ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

The Agency for Toxic Substances and Disease Registry (ATSDR) is a federal public health agency of the U.S. Department of Health and Human Services. It was created by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also known as the Superfund legislation). ATSDR's mission is 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.

April 2005

Spring Valley Newsletter

Summary Statement

The overall assessment indicates that excluding burial pits/disposal areas, contamination in Spring Valley related to American University Experiment Station (AUES) activities, is below levels associated with harm to children and adults. The health consultation, a Public Health Evaluation for the Spring Valley Community, is available for public review and comment through **April 29th 2005**. Community members can review the document at the Palisades Library, 4901 V Street NW (at 49th Street NW), Washington DC or on ATSDR's Spring Valley website at www.atsdr.cdc.gov/sites/spiringvalley. Comments must be submitted in writing and mailed to:

Chief, Program Evaluation
Records & Information Services Branch
ATSDR
Attn: Spring Valley Site
1600 Clifton Road
(MS E-60)
Atlanta, GA 30333

05-0172

What recent Public Health Activity did ATSDR conduct for the Spring Valley Site?

ATSDR prepared a health consultation which provides advice on specific public health issues related to real or possible human exposure to toxic material. A health consultation is a way for ATSDR to respond to a need for health information on toxic substances and to make recommendations for actions to protect the public's health.

What information was used to conduct the Public Health Activity?

This evaluation is an analysis of site-specific environmental and health data, and exposure investigations, as well as a literature review on reported diseases. Many compounds containing arsenic (arsenicals) were tested at American University Experiment Station (AUES) during World War I. Although arsenical compounds degrade, arsenic tends to remain in soil. We considered exposure to arsenic in soil, indoor dust and air, and drinking water as well as exposure to other soil contaminants. We evaluated the environmental sampling information and determined ways contaminants might reach people and if those contaminant levels could be associated with illness or disease.

ATSDR also evaluated possible hazards associated with materials found in burial pits (deep holes in the ground used for the disposal of AUES wastes including munitions, laboratory glassware, etc.) and surface disposal areas and whether buried contaminants could migrate and reach people (e.g., via groundwater).

What did Exposure Investigations show?

ATSDR and District of Columbia Department of Health (DC DOH) conducted three Exposure Investigations to collect information on human exposures to arsenic in the environment. The arsenic levels found in hair, urine, and indoor dust during the investigations are below those associated with health problems:

- In February 2001, hair samples were collected from 28 children and 4 adults at the Child Development Center; the results were within the range reported for unexposed populations.
- In March 2002, ATSDR invited Spring Valley residents who lived at the 20 homes with the highest and most widespread arsenic in soil to participate in an exposure investigation. Thirty-two people (23 adults and 9 children) from 13 of these homes volunteered to participate. Arsenic levels were evaluated in urine, hair, and household dust. Urinary arsenic levels were what one might expect in the general population. Arsenic levels in hair were low and indicated no significant exposures. Arsenic in household dust was not at levels harmful to health.

The July through November 2002 Exposure Investigation focused on collecting urine samples from residents who had participated in March 2002 as well as from residents living on or adjacent to properties where soil removals were occurring.

A total of 40 persons (34 adults and 6 children) participated. Most participants (92%) had urine arsenic values less than 10 μg/L, indicating normal levels; Although three persons had mild elevations of inorganic arsenic (inorganic arsenic was differentiated from organic arsenic to help evaluate possible effects) in their urine, health effects are not expected.

What health conditions did Spring Valley residents report?

Through several self-reporting survey mechanisms, Spring Valley residents reported a wide range of conditions including disorders of the blood and bone marrow (anemia, aplastic anemia, leukemia/bone marrow cancer, multiple myeloma, lymphoma, etc.), cancers (bone, brain, breast, lung, prostate, skin), and other disorders such as peripheral neuropathy. A review of these diseases, including potential environmental and other causes, is provided in Appendix D of the health consultation.

The DC DOH studied arsenic-related cancers (urinary bladder, melanoma skin, lung, liver, and kidney) and found that no excesses of incidence and mortality occurred in the Spring Valley neighborhood during the 1987-1998 study period.

What were the conclusions of the soil evaluation?

ATSDR reviewed data reported by the U.S. Army Corp of Engineers (USACE). The majority (90%) of Spring Valley properties did not have arsenic levels exceeding the clean-up level of 20 parts per million (ppm) for residential soils. Where elevated arsenic levels (>20 ppm) have been found in soil (locations known as "hot spots"), USACE is removing the arsenic through a soil excavation process. Some of the properties were also tested for explosives, chemical warfare agents, and other contaminants. Exclusive of burial pits/disposal areas, these contaminants have not been found at levels harmful to health.

Excluding burial pits/disposal areas, ATSDR concludes that the soil pathway at the American University/Spring Valley site does not represent a public health hazard. As such, exposure to the levels of chemical warfare agents or their breakdown products detected in soil is not expected to cause the health conditions reported by residents. Precautionary measures are being taken by USACE, however, to remove soils with elevated arsenic levels.

What were the conclusions of the evaluation of buried materials?

Burial areas discovered within Spring Valley to date have been or are in the process of being removed. ATSDR acknowledges that any remaining chemical warfare materials, (e.g., other chemicals, explosives) in disposal areas (burial pits and surface disposal areas) could pose a chemical or physical hazard if disturbed. Of particular concern would be munitions or containerized materials that might still contain chemical warfare agent.

ATSDR recommends that the USACE continue rapid intervention to minimize and eliminate potential hazards. Currently, the only known remaining disposal areas are Pit 23 on Glenbrook Road and the surface disposal area at Lot 18.

Did ATSDR evaluate drinking water or groundwater?

Drinking water for area residents comes primarily from the Dalecarlia Treatment Plant. The intakes for the reservoir are on the Potomac River upstream of the Spring Valley site. ATSDR reviewed arsenic monitoring results (1975 - 2001) for reservoir water and concluded that levels posed no health concern.

The USACE plans to collect groundwater data for the Spring Valley area. ATSDR will review groundwater data when they become available.

What were the overall conclusions of the assessment?

ATSDR has reached the following conclusions:

- ATSDR evaluated arsenic levels in the soil around Spring Valley in relation to ways in which people could ingest or inhale them. ATSDR concludes that **levels of exposure would not result in adverse health effects.**
- ATSDR has also evaluated levels of other contaminants (including chemical warfare agents, explosives, and other substances) detected in Spring Valley soil samples. Environmental information indicates that substances tested were not detected or were at levels below those associated with adverse health effects.
- The USACE has identified and remediated burial pits containing chemicals and other materials, including chemical warfare agents. Although the USACE has a continuing program for locating and removing other buried materials and items in surface disposal areas, the possibility remains that some hazardous material could still pose a health hazard to the public if it is tampered with or disturbed.

Were there any recommendations made by ATSDR?

ATSDR recommends additional, but targeted, environmental sampling most of which is already ongoing. ATSDR also recommends continued promotion of community awareness and interaction. The Public Health Evaluation should be consulted for our recommendations in their entirety.

Environmental Sampling

- Soil Sampling of Residential yards – ATSDR recommends that additional surface soil analyses be conducted for residential properties. Specifically, ATSDR recommends surface soil analyses for American University Experiment Station (AUES) - related contaminants including explosives and their transformation products, chemical warfare agents and degradation products, and metals such as lead and mercury.
- Soil Gas Sampling Near Burial Pits/Disposal Areas – ATSDR recommends that soil gas samples be taken at disposal areas, preferably prior to excavation, to evaluate the potential for exposure by a soil gas migration pathway. This could include existing disposal areas such as the Glenbrook Road area, where some WWI remnants remain in a burial pit (Pit 23) and in a surface disposal area at Lot 18.
- Groundwater Monitoring Near Burial Pits/Disposal Areas – ATSDR recommends that USACE continue with its plan to conduct groundwater sampling, particularly in the area of the burial pits. This sampling will provide data regarding the possible nature and extent of groundwater contamination near burial pits and other disposal areas.

Community Activities

- ATSDR concurs with the USACE activities to continue pursuing the identification and rapid removal of any remaining burial pits or surface disposal areas. Because of such remaining areas, and the potential for others to be discovered in the Spring Valley area, residents should call USACE at 410-962-0157 or 202-360-3762, if they find any suspicious objects. If there is any concern regarding an item possibly being a munition, residents should call 911.

- ATSDR encourages community members who want to further reduce their exposure to soils potentially containing hazardous substances, to follow the precautionary measures outlined in ATSDR's interim guide "Safe Gardening, Safe Play, and a Safe Home." Please contact ATSDR at 1-888-422-8737, ext. 1742 to receive a copy of this guide or visit our Spring Valley website at www.atsdr.cdc.gov/sites/springvalley.
- Residents are encouraged to report illnesses to their physicians if they believe they could be site-related. A healthcare provider's page has been placed on ATSDR's Spring Valley Web site to assist physicians in their diagnoses.

Please visit ATSDR's Spring Valley Web site at:
www.atsdr.cdc.gov/sites/springvalley

Health Activities

- Although no widespread occurrence of contamination and exposure to contamination has been found that would lead to leukemia or other adverse health effects, ATSDR recommends follow-up on the initial findings of elevated leukemia (1999 leukemia mortality rate for Ward 3 where Spring Valley is located). Because of the limited nature of the data, we suggest that the District of Columbia evaluate the incidence and mortality rates for leukemia by census tract, and compare them with an area of similar demographics to determine any excess rates of disease.
- If additional environmental sampling indicates a completed exposure pathway for contaminants with doses sufficient to cause adverse health effects, ATSDR will recommend investigations related to those contaminants.

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