation.

In order to provide excellent support and coordination to the State’s radiological environmental monitoring and nuclear emergency preparedness programs, the Radiochemistry Laboratory will continue to implement more efficient emergency procedures. The laboratory’s nuclear emergency plan is an integral part of the State of Kansas’s Emergency Operation Plan.

Contacts

Division of Environment

Director's Office (785)296-1535

Bureau of Air and Radiation

General Information (785)296-1593
 Construction & Operating Permits 296-1570
 Asbestos & Right to Know 296-1550
 Radiation Control 296-1560

Bureau of Water

General Information (785)296-5500
 Geology 296-5524
 Industrial Programs 296-5547
 Municipal Program 296-5525
 Public Water Supply 296-5514
 Technical Services 296-5506
 Watershed Management 296-4195
 Watershed Planning 296-6170

Bureau of Waste Management

General Information (785) 296-1600
 Policy, Planning & Outreach 296-1617
 Compliance Monitoring & Enforcement 296-1617
 Solid Waste Permits 296-1602
 Hazardous Waste Permits 296-1602

Bureau of Environmental Remediation

General Information (785) 296-1660
 Assessment and Restoration 296-6370
 Remedial Section 296-1673
 Storage Tank Section 296-1678
 Technical Services Section 296-6242
 Surface Mining Section (620) 231-8540

Health & Environment Laboratory

General Information (785) 296-1620
 Organic Chemistry 296-1647
 Inorganic Chemistry 296-1654
 Radiation Chemistry 296-1629
 Environmental Microbiology 296-1658

Kansas: Don't Spoil It! 1-(800)-282-9790
 (Public Information Campaign)

Bureau of Environmental Field Services

General Information (785) 296-6603
 Public Advocate 1-(800)-357-6087

North Central District Office

2501 Market Place, Suite D, Salina, KS 67401
 Phone: (785) 827-9639

Northeast District Office

800 West 24th Street, Lawrence, KS 66046
 Phone: (785) 842-4600

Northwest District Office

2301 East 13th Street, Hays, KS 67601
 Phone: (785) 625-5663

South Central District Office

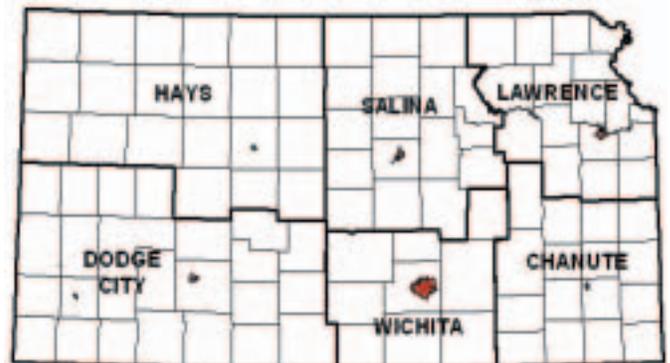
130 S. Market, 6th Floor, Wichita, KS 67202
 Phone: (316) 337-6020

Southeast District Office

1500 West 17th, Chanute, KS 66720
 Phone: (620) 431-2390

Southwest District Office

302 West McArtor Rd., Dodge City, KS 67801
 Phone: (620) 225-0596
 Ulysses Satellite Office: (620) 356-1075



Credits



Alan Brooks

Bureau of Air and Radiation
Air Permit Section

Randy Brown

Bureau of Environmental Remediation
Remedial Section

Belinda Cullen

Health & Environment Laboratory

Karen Davidson

Bureau of Environmental Field Services
Northeast District Office

Lisa Kirk

Bureau of Waste Management
Hazardous Waste Section

Bonnie Lisceck, Co-Chair

Bureau of Water
Watershed Planning Section

Jim Rudeen

Technical Services Section
Bureau of Water

David Stutt, Co-Chair

Bureau of Environmental Field Services
Southeast District Office

**The Committee
Would Like To
Thank The
Following People...**

Harish Agarwal
Barb Bangert
Scott Bangert
Rick Bean
Bill Bider
Gary Blackburn
Vic Cooper
Rich Eubank
Ron Frass
Phyllis Funk
Chris Gnau
Dan Gravatt
Tom Gross
Heather Hedgren
Leo Henning
Theresa Hodges
Chuck Layman
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Richard Strecker
Bill Thorton
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Kansas Department of Health and Environment
1000 SW Jackson, Suite 400
Topeka, KS 66612-1367
www.kdhe.state.ks.us

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