



# Activities in Tennessee



## ATSDR in Partnership With Tennessee

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 400 employees. ATSDR's annual budget for 2003 is 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 that result, 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 to further investigate environmental health concerns and to educate communities. ATSDR has cooperative agreements or grants with 31 states, 1 American Indian nation (the Gila River Indian Community), and 1 commonwealth (the Puerto Rico Department of Health). From **fiscal years 1993 through 2002**, ATSDR awarded more than **\$4.8 million** in direct funds and services to the state of **Tennessee**. 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 the public health might exist. **Twenty-one** sites have been designated to the NPL in **Tennessee**.

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 staff, in conjunction with public health and environmental officials from **Tennessee**, has conducted **24** health assessments in the state.

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- **Defense Distribution Depot Memphis, Tennessee (DDMT)**—DDMT was a fenced and guarded military supply, storage, and maintenance facility on the south side of **Memphis** from 1942 to 1997. Conclusions from a public health assessment released on November 14, 2000, include the following:

—Since at least 1989, no known exposures that could result in health effects exist or have existed off-site to contaminants from the site, except possibly in the Rozelle neighborhood. Soil sampling needs to be done in Rozelle to identify whether DDMT contaminants might be present.

—A general lack of environmental data means that insufficient information exists to determine whether a health hazard existed before 1989.

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, **85** documented health consultations have been performed at **43** sites in **Tennessee**. Recent examples of health consultations conducted in the state include

- **Abandoned Dredge Pond, North Hollywood Dump, Memphis**—In the 1930s, North

Hollywood Dump (NHD) was started by the city of **Memphis** as a municipal dump. The dump was later used for the disposal of sodium hypochloride other industrial wastes.

In July 2002, the **Tennessee Department of Health (TDH)** determined that a public health hazard exists at the NHD abandoned dredge pond (ADP). An attempt in 1992 to remediate the NHD ADP does not appear to have been successful because pesticide concentrations in the fish sampled from ADP were higher in 2001 than they were before the 1992 remediation. A completed exposure pathway exists for consumption of pesticide-contaminated fish from ADP. The concentration of chlordane present in fish is too high for safe human consumption.

- **Downtown School, Memphis City Schools**—The future home of the City of Memphis Downtown School, 10 North Fourth Street, was investigated for contamination from its past use as a laundry. In 1999 and again in 2001, contaminated soil was removed from the site. The elementary school building was then built on the site.

In summer 2002, a vapor monitoring study was performed outside and inside the school building. A health consultation released on January 2, 2003, addressed whether the measured vapor concentrations would be a health hazard to children attending the new school. This health consultation concluded that the single air sampling event was not sufficient to rule out a health hazard; therefore, the site was characterized as an indeterminate public health hazard until additional data become available. Air quality data gathered December 27–30, 2002, was the focus of a health consultation update.

Both sampling events in 2002 yielded trace levels of drycleaner solvent or breakdown product vapors below federal health guidelines.



**North Hollywood dump abandoned dredge pond, Memphis**

The calculated tetrachloroethylene, 1,1-dichloroethene, and 1,2-dichloroethane vapor concentrations inside the school are in-line with or below both outdoor and indoor ambient air monitoring data; therefore, no apparent public health hazard exists at Downtown School.

- **DDMT**—During public involvement in the ATSDR public health assessment process for this site, local residents indicated that storm water in the DDMT surface drainage system had overflowed the banks and flooded adjacent property in the past. This presents

a potential migration pathway for hazardous substances, pollutants, or contaminants to have migrated from DDMT and to have been deposited in these areas.

To determine whether a current risk of exposure from site-related contaminants might exist in these predominantly residential areas, ATSDR evaluated soil samples from three areas near DDMT and adjacent to the drainage ways. These three areas were the Rozelle neighborhood, the southeast drainage ditches, and the Tarrent Branch.

In the May 2003 health consultation, ATSDR concluded that it is very unlikely that adverse health effects or excess risk of cancer will occur due to exposure to the contaminants identified in the samples from these three areas. ATSDR categorized this situation as no apparent public health hazard. ATSDR also concluded that the available evidence points to multiple sources for the polycyclic aromatic hydrocarbon contamination found at the end of Rozelle Street.

A **public health advisory** is a statement of findings by ATSDR that a substance released into the environment poses a significant risk to human health. It includes recommended measures to reduce human exposure and eliminate, or substantially mitigate, the significant risk. The advisory is issued to the U.S. Environmental Protection Agency (EPA) to inform

state and local officials and the public about recommended actions. ATSDR has issued one advisory in **Tennessee**:

- **Chattanooga Creek Tar Deposit Site**—In 1993, ATSDR issued a public health advisory concerning the significant public health hazards that existed at this site, also known as the Tennessee Products Site (TPC). TPC was a coal carbonization facility that operated from 1926 until 1964. The tar deposits associated with this site were the result of coal tar dumped directly into the creek or along the creek bank, which created the hazards at this site. The creek contains carcinogenic polycyclic aromatic hydrocarbons (PAHs) at levels higher than the minimum for potential cancer risk as determined by ATSDR.

As a part of the public health advisory, ATSDR made the following recommendations: the site should be fenced and warning signs posted to restrict access to the site; current characterization efforts to address mitigation potential of the contaminants should continue; the Tennessee Products Site should be considered for inclusion on the NPL; and if conclusive data become available for other tar-contaminated sites along Chattanooga Creek, these sites also should be considered for inclusion on the NPL.

### **Health Education and Community Activities**

A participant in the ATSDR's state cooperative agreement program only since October 1, 2002, **TDH** has received funding and technical assistance to develop educational tools related to human health issues associated with toxic substances in the environment. In the first 8 months of the program, TDH developed five educational tools that have been used at seven meetings or training sessions. Examples of environmental health activity during fiscal year 2003 include development of quick reference wall posters for physicians, emergency rooms, and hospitals about major chemical warfare agents.

Following are additional examples of health education activities conducted in **Tennessee**:

- The **Memphis/Shelby County Health Department**, the **City of Memphis Public Works Department**, and **TDH** developed a unique yet highly effective method to ensure the widest distribution of educational materials to

local residents impacted by the North Hollywood Dump site. These groups developed a nine-item question-and-answer flyer addressing health issues associated with fish consumption from the abandoned dredge pond on the dump site. The oversized flyer was taped to residents' outside garbage containers.

- Through a national cooperative agreement with ATSDR, the **Migrant Clinicians Network (MCN)** provides environmental health education programs for health care providers working with migrant and seasonal farm workers. A nurse practitioner from the **University of Tennessee** was selected as one of eight recipients of a 2003 Migrant Health Fellowship. The fellowship provides for a 4-month working and learning experience in a migrant health center for health care professionals. The **Ocoee Regional Help Corporation (Benton)**, **Rural Health Services Consortium (Rogersville)**, **Rural Medical Services (Newport)**, and the **Tennessee Primary Care Association (Nashville)** are local members of MCN.

### **Health Studies**

**Health studies** are conducted to determine the relationships between exposures to hazardous substances and adverse health effects. Health studies also define health problems that require additional investigation through, for example, a health surveillance or epidemiologic study. Following are descriptions of site-specific health studies that ATSDR has conducted or supported in **Tennessee**:

- **Olin Chemical Company**—In 1988, ATSDR provided technical assistance to **TDH** to conduct a health study in **Charleston**. The study was to determine whether household members of workers at the Olin Chemical Company plant had elevated urine mercury levels. The study also sought to determine the association between household air samples and urine mercury levels. Workers at the chemical plant had previously been exposed to high levels of elemental mercury during a scheduled maintenance operation, and evidence suggested that they had transported mercury from the plant into their homes.

The health study, which was completed and published in 1990, showed that mercury levels among the target population were within the

normal range for the general public and did not indicate mercury toxicity. However, homes where floors were vacuumed or washed regularly were more likely to show higher levels of urinary mercury than were other homes because the frequent cleaning caused mercury to be dispersed into the air. The study recommended that mercury decontamination be conducted in all homes with air mercury concentrations above specified levels.

- **North Hollywood Dump Site, Memphis**—The objective of this study was to determine whether residents near the North Hollywood Dump site had elevated body burdens of chemicals from the dump site or abnormal findings in health effects tests, or both. The final report found no evidence of residents having increased health effects that could be attributed to the dump site. Increased pesticide levels in serum and adipose tissue were associated with eating fish from the Wolf River. The landfill is being monitored for movement of the contaminated groundwater plume.
- **Chattanooga Creek Area, Site-Specific Study**—TDH participated in a cooperative agreement in 1994 to conduct site-specific health activities related to human exposure to hazardous substances at this site. The hazards at this site relate to past, present, and future exposures to coal tar in and along Chattanooga Creek, which contains carcinogenic polycyclic aromatic hydrocarbons (PAHs) at levels higher than ATSDR's minimum cancer risk evaluation guideline. Phase I of the study at this site examined the extent of possible exposures for residents and former residents living near Chattanooga Creek, the homeless people who live on the creek banks, and people from other areas who fish in the creek. Data gathered included the amount of time individuals spent near the creek, the frequency of fish consumption, and the frequency and type of individual contact with the tar deposits. The final report was published in 1999.

## Minority Health Professions Foundation Research Program

This program supplements the substance-specific information needs of the public and the scientific community and supplies necessary information for conducting comprehensive public health assessments

of hazardous waste sites. These goals will be addressed by initiating research to fill ATSDR-identified data needs for priority hazardous substances, and by enhancing existing disciplinary capacities to conduct research in environmental health at foundation member institutions, one of which is **Meharry Medical College of Nashville**.

The main objective of the ongoing studies at Meharry Medical College is to address the gap in our knowledge about the reproductive and developmental effects of benzo(a)pyrene (BaP). Meharry scientists established a state-of-the-art inhalation exposure facility and published data on the complete characterization of their operating system. Their research has shown that after inhalation exposure BaP reaches reproductive and various other tissues in male and female animals and affects sperm maturation. This research has also shown how BaP is broken down and removed from the body over time, and that its breakdown products are transferred from mother to developing fetus and can induce neurologic effects in treated animals, and it or its metabolites can alter molecular factors believed to be critical for fetal nervous system development and function. This work is ongoing, and additional results are expected.

## 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 6,000 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 **Tennessee**.

*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](http://www.atsdr.cdc.gov).*