



Activities in Kentucky



ATSDR in Partnership With Kentucky

The Agency for Toxic Substances and Disease Registry (ATSDR) is the lead public health agency responsible for implementing the health-related provisions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). ATSDR is an Atlanta-based federal agency with more than 400 employees and an annual budget for 2002 of \$78 million. ATSDR is responsible for assessing the presence and nature of health hazards at specific Superfund sites, helping to prevent or reduce further exposure and illnesses resulting from those hazards, and expanding the knowledge base about the health effects of exposure to hazardous substances.

ATSDR works closely with state agencies to carry out its mission to serve the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and disease related to toxic substances. ATSDR provides funding and technical assistance to states and other partners through cooperative agreements and grants to identify and evaluate environmental health threats to communities. These resources enable state and local health departments and other grantees to further investigate environmental health concerns and to educate communities. From **fiscal years 1990 through 2001**, ATSDR awarded more than **\$540,000** in direct funds and services to **Kentucky** for financial support of specific environmental health activities. In addition to direct funds and services, ATSDR staff provides technical and administrative guidance for state-conducted site activities.

ATSDR Site-Specific Activities

Public Health Assessment-Related Activities

One of the agency's important mandates is to conduct **public health assessments** of all National Priorities List (NPL) sites and of other sites where a significant threat to public health might exist. **Twenty** sites have

been designated to the NPL in **Kentucky**.

A public health assessment

is a written, comprehensive evaluation of available data and information on the release of hazardous substances into the environment in a specific geographic area. Such releases are assessed for current or future impact on public health. ATSDR, in collaboration with public health and environmental officials from **Kentucky**, has conducted **26** health assessments in the state. Following is a recent example of a public health assessment conducted in Kentucky.

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- **Paducah Gaseous Diffusion Plant (PGDP)**—PGDP, about 10 miles west of **Paducah**, uses gaseous diffusion to produce enriched uranium. Process operations and waste disposal activities have resulted in significant releases of radiologic and chemical contaminants to groundwater, surface water, soil, and the atmosphere. A health assessment released in May 2002 evaluated off-site migration of hazardous substances from PGDP to the surrounding community and the potential health effects to community members from exposure to these substances.

ATSDR's six specific conclusions about chemical and radioactive contaminants in completed and potential human exposure pathways were

1. PDGP currently poses no apparent public health hazard to the off-site community because exposure is not taking place at levels that would likely cause adverse human health effects.
2. The unlikely event of a future rupture of one or more depleted uranium cylinders would create an urgent public health hazard for anyone near the damaged cylinders.

3. Past exposure to TCE and lead was a public health hazard for children routinely drinking water from four residential wells.
4. Future exposure to the contaminated groundwater will pose a public health hazard to adults and children if new wells are drilled into the contaminated groundwater plumes, or if old wells are used by new land owners.
5. Past short-term airborne releases of uranium hexafluoride and the resulting exposures are an indeterminate public health hazard because the total release quantities and completed exposure pathways are uncertain.
6. Past long-term chronic uranium or hydrogen fluoride exposures were below levels of public health concern.



Ingots of radioactively contaminated nickel stored at the Paducah Gaseous Diffusion Plant. Photo from the U.S. Department of Energy Office of Environmental Management.

water supply and concluded that health effects were unlikely to be due to the coal slurry.

A draft health consultation released for public comment in April 2003 evaluated available site

data and addressed community health concerns related to the spill. These concerns included skin rashes, nausea, and headaches believed to be related to showering in and drinking contaminated public water; safety issues related to growing vegetables in the floodplains of area streams; and continuing blackwater events (when surface water looks black because

of suspended particles in the water) during floods. The environmental data evaluated for this health consultation were slurry material, soil, and sediment samples. These samples were analyzed for metals, volatile organic compounds, and semivolatile organic compounds, which includes polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs).

In this draft health consultation, ATSDR concluded that although some exposure may have occurred or might be occurring as a result of the coal slurry spill, exposures are not at levels expected to have adverse health effects. ATSDR classified this site as no apparent public health hazard. ATSDR is planning to hold a public availability session in September before finalizing the document.

A **health consultation** is a written or oral response from ATSDR to a specific request for information about health risks related to a specific site, chemical release, or hazardous material. It is a more limited response than a public health assessment is. To date, **30** documented health consultations have been conducted at **18** sites in **Kentucky**. Following is a recent example of a health consultation conducted in the state.

■ **Martin County Coal Slurry Release**—ATSDR was asked by a citizens' group in **Inez** to evaluate environmental data and address community health concerns related to an October 2000 coal slurry spill from a mining operation in Inez that flooded area streams. In 2000, ATSDR's Emergency Response team reviewed the available environmental data pertinent to the

An **exposure investigation** collects information on specific human exposures through biologic sampling, personal monitoring, related environmental assessment, and exposure-dose reconstruction. Following is an example of the only such an investigation conducted in **Kentucky**.

■ **Municipal Sewage Treatment Facility, Rubbertown**—The purpose of an exposure

investigation released in March 2002 was twofold: first, to determine whether residents living near the municipal sewage treatment (MST) facility in **West Louisville** are being exposed to hazardous levels of airborne hydrogen sulfide; and second, to determine whether experimental instruments can detect short-term levels of hydrogen sulfide. MST is in Rubbertown, an industrial area in West Louisville, and the duration of hydrogen sulfide releases are too short to be measured with conventional time-weighted sampling methods.

Limited air sampling was conducted in the Rubbertown area in April 2001. The concentrations of hydrogen sulfide found in samples of the community's ambient air are not expected to pose a public health hazard, but concentrations of hydrogen sulfide detected on-site may exacerbate respiratory symptoms in children who have asthma and live downwind of MST. When hydrogen sulfide was measured below levels detected by smell, odors persisted; therefore, other odorous chemicals (like amines and cystine, which are common at waste-handling and wastewater facilities) are present at the MST site. Hydrogen sulfide measurements provided by the fluorometer instrument identified hydrogen sulfide sources and successfully characterized peak exposures. The fluorometer and the tapemeter used in this exposure investigation provided comparable results, but the tapemeter's major limitation was its dependence on relative humidity.

Health Education and Community Activities

Another aspect of the cooperative agreement program includes supporting educational activities for physicians, other health professionals, and communities about human exposure to hazardous substances in the environment. The **Kentucky Department for**



Breakthrough area, Martin County coal slurry spill in 2000. Photo from the Department of Interior Office of Surface Mining.

Health Services received a 2-year award in 1990. Project staff developed an information packet, including an overview of environmental health hazards, a list of possible signs and symptoms of environmental exposure, an environmental exposure history form, and a list of resources. This packet was distributed to 3,190 primary care physicians in the state. Project staff also developed case studies for health practitioners on selected hazardous substances and conducted a presentation on environmentally related diseases for physicians.

Health Studies

Health studies are investigations conducted to determine the relationships between expo-

sure to hazardous substances and adverse health effects. They also define health problems that require further investigation through, for example, health surveillance or an epidemiologic study. Following are examples of health studies and investigations that ATSDR conducted or supported in the state of **Kentucky**.

- **Calvert City Industrial Complex**—In 1993, ATSDR provided technical assistance to the citizens of **Marshall and Livingston counties** in response to a petition for a public health assessment. Some residents believed that they might be suffering from adverse health conditions associated with chemicals used in operations at the BF Goodrich/Airco Superfund site in the Calvert City Industrial Complex. Approximately 5,600 persons lived within a 4-mile radius of the site. ATSDR organized a community assistance panel (CAP) composed of area residents. In collaboration with the CAP, ATSDR developed a protocol for the study. Study results were analyzed in 1994 and the agency released its report of the results in 1995. The results showed no discernible pattern of increase in self-reported diseases or symptoms in the target population and no consistent differences in the biomedical

test results. Volatile organic compound (VOC) exposure test results revealed no recent, excessive chemical exposure in persons living in the target area.

Association of Occupational and Environmental Clinics

ATSDR provides financial and technical support to members of the Association of Occupational and Environmental Clinics (AOEC). This support is provided to improve education and communication related to surveillance, diagnosis, treatment, and prevention of illness or injury related to exposure to hazardous substances. The member institution in **Kentucky** is the **University of Kentucky Occupational Medicine Program** in **Lexington**.

Resource Materials

ATSDR develops materials that public health professionals and medical care providers can use to assess the public health impacts of chemical exposures. Resources are available in print, on the ATSDR Web site, and on CD-ROM. For example, medical management guidelines are available for acute chemical exposures to more than 40 chemicals. ATSDR's toxicological profiles comprehensively describe health effects; pathways of human exposure; and the behavior of more than 250 hazardous substances in air, soil, and water at hazardous waste sites. In the last 5 years, more than **2,600** of these profiles have been sent to requesters, including representatives of federal, state, and local health and environmental departments; academic institutions; private industries; and nonprofit organizations in **Kentucky**. ATSDR has also developed extensive resources for community members.

For more information, contact ATSDR toll-free at 1-888-42ATSDR (1-888-422-8737) or visit the ATSDR Web page at www.atsdr.cdc.gov.