



# Activities in Illinois



## ATSDR in Partnership With Illinois

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 a budget for 2004 of approximately \$73 million. ATSDR assesses the presence and nature of health hazards at specific Superfund sites, helps to prevent or reduce further exposure and illnesses resulting from those hazards, and expands 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 1988 through 2003**, ATSDR awarded more than **\$15.4 million**—more than **\$1.8 million** in the last 2 years—in direct funds and services to **Illinois** 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. **Fifty** sites have been designated to the NPL in **Illinois**.

A **public health assessment** is a written, comprehensive evaluation of available data and

information about 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 **Illinois**, has conducted **107** public health assessments in the state, including the following recent example.

- **Hartford Residential Vapor**—In June 2003, ATSDR released a final public health assessment prepared by the **Illinois Department of Public Health (IDPH)** that evaluated residential vapor intrusions in **Hartford**. In May 2002, volatile organic compounds (VOCs) entered the basements of several homes, causing acute health effects and forcing evacuations. Air samples showed very high levels of VOCs, including benzene at six times the acute health guideline.

The VOC source most likely is a layer of about 2 million gallons of gasoline atop a shallow aquifer. The source of the gasoline was a pipeline leak about 25 years ago. Interviews and surveys of residents suggest that vapor intrusions have existed in the northeastern portion of the community since 1966 but were worse in the late 1980s after the pipeline leak. The refinery installed a vapor extraction system in 1992, but homes affected in 2002 were outside the treatment area of that system.

The public health assessment concluded that these vapor intrusions do not pose a chronic health hazard. Acute health hazards associated with these acute exposure events are not predictable, and the vapor intrusions are likely to recur. In this public health assessment, recommendations were made to the agencies responding to the cleanup; no specific

*ATSDR awarded more than \$1.8 million in the last 2 years in direct funds and services to Illinois.*

recommendations were made to the public. After a fourth quarterly sampling event is complete this spring, IDPH will write a health consultation and make additional recommendations based on the sampling results.

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. A health consultation is a more limited response than a public health assessment is. To date, **171** documented health consultations have been conducted at **144** sites in **Illinois**, including the following recent example.

- **W.R. Grace**—In September 2003, ATSDR released a health consultation prepared by IDPH in cooperation with ATSDR for the former W.R. Grace & Co. facility in **West Chicago**. Until it closed in the early 1990s, the plant processed more than 273,000 tons of asbestos-contaminated vermiculite ore mined in Libby, Montana. IDPH concluded that the site currently poses no health hazard to area residents. However, former facility employees were exposed to elevated levels of asbestos. Residents of employees' households also may have been exposed to asbestos fibers brought home on employees' clothing. As a result, employees and people who lived in their homes may be at increased risk for asbestos-related diseases.

The West Chicago site is part of ATSDR's National Asbestos Exposure Review (NAER) being conducted with other federal, state, and local environmental and public health agencies. NAER is an examination of more than 200 U.S. sites that received asbestos-contaminated vermiculite ore mined in Libby from the early 1920s until 1990. ATSDR is working closely with the U.S. Environmental Protection Agency (EPA) and state health partners to determine whether a hazard to public health exists at any of the sites.

An **exposure investigation** collects information about specific human exposures through biologic sampling, personal monitoring, related environmental assessment, and exposure-dose reconstruction. Following is a recent example of an exposure investigation conducted in **Illinois**.

- **Batavia Groundwater Site**—During routine well water sampling in January 1996, **IDPH** identified vinyl chloride and other chlorinated solvents in a

well used by the Montessori Academy in **Batavia**. No source of vinyl chloride was found at the academy, and IDPH collected additional water well samples from surrounding properties in July 1996. Results of those samples showed an area of contamination south of the Montessori Academy, in association with Batavia Concrete, Inc. IDPH referred the site to the **Illinois EPA** in 1996 for possible remediation.

In December 1996, IDPH began an annual groundwater monitoring program for homes in a subdivision west of the site across the Fox River. From 1996 through 2001, site-related chemicals were detected in groundwater samples from only one home. In groundwater samples collected in 2001, elevated levels of vinyl chloride and cis-1,2-dichloroethylene were found. Because of these levels, residents in this home were advised to use an alternate drinking water supply or install a whole-house water filtration system.

In June 2002, IDPH collected additional groundwater samples from residential water wells in the subdivision west of the site, including the private well where vinyl chloride was detected in January 2001. Groundwater samples were collected from 11 homes, but vinyl chloride was found only in the one well that was previously affected. The homeowners with the affected well use only bottled water for drinking and cooking.

IDPH concluded that under current conditions, exposure to vinyl chloride in groundwater poses no apparent public health hazard to residents in the affected home west of the site across the Fox River. This conclusion was based on continued use of bottled water by the residents and the absence of children in the home.

## Health Education and Community Activities

**Illinois** has participated in ATSDR's cooperative agreement program since 1988. Under this program, **IDPH** has received funding and technical assistance to develop approximately 90 educational tools related to human health issues associated with hazardous substances in the environment. Additionally, more than 8,000 citizens have attended 216 public meetings or training sessions (e.g., public meetings, in-school presentations, workshops, seminars, grand rounds).

IDPH developed an interactive Web site about mercury using funding provided by ATSDR. The site ([www.idph.state.il.us/mercury](http://www.idph.state.il.us/mercury)), launched in

August 2003, provides information for teachers, parents, and students about the health effects of mercury, ways to clean up a small mercury spill, and action to take for a large spill. The site also includes information about the history and physical properties of mercury, curricula for teachers to use in the classroom, and a mercury quiz.

Through a cooperative agreement with the National Environmental Health Association, ATSDR awarded funds to the **Illinois Environmental Health Association**, whose members are from the private sector as well as city, county, state, and tribal organizations. The cooperative agreement provides for evaluating, planning, designing, and implementing an environmental health education program that responds to the significant threat of chemical terrorism. One of the agreement's five goals is to conduct regional and national training and education workshops.

**DRAFT**

## Health Studies

Health studies are investigations to determine the relations between exposures to hazardous substances and adverse health effects. Health studies also define health problems that require further investigation through, for example, health surveillance or an epidemiologic study. Following are examples of health studies or investigations that ATSDR conducted or supported in **Illinois**.

- **La Salle Electrical Utilities**—In September 1993, ATSDR awarded funds to **IDPH** to conduct polychlorinated biphenyls (PCB) exposure assessment and biologic sampling at this site. The study was conducted in three phases: a mortality cause-of-death analysis for 2,880 workers, and two morbidity studies (various biomarker analyses and survey responses for nervous and reproductive systems).

The mortality analysis showed that total mortality and all cancer mortality were similar to expected in both males and females; however, females with longer employment had a significantly elevated liver/biliary cancer, and stomach cancer in males was significantly elevated.

The morbidity I biomarker report of 190 workers was printed in 2002. The study found significant associations for various lipid and hormone biomarkers; increased triglycerides, decreased HDL-cholesterol, decreased sex-hormone binding globulin, and decreased follicle-stimulating hormone in women, and levels of natural killer

cells and thyroid-stimulating hormone in men. Preliminary findings of the morbidity II study report indicate elevated breast cancer in former female employees, based on a small number of cases, and elevated rates of ear infection in workers' children.

- **National Exposure Registry (NER): Trichloroethylene (TCE) Subregistry**—TCE, a synthetic chemical that does not occur naturally in the environment, was the first chemical selected for an NER subregistry. Occupational and animal studies suggest that TCE is associated with liver, kidney, or lung cancer. Data on nonoccupational exposures, such as environmental exposures and their potential health effects, are sparse and inconclusive. At selected sites throughout the nation at which TCE exposures have occurred, initial (i.e., baseline) and follow-up interviews have been conducted; 4,986 people from 15 areas associated with hazardous waste sites in five states have been enrolled in the TCE Subregistry. Health outcomes reported for certain sex and age groups included speech impairment, hearing impairment, and anemia and other blood disorders.

The **Illinois** sites included in the TCE Subregistry are the SE Rockford Groundwater Contamination, Warner Electric Brake and Clutch Company, Beloit Corporation, Byron Salvage Yard, Acme Solvent Reclaiming, and Frinks Industrial Waste sites. Baseline interviews were conducted in 1990; follow-up interviews were conducted in 1991, 1993, 1995, 1997, and 2000.

- **Determining the Prevalence of Multiple Sclerosis (MS) and Amyotrophic Lateral Sclerosis (ALS) in Communities Living Around Hazardous Waste Sites**—Citizens in five Illinois communities (**DePue, Lewistown, Morrison, Paw Paw, and Savanna**) expressed concern about the number of people with MS and ALS in their communities and a possible link to hazardous waste sites. In fiscal year 2002, ATSDR awarded a cooperative agreement to the University of Illinois to determine the prevalence of these diseases in the five communities. People suspected of having MS and ALS will have their diagnosis verified by the project neurologist after a review of their medical records. Prevalence rates will then be compared with national statistics. This study will also investigate the proximity of MS and ALS cases to environmental hazards in the five communities.

## Great Lakes Human Health Effects Research Program

In support of the Great Lakes Critical Programs Act, this program's six objectives are to (1) extend the results from past and ongoing research in the Great Lakes region; (2) develop information databases or research methodology, or both, that will provide long-term benefits to the human health effects research efforts in the Great Lakes basin; (3) provide direction for future health effects research; (4) provide health information to state and local health officials, the concerned public, and their medical health care professionals; (5) increase public awareness about the potential health implications of toxic pollution in the Great Lakes; and (6) coordinate as necessary with relevant government research programs and activities to ameliorate adverse public health impacts of persistent toxic substances in the Great Lakes basin. Two institutions in Illinois have been awarded funds through this program: the University of Illinois at Chicago and the University of Illinois at Urbana-Champaign. Studies are expected to be completed by 2006.

### ■ **Great Lakes Fish as a Source of Maternal and Fetal Exposure to Chlorinated Hydrocarbons—**

The purpose of this study at the **University of Illinois at Chicago** is to determine the effects of consumption of possibly contaminated fish (PCBs, DDT/DDE, and dieldrin) on pregnant woman of African-American descent and on their newborns. The subject population will consist of a control and a fish-eating group identified at the **University of Chicago Lying-in Hospital**, the **University of Illinois Hospital, Miles Square Clinic**, and **Altgeld Gardens Clinic** (and possibly other area clinics). Participants are interviewed, then followed throughout pregnancy to term. Biologic specimen collections consist of maternal and fetal cord blood, placenta, breast milk, adipose tissue, and meconium. The investigators will evaluate meconium as a biologic specimen to predict infant in utero exposure to toxic chemicals.

### ■ **Longitudinal Assessment of Neuropsychological and Thyroid Function in Aging Great Lakes Fish-Eaters and a Prospective Study of Health Outcomes in Asian Americans—**

The **University of Illinois at Urbana-Champaign** proposes to complete follow-up neuropsychologic assessments of aging Lake Michigan fish-eaters, statistically analyze the data, and prepare manuscripts for

publication, establish a cohort of Asian American (Hmong people from Laos and Cambodia) men and women of childbearing age who have a high probability of eating contaminated fish from the Fox River and/or other local polluted water, describe the reproductive experiences of this population, determine fish consumption practices of this population, determine the distribution of serum PCB levels in a subset of the cohort, examine changes in serum PCB and serum thyroid hormone levels during pregnancy, and evaluate health outcomes in infants born to the women in this cohort.

## Association of Occupational and Environmental Clinics

Through a national cooperative agreement with the Association of Occupational and Environmental Clinics (AOEC), ATSDR supports two occupational and environmental health programs in **Illinois**. 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 institutions in Illinois are the **Occupational Medicine Clinic, Stroger Hospital of Cook County**, and the **University of Illinois Occupational Medicine Program**, both in **Chicago**.

Since 1998, ATSDR has provided funds to AOEC to support a project establishing Pediatric Environmental Health Specialty Units (PEHSUs) as a national resource for pediatricians, other health care providers, federal staff, and the public. The PEHSUs develop materials and present training to health professionals and public health officials on environmental health issues and their impact on children's health. The PEHSU for **Illinois**, Indiana, Michigan, Minnesota, Ohio, and Wisconsin is the **Great Lakes Center for Children's Environmental Health at Cook County Hospital**. The center was established in 1999 to promote and protect children's health through prevention, education, diagnosis and treatment of environmentally related diseases.

*For more information, contact ATSDR toll-free at 1-888-42ATSDR (1-888-422-8737) or visit the ATSDR Web site at [www.atsdr.cdc.gov](http://www.atsdr.cdc.gov).*