



Activities in Ohio



ATSDR in Partnership With Ohio

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 2003 of approximately \$82 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 1989 through 2003**, ATSDR awarded more than **\$4.5 million**—more than **\$850,000** in the last 2 years—in direct funds and services to **Ohio** for comprehensive support of its environmental health unit. 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. **Forty-two** sites have been designated to the NPL in **Ohio**.

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 **Ohio**, has conducted **58** health assessments in the state, including the following recent examples.

- **Kirby Tire**—Since the 1950s, the 130-acre Kirby Tire Company site near **Sycamore** has accumulated an estimated 20 million tires, making it the largest accumulation of scrap tires in Ohio and one of the largest in the United States.

An August 1999 fire consumed an estimated 7 million of the existing 20 million on-site tires and produced a large plume of black smoke that could be seen as far as 60 miles from the site. As a result of the fire, pyrolytic oils were released into nearby Sycamore Creek. Residents expressed concerns about contamination during and after the fire and petitioned ATSDR to conduct a public health assessment. To address these concerns, the **Health Assessment Section (HAS)** of the **Ohio Department of Health (ODH)** completed this public health assessment for the site under its cooperative agreement with ATSDR.

Pyrolytic oils contain a variety of organic compounds and heavy metals. These typically include volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and heavy metals. VOCs, PAHs, and other chemicals were initially detected at high levels in the surface water of Sycamore Creek as a result of oil released into the creek. The chemicals have also been detected at lower levels in creek sediments. Some

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of these chemicals have also been detected at low levels sporadically in perched groundwater beneath the site.

The surface water contamination has been removed by both mechanical aeration and natural attenuation. The levels of contaminants in the sediments are present at concentrations below those expected to cause adverse health effects. It is not yet clear whether the quality of the perched groundwater is being impacted by the tire fire. However, the contamination in the perched groundwater does not pose a health threat to residents in the area because no one currently uses it for domestic purposes. A thick clay layer between the two water sources makes it unlikely that any contamination could migrate to the deeper groundwater used by residents. Additional monitoring data from subsequent samplings are necessary to assess any potential adverse impact on the deeper aquifer.

The Kirby Tire Company site and Sycamore Creek currently pose no public health hazard to residents and visitors to the area because no completed exposure pathway exists for on-site soils and because of the lack of contact with on-site physical hazards. HAS will continue to evaluate the health implications from future environmental monitoring data collected by the **Ohio Environmental Protection Agency (Ohio EPA)**.

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, **154** documented health consultations have been conducted at **94** sites in **Ohio**, including the following recent examples.

- **Cady Road**—A resident of Cady Road in **North Royalton** petitioned ATSDR to determine whether exposure to possible contaminants in private well water and indoor air could adversely affect the health of area residents. These contaminants include combustible gases such as methane and hydrogen sulfide. A health consultation released in March 2003 identifies potential human exposures

and possible health effects related to chemicals detected in private well water and indoor and outdoor air sampling data from homes along Cady Road. The health consultation concluded that the combustible gases, including methane, in private well water present an urgent public health hazard. Methane levels in some samples were at explosive levels. Hydrogen sulfide in private well water also presents a public health hazard; the levels in some homes could cause adverse health effects, especially in residents with preexisting asthma or other respiratory conditions. The consultation also concluded that the gases and organic compounds measured in the drinking water are not an ingestion hazard.



Tire fire, Kirby Tire Company, 1999.

- **Eagle-Picher**—Foundry operations have been carried out at the former Eagle-Picher

Industries, Inc./current Bunting Bearings Corp. facility in **Delta** since 1936. Wastes generated by historical foundry operations included fugitive air emissions from melting and casting processes, baghouse dust containing metals, and scrap bronze stored on-site.

Ohio EPA investigations of the facility in 1985 and 1995 revealed lead at levels of up to 15,600 parts per million (ppm) in surface soil samples from residential yards adjacent to the facility. In 1998, an environmental investigation of was conducted for the foundry property and surrounding residential areas. Lead levels up to 8,209 ppm were detected in residential and commercial areas immediately north and south of the facility. Lead levels up to 900 ppm were detected in Fewless Creek sediments southeast of the facility.

HAS determined that lead levels in adjacent residential yards and in sediments in Fewless Creek had the potential to pose a public health threat to area residents. The main exposure pathway identified was exposure to lead in surface soils or sediments through ingestion of lead-contaminated soils. The population of concern was infants and young children playing in the dirt in residential yards adjacent to the facility.

In 1999, a free blood-lead screening of area children was carried out in the neighborhood near the facility by the **Fulton County Health**

Department and by representatives of the **Regional Childhood Lead Resource Center (Seneca County Health Department)**. Twenty-three children who lived in the area or spent significant time there were screened. All blood levels were below 10 µg/dL, the children's lead-risk screening level established by the Centers for Disease Control and Prevention; therefore, HAS has determined that the facility currently poses no apparent health hazard to area children. Cooperative efforts by the U.S. Environmental Protection Agency (EPA), Ohio EPA, Eagle-Picher Industries, Inc., and the Bunting Bearings Corp. to remove or mitigate the potential public health hazard posed by identified lead contamination in off-site residential surface soils and sediments continue.

An **exposure investigation** collects information on specific human exposures through biologic sampling, personal monitoring, related environmental assessment, and exposure-dose reconstruction. ATSDR staff members have conducted **four** exposure investigations in **Ohio**, including the following recent example.

- **Warren Recycling**—Community representatives and the school board in **Warren Township** asked ATSDR to investigate health effects from hydrogen sulfide exposure. Residents believed that Warren Recycling's local construction and demolition debris landfill was emitting hydrogen sulfide gas at levels that were negatively impacting their health. ATSDR began an investigation of the facility on the basis of community health concerns identified through interviews with more than 200 residents, the Warren Township trustees, and the **LaBrae School Board**. The symptoms reported were consistent with hydrogen sulfide exposure, and included eye irritation, nausea, vomiting, headache, dizziness, fatigue, and loss of appetite/weight. A quick-turnaround health consultation was prepared based on a review of limited air sampling data. The document, released in September 2002, identifies hydrogen sulfide levels as high as 13 ppm in ambient air, concludes that hydrogen sulfide levels detected within the community pose a public health hazard, and recommends specific actions that should be taken to address this hazard.

To implement these recommendations, a multiagency workgroup of local, state, and federal partners was created. The multiagency workgroup met weekly to address issues in Warren and created

a public health action plan that included the development of an emergency response plan for schools, additional ambient air testing, groundwater testing, the installation of perimeter air monitors and groundwater monitoring wells at the facility, and physician and community education on hydrogen sulfide exposure. Additional air sampling identified unacceptable levels of hydrogen sulfide in the community, which prompted enforcement action by **Ohio EPA** and EPA. This enforcement action, which included hydrogen sulfide source identification and elimination, has significantly improved air quality in the community. Enforcement agencies continue to work with the facility to address violations at the site, and to implement continuous site characterization to ensure contaminant leaching off-site does not occur. Two additional documents addressing air and residential well testing have been prepared, and ATSDR continues to work with residents through health education and risk communication. All of these activities were accomplished within 1 year of the initial site visit.

Health Education and Community Activities

Ohio has been a participant in ATSDR's cooperative agreement program since **1989**. Under this program, **ODH** has received funding and technical assistance for the development of community education and activities associated with human exposure to hazardous substances in the environment. In the last 2 years, eight education materials were developed in support of 13 environmental health education seminars, workshops, or town meetings. More than 600 Ohio residents attended these events. Recent activities include community meetings with the Sierra Club (**AK Steel** site), fact sheets addressing exposure to hazardous substances (**Bison Corporation** and **John Mercer Property** sites) and lead exposure (**Lexington Manor** site), and a meeting with local residents to discuss results of groundwater sampling (**Urbana Residential Well Contamination** site).

In September 2003, **HAS**, in association with the Southern Ohio Medical Center and the Association of Occupational and Environmental Clinics (AOEC), conducted two education sessions to provide local physicians and nurses with information on the toxic properties and potential adverse health effects associated with exposures to benzene and 1,3-butadiene. The sessions grew out of a request at a May 2003 public meeting on the **New Boston Coke** plant.

Public concern arose from an Ohio EPA air monitoring investigation and risk assessment report that indicated the release of elevated levels of benzene, 1,3-butadiene, and other coke oven gases from the former New Boston Coke plant to the ambient air in New Boston from 1993 to 1999. The Ohio EPA risk assessment estimated a potential for excess adverse health effects (primarily cancer) in New Boston resulting from exposures to these chemicals during the monitoring period in the mid to late 1990s.

Health Studies

Health studies are investigations conducted to determine the relationships between exposures 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 **Ohio**.

- **Prevalence of Multiple Sclerosis**—Residents of **Wellington** have expressed concerns about elevated rates of multiple sclerosis (MS), a neurodegenerative disease believed to be the result of a complex combination of environmental, genetic, and autoimmune factors, and the possible association with environmental contaminants. In 2000, ATSDR entered into a cooperative agreement with **ODH** to determine age- and sex-specific MS prevalence rates in Lorain County. The study area includes a population of approximately 280,000 people. ATSDR expects to gather information on between 162 and 266 MS cases, of which approximately 65%–70% will be women. In addition to establishing background MS prevalence estimates, ODH will work collaboratively with ATSDR and two other cooperative agreement recipients to develop procedures and data collection instruments to be used for case ascertainment and case verification in future studies.
- **Prevalence of Adverse Health Outcomes in Residents of the Area Surrounding the Former Feed Materials Processing Center at Fernald, Ohio**—The Fernald Medical Monitoring Program (FMMP), started in 1990, is a medical surveillance service provided to persons who may have been exposed to radiation from the Feed Materials Processing Center (FMPC)—a U.S. Department of Energy uranium-processing plant—in **Fernald**. The

criteria for eligibility for the FMMP are 2 or more continuous years of residence in the area between the years 1952 and 1984. The eligible population enrolled in the FMMP consists of 9,452 individuals [8,462 adults, 990 children].

In a study conducted by the University of Cincinnati Medical Center, with funding from ATSDR, investigators determined the prevalence of nonmalignant health outcomes in persons who lived near FMPC. This study used FMMP participants' physical examination and questionnaire data collected at the time of the first medical examination on enrollment in program.

Findings included indications that living within the Fernald exposure domain in the past is related to health effects on urinary system function. Statistically significant elevations in prevalence for both kidney disease and bladder disease were present in the FMMP population. Alterations in whole-blood components also were found in FMMP participants. Those who had lived within 2 miles of the plant had increased white blood cell counts, increased hemoglobin levels, and decreased mean corpuscular volume. The subpopulation of FMMP participants who used a well or cistern had increased red-blood-cell counts and increased hematocrit. A final report was published in August 2001.

Association of Occupational and Environmental Clinics

ATSDR provides financial and technical support to members of 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. ATSDR supports three occupational and environmental health programs in **Ohio**. The **Lorain Clinic for Occupational Health and Rehabilitation** and the **Elyria Clinic for Occupational Medicine and Rehabilitation** provide support in northeastern Ohio; the **Center for Occupational Health at Holmes Hospital** provides support in the **Cincinnati** area.

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.