



Activities in Arizona



ATSDR in Partnership With Arizona

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. Through cooperative agreements and grants, ATSDR provides funding and technical assistance to states and other partners 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. In **fiscal years 1990–2003**, ATSDR awarded more than **\$4 million**—more than **\$865,000** in the last 2 years—in direct funds and services to **Arizona** for comprehensive support of its environmental health unit. In addition to direct funds and services, ATSDR provides technical and administrative guidance for state-conducted site activities.

ATSDR Site-Specific Activities Public Health Assessment-Related Activities

One of ATSDR'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. 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 past, current, or future impact on public health. ATSDR, in collaboration with public health and environmental officials from **Arizona**, has conducted **25** public health assessments in the state, including the following recent example.

- **Rodeo-Chediski Fire**—The Rodeo-Chediski fire in 2002 was the largest wildfire in **Arizona** history. Fortunately, no lives were lost. However, from June 18 to July 9, 2002, the fire destroyed over 490 structures and 467,000 acres of ponderosa pine and pinyon-juniper woodland. Jurisdictions involved included the **Fort Apache Indian Reservation**, the **Apache-Sitgreaves National Forest**, the **Tonto National Forest**, and private lands. At the U.S. Forest Service's recommendation, more than 30,000 residents were evacuated. Most evacuees stayed in Red Cross shelters or with family and friends in nonevacuated areas, but large informal recreational vehicle encampments also formed throughout **Navajo** and **Apache** counties. These encampments included makeshift corrals and kennels that housed hundreds of livestock, horses, and family pets.

A public health assessment released in September 2003 described the fire events, summarized the resulting public health effects from the fire, and provided the foundation for the **Arizona Department of Health Services (ADHS)** and the **Arizona Department of Environmental Quality (ADEQ)** to establish joint air-quality criteria for issuing smoke-related public health advisories and evacuation orders.

ATSDR awarded more than \$865,000 in the last 2 years in direct funds and services to Arizona.

The public health assessment concluded that smoke from the fire caused an increase in respiratory problems in area residents consistent with wood-smoke inhalation. These data suggest that the fire represented an acute public health hazard. Anxiety and domestic violence data were collected from evacuated community members staying in Red Cross shelters. Evacuees experienced fewer respiratory problems—but more stress and anxiety—than did community members who were not evacuated.

The public health assessment recommended that the ADHS and ADEQ emergency air monitoring team should evaluate its joint Rodeo-Chediski fire activities to identify and implement any suggested improvements for future fire seasons. The agencies subsequently agreed on particulate matter levels that trigger relocation of community members. This resulted in a change of ADEQ policy that only relocates people when conditions threaten their health.

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. In **Arizona**, 52 health consultations have been conducted at 41 sites, including the following recent examples.

- **Glendale and Phoenix Asbestos Exposure Review Sites**—Two Arizona sites are among 28 Phase 1 sites in ATSDR’s National Asbestos Exposure Review (NAER) being conducted with other federal, state, and local environmental and public health agencies. NAER examines more than 200 U.S. sites that received asbestos-contaminated vermiculite ore mined in Libby, Montana, from the 1920s until 1990. The 28 Phase 1 sites, which received 80% of the vermiculite mined in Libby in 1964–1980, may have received vermiculite from Libby at any time during the years the mine operated. All Phase 1 sites ceased processing the vermiculite by the early 1990s.

The Ari-Zonolite Company site is in **Glendale**. This site ceased operations in 1964. The W.R. Grace/Solomon’s Mines site is in **Phoenix**; this site ceased processing Libby vermiculite in 1992 and continues to operate.

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 NAER sites.

- **Rotary Beach at London Bridge**—The **Mohave County Health Department** asked ADHS to investigate the extent to which recreational boaters in the Rotary Beach area near London Bridge in **Lake Havasu City** are exposed to carbon monoxide from watercraft. The request came as a result of several drownings in which elevated levels of carbon monoxide were found in the bodies at autopsy. To determine whether recreational boaters were being exposed to carbon monoxide, ADHS used exhaled carbon monoxide as a measure of the amount of carboxyhemoglobin (COHb) in their blood. Under ATSDR’s cooperative agreement program, ADHS interpreted the data to determine whether a public health hazard exists at Lake Havasu when large numbers of watercraft are present on the water.

A health consultation released in September 2003 documented carbon monoxide exposure in recreational boaters during the 2003 Memorial Day holiday. The cumulative carbon monoxide exposure increased as the day progressed. COHb levels observed late in the day posed a public health hazard; during the investigation, carbon monoxide levels in some people were associated with symptoms caused by carbon monoxide poisoning.

The combination of carbon monoxide exposure and alcohol consumption likely creates a greater health hazard. In addition, most recreational activities conducted during the investigation were in or near water, creating a drowning hazard for people who have impaired judgment or more severe symptoms of carbon monoxide exposure and alcohol consumption.

The health consultation recommended that ADHS should conduct additional biomonitoring studies at this site and at other recreational lakes in Arizona to determine whether a widespread public health hazard exists because of carbon monoxide exposure from motorized watercraft.

- **Lake Pleasant**—As a result of the recommendation in the Rotary Beach health consultation to conduct additional biomonitoring,

ADHS conducted a carbon monoxide exposure survey among recreational boaters at **Lake Pleasant Regional Park** during the 2003 Labor Day weekend.

As in the Rotary Beach health consultation, ADHS measured exhaled carbon monoxide to determine the amount of COHb present in the blood of individuals.

The January 2004 health consultation for Lake Pleasant concluded that no apparent health hazard existed at the time of the study. Seven participants who were actively smoking cigarettes slightly exceeded the threshold for mild adverse health effects.

ADHS will conduct additional biomonitoring studies at Arizona's lakes in spring and summer 2004 to determine whether a widespread public health hazard exists because of carbon monoxide exposure from motorized watercraft.

- **Blue Ridge Elementary School**—The U.S. Environmental Protection Agency (EPA) asked ADHS to evaluate environmental conditions at the Blue Ridge Elementary School in **Lakeside**. EPA had received a request for assistance from community members concerned about environmental conditions at the school.

The Blue Ridge Elementary School began receiving complaints from parents and staff in 1996. Primary complaints were related to air quality problems associated with renovation activities. Spurred by ADHS/ATSDR recommendations, in 1997 the school implemented improvements to the air ventilation and duct systems and to dust control, and made repairs to a diesel-fired pump in a furnace room. The school also repaired the air ventilation and duct systems, enhanced janitorial services, made necessary repairs to the furnace room, and installed a smokestack to vent fumes from the diesel-fired pump.

A group of parents continued to express concerns about environmental conditions at the school. This group suggested that environmental exposures might be causing student absences from school. In response to these complaints, a follow-up environmental assessment was conducted in December 2002.

A health consultation released in April 2003 evaluated the environmental data collected for the school, examined school attendance rates, and concluded that environmental conditions at the school pose no apparent public health hazard.

- **Mountain View**—In May 2003, a **Scottsdale** resident asked ATSDR to investigate possible sewer gas exposures in a Scottsdale residential neighborhood. The resident described discharges of sewer gas from manholes and a vent stack on a residential rooftop in the neighborhood. The resident stated that physical illnesses in some neighborhood residents, as well as symptoms the resident experienced while observing the sewer gas discharges, were similar to symptoms caused by exposure to hydrogen sulfide gas. In June 2003, ATSDR asked ADHS to conduct an investigation to determine whether sewer gas exposures were occurring. Because no data on ambient and indoor air hydrogen sulfide were available for the neighborhood, ADHS and the resident collaborated in conducting an air monitoring investigation. ADHS evaluated the findings and prepared a health consultation for the site.

The health consultation, released in January 2004, concluded that levels of explosive gases and hydrogen sulfide were below levels associated with physical hazards and serious health effects (e.g., bronchial restriction in people who have asthma). Therefore, the site was classified as no apparent public health hazard.

Health Education and Community Activities

Arizona has participated in ATSDR's cooperative agreement program since 1994. Under this program, ADHS has received funding and technical assistance to develop community education and activities associated with human exposure to hazardous substances in the environment.

During summer 2002, ADHS and ATSDR collaborated to provide residents and communities impacted by the Rodeo/Chediski fire with timely and accurate information about public health issues associated with the massive fire. Health advisories addressing smoke as well as health issues and hazards associated with reentry, retardants, fire fighting, and cleanup were issued on an ongoing basis. In July 2002, an assessment was conducted on health effects involving

approximately 400 households in selected communities affected by the fire and smoke.

In 1999, ATSDR developed the border health program to provide funding and technical assistance to the Area Health Education Centers (AHEC) located along the U.S./Mexico border. In 2001, the AHEC program was expanded to include **Arizona**. Building on community needs assessments, a plan was developed to provide a series of environmental health training seminars for local health care professionals. ATSDR provided continuing education presentations on risk communication and on how to take an exposure history at the annual rural health and primary health care conferences.

Through a national cooperative agreement with the Association of Occupational and Environmental Clinics, ATSDR supports the Samaritan Occupational and Environmental Toxicology Clinic at the **Good Samaritan Regional Medical Center** campus in **Phoenix**. Services include educational activities for health professionals and evaluation and care for patients who have possible or established toxicologic disease resulting from occupational or environmental exposures.

Health Studies

Health studies are investigations to determine the relations 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 or investigations that ATSDR conducted or supported in **Arizona**.

- **National Exposure Registry Trichloroethylene (TCE) Subregistry**—ATSDR selected TCE as a target substance for one of its exposure subregistries and selected sites throughout the nation where exposures have occurred. At these sites, initial (or 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.

The Arizona site included in the TCE Subregistry is the **Tucson** International Airport site. Baseline interviews were conducted in 1994; follow-up interviews were conducted in 1995, 1997, and 2000.

- **Impact of TCE Exposures on Women**—To gain more knowledge about the potential impact environmental exposures to TCE on females, data collected as part of the National Exposure Registry TCE Subregistry were used to compare reporting rates for 19 health conditions and six symptoms in the female subpopulation with (1) national norms determined by the National Health Interview Survey, and (2) rates of their male counterparts.

Study results suggest that environmental exposures (to TCE and other chemicals) experienced by TCE Subregistry members might have had a greater health impact on female registrants than on male registrants.

Resource Materials

ATSDR develops materials for public health professionals and medical care providers to use to assess the public health impacts of chemical exposures. These 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 50 chemicals. These guidelines were designed to aid emergency department physicians and other emergency health care professionals, such as first responders, who manage acute exposures that result from chemical incidents. ATSDR's toxicological profiles comprehensively describe the health effects; pathways of human exposure; and behavior of more than 250 hazardous substances in air, soil, and water at hazardous waste sites. Health professionals at all levels use the toxicological profiles primarily as comprehensive resources. In the last 5 years, more than **8,300** 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 **Arizona**. ATSDR also has 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 site at www.atsdr.cdc.gov.