

ISSUE BRIEF



KENTUCKY HAZARDOUS WASTE

2011 Kentucky Grade: C

Proper management of hazardous waste is essential to protect human health and the environment from exposures to toxic chemicals. Hazardous waste is tracked from the point of generation until it is properly disposed or treated. In the past, hazardous waste was not tracked nor was there adequate infrastructure in place to manage the increasing waste quantities of an industrialized society. Long-term environmental damage to industrial sites as well as to the waste-receiving facilities resulted. Many of these environmentally damaged sites are still undergoing corrective action today at great expense. Hazardous waste oversight and infrastructure must be maintained to prevent similar damages in the future.

CURRENT CONDITIONS

Hazardous waste is regulated under the federal Resource Conservation and Recovery Act of 1976 (RCRA); Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA); and state law. Kentucky assumed authority to carry out the federal hazardous waste permitting and enforcement programs in 1982 and to implement the RCRA corrective action program in 1996.

In 2009, Kentucky produced 132,710 tons of hazardous waste that required management in a permitted hazardous waste treatment, storage or disposal facility. Kentucky, like most states, relies on facilities both inside and outside its borders for recycling, treatment or disposal of hazardous wastes. Kentucky remains a net exporter of hazardous waste—the state exported 163,658 tons and imported 75,083 tons of hazardous waste for recycling, treatment or disposal in 2009. Three commercial hazardous waste treatment facilities are currently operating in Kentucky. Since the 2003 Kentucky Infrastructure Report Card, a large commercial hazardous waste incineration facility declared bankruptcy and has undergone remedial actions under federal CERCLA.

Enforcement and Compliance

Kentucky began regulating hazardous waste in 1979. The Kentucky Division of Waste Management (DWM) is the principal regulatory agency in the state responsible for ensuring that hazardous wastes are properly managed and disposed. State hazardous waste permitting and enforcement programs were put in place in 1982. A number of sources are subject to hazardous waste laws and regulations in Kentucky, including 285 large-quantity hazardous waste generators; 14 permitted treatment, storage and disposal facilities; 127 transporters; 445 small-quantity generators; 1,906 conditionally exempt small-quantity generators; 83 recyclers; and 44

used-oil burners. In addition, the state continues to pursue facilities that fail to report hazardous waste generation and illegal disposal of hazardous waste.

In 1997, Kentucky adopted the federal Universal Waste Rule, which includes batteries, pesticides, thermostats and spent lamps. The Universal Waste Rule eases regulatory restrictions on these products and streamlines administrative requirements, making for easier collection and proper disposal. Currently, there are 26 large-quantity handlers of universal waste and no destination facilities.

Contaminated Waste Sites

The Superfund and Hazardous Waste branches of DWM oversee cleanup of hazardous waste sites. The Hazardous Waste Branch's Corrective Action Program deals primarily with cleanups at large active hazardous waste facilities that treat, store or dispose of hazardous wastes or have done so in the past. These sites are in the RCRA program. The Superfund Branch oversees cleanup at hazardous wastes sites that were either operational prior to RCRA or fall outside of RCRA.

RCRA Sites

The Hazardous Waste Corrective Action Program oversees cleanups at approximately 94 sites, all of which have a clearly defined responsible party. Although there are not many sites in the program, it includes some of the largest and most complex remedial sites, including several large chemical manufacturers and military installations.

Significant accomplishments have been made in meeting the U.S. Environmental Protection Agency's (EPA) goals charting remedial progress at RCRA sites. The EPA goals consist of the following four environmental indicators: current human exposures under control, migration of contaminated groundwater under control, remedy decision and remedy construction. A total of 61 facilities are being measured with these criteria.

At the end of 2009, 50 facilities met the requirements for current human exposures under control. This amounts to 81 percent of facilities, compared to an annual goal of 65 percent of facilities meeting these requirements. At the end of 2009, Kentucky met its goal of 42 facilities meeting the requirements for migration of contaminated groundwater under control, representing 68 percent of facilities compared to an annual goal of 59 percent. A total of 22 facilities met the criteria for remedy decision at the end of 2009, representing 36 percent of facilities. This does not meet the annual goal of 44 percent. At the end of 2009, 16 facilities met the requirements for remedy construction, representing 26 percent of total facilities. This falls below the annual goal of 36 percent.

Federal Superfund Sites

In Kentucky, hundreds of old or abandoned waste sites pose threats to the environment and public health. Sites that are highly contaminated or pose an immediate public health threat may be proposed for inclusion on the EPA's National Priority List (NPL), better known as Superfund. Contaminated sites that do not qualify for federal Superfund status become the state's responsibility.

Kentucky has experienced progress in the remediation of its federal Superfund sites. Seventeen of the 20 federal Superfund sites in Kentucky completed remediation or require no further action. Eleven sites are in stages of long-term remediation and require no further construction activities.

The Paducah Gaseous Diffusion Plant is a major federal Superfund and RCRA site. The facility is an active uranium enrichment plant that has been in operation since 1952. From 1988 to the present, the Department of Energy (DOE) invested \$1.8 billion in environmental cleanup and restoration. More than 15 tons of trichloroethylene has been removed from the groundwater. More than six million cubic feet of waste has been removed. More than 800,000 cubic feet of materials have been generated and disposed at another facility. Comprehensive remediation of the site is governed by a federal facilities agreement between DOE, the EPA's Region IV, which is the southeast region of the U.S., as well as Kentucky. Multiple cleanup schedules have been structured and abandoned over the years due to DOE's inability to obtain funds sufficient to meet the agreements. Currently, DOE has requested that EPA and Kentucky schedule an additional 12 years to accommodate flat funding through 2016.

Maxey Flats and National Southwire Aluminum Co. have not yet been removed from the NPL. Installation of a synthetic liner over the landfill was completed at Maxey Flats in the spring of 2003. The facility is currently under a long-term remediation program. This program consists of utilizing natural stabilization, which will allow the materials in the trenches to subside naturally to a stable condition prior to installation of a final engineered cap, at which point construction will be considered final and complete. Natural stabilization is predicted to take 35 to 100 years.

Beginning in 1995, National Southwire Aluminum Co. underwent long-term groundwater treatment and completed remediation efforts in 2007, achieving closure with restrictions. Monitoring at the site continues and it has not yet begun the delisting process from the NPL.

State Superfund Sites

Potentially contaminated sites that fall into the state's jurisdiction are placed on the state's Superfund list. The state Superfund list includes a wide variety of incidents with different types of hazardous waste releases, including large facility-wide releases at industrial sites, manufacturing and chemical plants, and isolated chemical spills, such as transportation accidents or abandoned drums. Some sites have minimal overall environmental impact or may have no evidence of releases once assessed. Other sites may have significant soil, sediment or groundwater contamination that can take years to remediate.

Once a site is investigated and remediated, it is closed and no longer considered an active state Superfund or petroleum site. However, many of these sites may still require groundwater monitoring and long-term maintenance, which will keep them on the state Superfund site list.

As of September 2010, 2,570 Superfund sites were listed within the state. Of the 2,570 sites, 743 are considered active, meaning they are undergoing active investigation or remediation. These investigations can either be conducted by the responsible party or the state in the instance where the responsible party cannot be located or is financially unable to assist in the investigation and/or remediation. A total of 1,140 sites assigned to the state have been restored and granted "no further action" status. Currently, there are 87 sites that have been closed with restrictions.

These sites will have environmental controls in place, such as caps or environmental covenants, and undergo annual certification as well as a site review every five years.

The state incorporates a subsection of sites referred to as “capital construction state led” sites. These sites’ characterization and remediation are state-funded through the Hazardous Waste Management Fund, which collects revenue from hazardous waste generators. Capital construction sites are those that are led by the state, but also include extensive projects that require the expenditure of a large amount of personnel time and field costs. As of September 2010, 24 sites were listed as capital construction accounts. Except for environmental emergencies, funding for investigation and/or remediation must be conducted in accordance with competitive bidding procedures for state-funded construction projects. Since 1994, there have been 64 capital construction sites remediated and closed, either by receipt of a “no further action” status or managed closure options. In addition, 493 state-led sites did not require capital account expenditures and have been remediated and/or closed.

There is no average length of time for a site to remain on the state Superfund list. Variables that influence the length of time include:

- The primary responsible parties’ ability to perform or fund investigations and/or remediation measures
- The type and extent of contamination (e.g., isolated contaminated spills with little overall environmental impact or abandoned, compared to bulk plant spills requiring years of remediation)
- The need to undergo long-term remediation measures, such as pumping and treatment of contaminated groundwater, to prevent further spread of contaminated plumes

Brownfield Sites

Brownfields are abandoned, idle or underused industrial or commercial facilities where redevelopment is complicated by real or perceived environmental contamination. Many brownfields sites are located in the urban core and consequently are well-served by urban infrastructure. Capital investments for brownfields do not promote urban sprawl, because roads and utilities are already in place and existing property is being utilized.

By broad consensus of both regulators and engineers, an obstacle to brownfields redevelopment is the stringent liability scheme in CERCLA, which imposes strict and retroactive liabilities on past and present facility owners and operators, individuals who transported hazardous substances to a facility, and individuals who arranged for disposal or treatment of hazardous substances at a facility where there was a release, or threatened release, of hazardous substances.

Since CERCLA contains no provisions that relax its liability provisions for purchasers of brownfield sites for redevelopment and cleanup, the U.S. Senate passed the Brownfields Revitalization and Environmental Restoration Act of 2001. This legislation provided liability exemptions for owners of land contaminated by a source on contiguous property and holds purchasers of known contaminated sites for redevelopment from future liability resulting from the initial contamination after the land is cleaned. Kentucky adopted similar liability protections in the state Superfund law.

The 2003 Kentucky Infrastructure Report Card noted that DWM proposed regulations that were not well received by the regulated community. The rules have since been withdrawn. Following the withdrawal, the Cabinet Secretary of the Energy and Environmental Cabinet convened a task force consisting of a broad cross-section of stakeholders. Through this process, new regulations for the cleanup and closure process have been adopted.

In 2005, Kentucky established tax incentives to encourage brownfields redevelopment; however, this has not had a major impact on redevelopment because the tax incentives were too small and because there is an abundance of green fields to develop. In addition, several utilities offer brownfields tariffs. These tariffs allow for reduced rates for redevelopment of existing facilities. The discount is usually for five years. Existing facilities typically have utility infrastructure in place that is not being utilized. The tariffs are used to encourage redevelopment and better use of existing electrical infrastructure, resulting in increased interest in brownfields redevelopment.

Through the federal brownfields program, the state receives grant money to perform environmental site assessments of abandoned or publicly owned facilities to evaluate environmental concerns and contamination. Since the beginning of the program, the state has conducted assessments of nearly 60 properties. The state also helps communities to apply for individual EPA brownfields grants. Over the past four years, the Kentucky Brownfield Program helped local governments secure \$5.2 million in brownfields grants. The program also assists public, private and non-profit groups in determining additional funding sources and guides them through the assessment and cleanup processes.

Investment Needs

State Superfund sites are contaminated waste sites that threaten the environment or public health. The program to clean up abandoned waste sites is financed by a hazardous waste assessment fee from entities that generate certain hazardous wastes. This assessment fee, which generated nearly \$1.2 million in 2010, was reauthorized for another two years in the 2010 legislative session. The funds generated represent a 40 percent decrease in fees since 2003, largely due to waste minimization efforts and the utilization of more recycling exemptions. As funding decreases, it becomes more difficult to implement the state's Superfund program. Since 1994, total costs of highly contaminated abandoned sites, also known as capital construction sites, are more than \$29 million. Cleanups are planned at 24 of these sites at an estimated cost of more than \$2.6 million. DWM estimates that approximately \$80 million is needed to address Kentucky's Superfund sites.

RECOMMENDATIONS SUPPORTED BY ASCE

The following recommendations are supported by ASCE:

- Continue to ensure that adequate treatment and disposal of hazardous waste is consistent with state and federal rules.
- Continue to ensure that hazardous waste generators and handlers are brought into compliance with state laws and regulations within the shortest possible time after the detection of any violation.

- Promote a dry cleaner fund, similar to neighboring states, to assist with the hazardous waste cleanups that typically exceed the financial capability of owners.
- Provide other funding sources to the state's Superfund program as the hazardous waste assessment fee continues to decrease.

GRADE

The 2003 Kentucky Infrastructure Report Card assessed a grade of D+ on hazardous waste infrastructure. In Kentucky, 17 of 20 NPL Superfund sites either have a remedy in place or have been closed and removed from the priority list. Significant work and progress have been made at each of the three remaining sites, but none have achieved NPL milestones since 2003. In addition, hundreds of contaminated sites not on the federal NPL list require cleanup at an initial estimated cost of \$80 million. Approximately \$1.2 million per year is generated from hazardous waste fees to address cleanups at state priority sites or sites where viable responsible parties cannot be identified.

At RCRA sites, progress has been made in attaining the EPA's environmental indicators goals. Since 2003, Kentucky has made 13 percent and 28 percent increases in its migration of contaminated groundwater under control and current human exposures under control goals, respectively. Kentucky has already exceeded the 2014 goal for current human exposures under control, and it is currently close to reaching the 2014 goal for migration of contaminated groundwater under control. The two new environmental indicators – remedy decision and remedy construction – were not in place at the time of the 2003 Report Card. Although Kentucky currently falls below its annual goals for these two environmental indicators, the Hazardous Waste Branch believes that the 2014 goals can be attained.

Many of ASCE's recommendations from the 2003 report card have been met. The Division of Compliance Assistance has been created to educate and reach out to the regulated community regarding all hazardous waste issues and brownfield cleanups. Kentucky continues to work with local governments and the regulated community to develop a complete inventory of contaminated sites suitable for redevelopment, which is maintained by the Division of Compliance Assistance. The passage of the environmental covenants law, along with the promulgation of cleanup regulations, has resulted in consistent cleanup criteria considerate of future land use. New laws are also in place that protect the liability of purchasers of contaminated or potentially contaminated property. Tax credits have been implemented to assist with cleanups of property by owners not responsible for the contamination.

Since 2003, both staff and funding for the hazardous wastes programs have decreased. However, new regulations and statutes have solved many of the problems for both the agency and the regulated community. As a result, the state's hazardous waste infrastructure is assigned a grade of C.

SOURCES

1. Energy and Environment Cabinet. (2010). *Kentucky Division of Waste Management*. Retrieved 2010, from Energy and Environment Cabinet: <http://waste.ky.gov/Pages/default.aspx>