



# Activities in Colorado



## ATSDR in Partnership With Colorado

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 1987 through 2003**, ATSDR awarded more than **\$7.7 million**—more than **\$590,000** in the last 2 years—in direct funds and services to **Colorado** 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. **Twenty-two** sites

have been designated to the NPL in **Colorado**.

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 **Colorado**, has conducted **27** health assessments in the state. Following is a recent example of public health assessment conducted in the state:

- **Vasquez Boulevard/Interstate 70 (VBI70)**—A draft public health assessment was released in March 2003 for this site, which includes the northeast **Denver** neighborhoods of Swansea, Elyria, Cole, Clayton, and southwest Globeville. The U.S. Environmental Protection Agency (EPA) has taken soil samples from about 75% of the residential properties (some 3,000) in the VBI70 study area and tested them for arsenic and lead. Test results show that some residential properties have high levels of arsenic and lead in soil. The ATSDR draft health assessment addresses the public health significance of the soil testing results.

About 650 properties sampled to date have arsenic levels in soil that might pose a public health hazard for preschool children who eat unusually large amounts of soil. EPA has also identified about 260 properties where the increased risk for cancer is unacceptable in adults who also lived there as children. In addition, some VBI70 properties have high levels of lead in soil that are a health hazard to children living at those properties.

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,

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48 documented health consultations have been conducted at 29 sites in **Colorado**. Following are recent examples of health consultations conducted in the state:

- **Avondale, Boone, North Avondale, and Surrounding Areas**—A health consultation updating cancer incidence information from a public health evaluation for **Avondale, Boone, North Avondale**, and surrounding areas was released in September 2002. This consultation updates the cancer information provided in 2001 in *Public Health Evaluation for Avondale, Boone, North Avondale, and Surrounding Areas*,

a report prepared by the **Colorado Department of Public Health and Environment (CDPHE)** and the **Pueblo City County Health Department (PCCHD)**. The 2001 report documented a health statistics review and the results of an evaluation of potential human exposures related to historical groundwater contamination. The rate of cancer among persons living near the Pueblo Chemical Depot is being monitored to establish whether those rates are greater than would be expected in the general population. This information can be used to determine whether more studies should be undertaken.

The 2002 consultation concluded that the incidence of cancer in Avondale, Boone, and North Avondale during 1999 through 2000 was consistent with the expected number of diagnoses based on cancer in the general population and does not suggest an unexpected or unusual incidence of cancer. This site was therefore categorized as no apparent health hazard.

- **Victor Mine**—Construction of the Cresson Mine in the **Cripple Creek** and **Victor** area began in 1994. Several community members raised concerns about the enlargement of a cyanide leach facility and the health impacts they felt were

related to the mining operation. In February 2000, a health consultation was released to communicate existing cancer and birth defects data for Victor and to serve as input to the ATSDR petition

process. A review of the data did not identify any significant excess of cancer or birth defects in the 80860 zip code area.

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 EPA to inform state and local officials and the public about recommended ac-

tions. Following is the only public health advisory that ATSDR has issued in **Colorado**:

- **Hansen Containers**—In September 1991, ATSDR issued a public health advisory stating that lead-contaminated soil at this site in the Riverside community of **Grand Junction** was a significant threat to public health. ATSDR found that large areas of the facility had excessive soil-lead levels and access to the facility was unrestricted. In addition, evidence showed that contaminants were moving off-site. The advisory recommended restricting access to the Hansen facility, testing Riverside community children for blood-lead levels, sampling residential yard soils for lead, and educating health professionals and community residents about these dangers. All of these recommendations were accomplished by the end of October 1991.

An **exposure investigation** collects information on specific human exposures through biologic sampling, personal monitoring, related environmental assessment, and exposure-dose reconstruction. ATSDR has conducted **one** exposure investigation in **Colorado**:

- **Cripple Creek and Victor Gold Mining**—The purpose of an exposure investigation released in November 2000 was to collect ambient air



**Neighborhood children playing at the Swansea Recreation Center next to railroad cars at the VBI70 site in Denver.**

monitoring data that could be used to assess whether residents in the **Victor** area were being exposed to hydrogen cyanide at levels of public health concern. ATSDR did not detect hydrogen cyanide at concentrations of health concern in ambient air samples collected from on-site and off-site residential locations.

## Health Education and Community Activities

**Colorado** has been a participant in ATSDR's cooperative agreement program since 1989. Under this program, **CDPHE** has received funding and technical assistance for the development of community education and activities associated with hazardous substances in the environment.

Since 1995, through a cooperative agreement with ATSDR, the National Association of County and City Health Officials has provided support to 50 local health departments, two of which are in Colorado, to build local Superfund capacity. Building on an educational needs assessment, the **Boulder County Public Health Department** (Captain Jack Mill site in **Ward**) and the **El Paso County Department of Health and Environment** (Schlage Lock site in **Security**) received capacity-building training focused on integrating environmental protection, community involvement, environmental health education activities, and other public health practices to promote improved community health.

Under a national cooperative agreement, ATSDR and the National Environmental Health Association (NEHA) are working together to provide training to environmental health professionals, first responders, and emergency medical personnel on how to respond to the threats posed by terrorism. NEHA, with over 5,000 members, is headquartered in **Denver**.

## 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 **Colorado**.

- **Exposure to Tremolite Asbestos in Vermiculite Ore**—In 2001, ATSDR entered into a cooperative agreement with **CDPHE** to conduct health statistics reviews related to human exposure to

contaminated vermiculite ore at sites in **Colorado** that received and/or processed ore from the W.R. Grace mine in Libby, Montana.

- **Soil-Pica, Soil-Ingestion and Health Outcome Investigation**—In 2001, ATSDR awarded a cooperative agreement to **CDPHE** to conduct a site-specific activity health outcome investigation for the VBI70 site in the **Denver** metropolitan area. The purpose of this program is to determine whether soil pica and soil ingestion are potential sources of arsenic and lead exposure in preschool children in a community with elevated arsenic and lead levels in soil samples from residential yards, and to identify cases of acute arsenic or lead poisoning in households with a high contaminant level.
- **Hazardous Substances Emergency Events Surveillance System (HSEES)**—HSEES was established by ATSDR in 1990 to collect and analyze information about releases of hazardous substances that need to be cleaned up or neutralized according to federal, state, or local law, as well as threatened releases that result in a public health action, such as an evacuation. The goal of HSEES is to reduce the morbidity and mortality of first responders, employees, and the general public resulting from hazardous substances emergencies. Fifteen state health departments, including **Colorado**, currently participate in HSEES. HSEES captures data on over 5,000 events annually. Of these, 80% occur at fixed facilities, and 20% are transportation-related events. Most events occur between 8:00 AM and 5:00 PM on Monday through Friday. Persons most often injured are employees. The HSEES system is used to generate information for use by states to conduct presentations on planning prevention strategies for industries that account for a significant number of spills; conduct HazMat training courses, including information on the risk for injury from methamphetamine labs; establish and maintain protection areas for municipal water systems; assist with the proper placement of HazMat teams; develop fact sheets on frequently spilled chemicals or chemicals that cause a disproportionate number of injuries (e.g., chlorine and ammonia); develop newsletters for industry, responders, and environmental groups; and conduct presentations for state and local emergency planners.



## Environmental Health Research

- **Chemical Mixtures Research**—The goal of ATSDR's chemical mixtures research program, established in 1994, is to develop accurate methods for assessing joint toxicity of exposure to multiple chemicals found at hazardous waste sites. Experimental work through cooperative agreements is being conducted at three academic institutions. At **Colorado State University**, a mixture of four priority hazardous substances including the highest ranking volatile organic compounds—trichloroethylene, 1,2-dichloroethane, arsenic, and vinyl chloride—is being tested. These chemicals are frequently detected in drinking water near hazardous waste sites. Researchers at Colorado State University are studying the toxicity of mixtures of arsenic, cadmium, chromium, and lead in human skin cells. The results show that the joint toxicity is either additive or antagonistic when compared with effects found for the individual chemicals. Similar observations were made in Syrian hamster embryo cells when using a mixture of lead, arsenic and chromium. Several cellular and molecular biomarkers are being studied. Researchers have also been testing a mixture of arsenic, 1,2-dichloroethane, trichloroethylene, and vinyl chloride.

## Brownfields

ATSDR's long-range goal for the brownfields program is to strengthen local and state health departments' capacity to protect the public's health in areas near brownfields sites. In July 2002, the **City and County of Denver Environmental Health Department (DDEH)** was granted funding from ATSDR for a program titled "Enhancement of State, County, or Local Public Health Departments' Participation in Brownfields Decisions and Actions." Several brownfields sites are in the Denver area, and DDEH decided to focus on three main components: evaluation of the toxicity of the contaminants and potential exposure pathways for the neighboring populations, neighborhood characterizations, and community outreach.

Neighborhood characterizations will be generated by adding existing demographic, environmental, and health data to a geographic information system (GIS) base map. These characterizations will be used to establish two-way communication between DDEH

and the neighborhoods to address concerns about the presence of contaminants and their consequent health effects. The goal of the community outreach component is to establish long-term relationships that will allow ongoing communication about environmental health issues.

## 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. Member institutions in **Colorado** are the **Occupational and Environmental Medicine Division** of the **National Jewish Center for Immunology and Respiratory Medicine** in Denver and **Toxicology Associates** in Denver. Both are associated with the University of Colorado Health Sciences Center. The clinic at the National Jewish Center for Immunology and Respiratory Medicine has expertise in respiratory problems arising from workplace exposures; Toxicology Associates focuses on the evaluation, diagnosis, and treatment of chemically induced occupational and environmental illness and injury.

Since 1998, ATSDR has provided funds to AOEC to support a project establishing **Pediatric Environmental Health Specialty Units (PEHSUs)** that specialize in children's environmental health issues. The PEHSU for Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming is the **Rocky Mountain Regional Pediatric Environmental Health Specialty Unit in Denver**, a joint project of the National Jewish Medical and Research Center and the University of Colorado Health Sciences Center. The unit began operations in June 2001 and works in collaboration with the Denver Health and Hospitals Authority and the Rocky Mountain Poison and Drug Center. The unit offers multidisciplinary evaluation and management of children with known or suspected exposure to a wide range of environmental toxicants.

*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).*