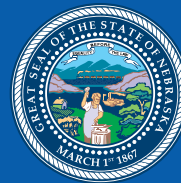




# Activities in Nebraska



## ATSDR in Partnership With Nebraska

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. In **fiscal years 1989–2004**, ATSDR awarded more than **\$830,000** in direct funds and services to **Nebraska** for financial support of specific environmental health activities. 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 **Nebraska**, has conducted **13** public health assessments in the state, including the following recent example.

- **Omaha Lead Site**—In June 2004, ATSDR released a public health assessment for the Omaha Lead site for public review and comment. The Omaha Lead site includes residential properties, child-care facilities, schools, and other properties in the city of **Omaha**. These properties have been contaminated with lead from air emissions from lead-refining operations beginning in the 1870s and continuing until 1997, and from other sources, including lead-contaminated soil and lead-based paint.

ATSDR reviewed blood lead testing results for approximately 12,800 children, soil lead data for approximately 15,000 properties, and various exposure scenarios. ATSDR concluded that ongoing lead exposure to children 6 years and younger living in or near the site puts them at risk for lead-related health effects.

From July 2000 through August 2002, nearly 300 (9.7%) children living in or near the site had blood lead levels of 10 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ) or greater, compared with 2.0% for Nebraska and 3.1% for the United States in 2001. The majority of these children had blood lead levels between 10 and 40  $\mu\text{g}/\text{dL}$  and may be at risk for decreases in IQ, slightly impaired hearing and growth, and problems metabolizing vitamin D.

Children living in the site area are exposed to two major sources of lead—lead-based paint and past emissions from lead-refining operations.

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More than 60% of the homes in the site area likely have lead-based paint. In more than 40% of the properties tested, lead levels in at least one sample were above 400 parts per million (ppm), the U.S. Environmental Protection Agency (EPA) time-critical-removal action level. The mean soil lead level for the Omaha Lead site area was 437 ppm.

The public health assessment recommended that county, state, and federal agencies involved with the site develop a lead-hazards plan to increase public knowledge about lead hazards, promote primary prevention activities, and promote and facilitate yearly blood lead testing for all children 6 years and younger living in or near the site. Such testing will increase the likelihood of identifying children being exposed and will allow timely interventions such as mitigation of lead-based paint and cleanup of contaminated soil.

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. **One hundred twelve** health consultations have been conducted at **51** sites in **Nebraska**, including the following recent example.

- **National Asbestos Exposure Review Site**—The Western Mineral Products Company site in **Omaha** is among 28 Phase I 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 early 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 during the years the mine operated. All Phase 1 sites ceased processing the vermiculite by the early 1990s: this site ceased operations in 1989.

ATSDR is working closely with EPA and state health partners to determine whether a hazard to public health exists at any of the NAER sites.

An **exposure investigation** collects information about specific human exposures through biologic sampling, personal monitoring, related environmental assessment, and exposure-dose reconstruction. Following is

an example of an exposure investigation conducted by ATSDR in **Nebraska**.

- **Dakota City/South Sioux City**—Beginning in 1996, citizens in **Dakota City** and **South Sioux City** voiced concerns that hydrogen sulfide pollution in the community might be causing health problems. In August 1996, a community organization, **Citizens Promoting Environmental Stewardship**, asked ATSDR to conduct a community exposure investigation to determine whether ambient and indoor air levels of hydrogen sulfide threatened their health. Residents were concerned about odors; respiratory problems, including asthma; and neurologic symptoms (headache, excessive fatigue, limb pain). Since 1996, ATSDR has worked closely with staff from other agencies such as the EPA Region 7 office, **Nebraska Department of Environmental Quality**, **Nebraska Department of Health and Human Services**, **Dakota County Health Department**, and local elected officials.

To evaluate exposure, ATSDR, in collaboration with EPA, conducted independent hydrogen sulfide air monitoring in six Dakota City residences and at ambient air locations between April and June 1997. As part of this investigation, Nebraska officials identified 13 potential sources of hydrogen sulfide in the community, including a large food-processing plant (with a tannery and a municipal sewer vent) and one of the largest meat-processing plants (with a tannery and uncovered sludge lagoons).

Air-data findings and residents' symptoms were consistent with symptoms associated with hydrogen sulfide exposure. ATSDR concluded that indoor and outdoor levels of hydrogen sulfide and other sulfur compounds posed a threat to public health. Now that the sludge lagoons are covered and other emission controls are in place, ATSDR is again conducting ambient and indoor air monitoring.

## Health Education and Community Activities

As part of its ongoing outreach activities in affected communities, ATSDR proactively involves communities in identifying their health concerns and developing actions to address them. An example of this type of involvement in **Nebraska** is the health education plan for the Omaha Lead site being

developed in conjunction with the **Douglas County Health Department, Nebraska Department of Environmental Quality, Nebraska Cooperative Extension Service, Nebraska Department of Health and Human Services, and EPA.**

## 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 that ATSDR conducted or supported in **Nebraska.**

- **Cornhusker Army Ammunition Plant**—In fall 1993, a symptom- and disease-prevalence study was conducted to assess the health status of people living near the Cornhusker Army Ammunition Plant and the health status of people living in a similar comparison area. Principal contaminants were neurotoxic agents. Self-reported prevalence of illnesses and symptoms were measured and biomedical testing was conducted to look for evidence of organ damage or kidney, liver, or immune-system dysfunction. Questionnaire information and biologic specimens (urine and blood) were collected from 300 participants in the target and comparison areas. A subset of the study population was administered a battery of neurobehavioral tests. No differences were found between the target population levels and established reference levels. No statistical differences existed between target and comparison groups for any of the six functional groups of neurobehavioral tests. The final report was published in September 1996.

- **Dakota City/South Sioux City**—In response to community health concerns about exposure to hydrogen sulfide air pollution in **Dakota City** and **South Sioux City**, ATSDR conducted a health investigation using neurobehavioral tests to measure possible nervous-system toxicity. The purpose of the investigation was to evaluate whether persons exposed to hydrogen sulfide had poorer neurobehavioral functioning when compared with persons who were not exposed.

Records of 335 participants (171 target and 164 comparison) were analyzed. Results of neurobehavioral tests for both groups were

generally similar. For the adjusted analysis, age was an important covariate of test performance, followed by educational level and test language (English or Spanish).

The target group performed better on 17 tests and poorer on 7 tests, but the magnitude of these differences was small. No difference was observed in performance on four tests for both groups. Exposure to hydrogen sulfide was associated with marginally poorer performance for a test of memory and a test of strength. However, these differences were not statistically significant. Deficits in overall neurobehavioral performance were not associated with exposure to hydrogen sulfide in this study.

Study results were published in U.S. peer-reviewed professional journals in 2003–2004. Study findings will help epidemiologists and toxicologists assess health risks for hydrogen sulfide exposures.

## 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 resulting from chemical incidents. 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. The toxicological profiles primarily are used as a comprehensive resource by health professionals at all levels. 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 **Nebraska.** 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](http://www.atsdr.cdc.gov).**

