

Health Consultation

ABINGDON POTTERY/BRIGGS MANUFACTURING

ABINGDON, KNOX COUNTY, ILLINOIS

AUGUST 28, 2008

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

ABINGDON POTTERY/BRIGGS MANUFACTURING

ABINGDON, KNOX COUNTY, ILLINOIS

Prepared By:

**Illinois Department of Public Health
Under cooperative agreement with the
The Agency for Toxic Substances and Disease Registry**

Purpose

The Illinois Environmental Protection Agency (Illinois EPA) requested that the Illinois Department of Public Health (IDPH) assist in evaluating the former Abingdon Pottery site in Abingdon, Knox County, Illinois because elevated levels of lead have been detected in area surface soil.

Background and Statement of Issues

As part of an on-going Brownfield redevelopment effort, in February 2007, Illinois EPA conducted an environmental investigation at the former Abingdon Pottery Company located at the corner of Sanitary Road and East Street, in Abingdon, Illinois. The property also is known as the South Plant [1]. The South Plant building has been demolished and removed, and is currently a vacant lot. During this investigation, high concentrations of lead were found in the surface soil. Illinois EPA also collected soil samples from residential yards near the site. IDPH and the Knox County Health Department worked together to address health concerns regarding the soil samples.

Site History

Abingdon Pottery began operations in 1908. The company has changed names several times from Abingdon Sanitary Manufacturing Company to Abingdon Potteries, Inc. to Briggs Manufacturing. In the beginning, the pottery company produced vitreous china plumbing fixtures. The company had two manufacturing plants in Abingdon. The South Plant with 176,000 square feet and the North Plant with 174,000 square feet.

The South Plant was built in 1908 and was expanded many times. The North Plant was built in 1926. In 1929, during the Depression years, the company faced bankruptcy. In order to stay in business, the company started producing art ware and distributed it throughout the world. Lead glazing was used, which gave the pottery and fixtures their shine [2].

In 1950, art ware production was discontinued and the company concentrated on the production of plumbing fixtures. Briggs Manufacturing was sold in 1997 to Ceramicas Industriales, S.A. (CISA). In October 2000, the plant was permanently shut down.

Site Visit

IDPH visited the site on April 11, 2007. The former South Plant building no longer exists. All that remains is an unfenced vacant lot. The lot was covered in vegetation with the exception of a small rock pile. Illinois EPA had recently posted signs on the site. The signs read, "Site Contains High Levels of Lead. Avoid Direct Contact with Site Materials and Dust (Attachment 2)." A creek runs along the back side of the site. Residential property is directly behind the creek and across the street from the site.

Discussion

Chemicals of Interest

IDPH compared the maximum level of each contaminant detected during the soil sampling with appropriate screening comparison values. A description of each of the comparison values is found in Attachment 1.

IDPH used the comparison values to screen for chemicals that warranted further evaluation. Although some contaminants may exist at levels greater than comparison values, they can only affect someone exposed to sufficient doses. The amount of the contaminant, the duration and route of exposure along with the age and health of the exposed individuals are important factors in determining the potential for adverse health effects. Lead is the chemical of interest for this site.

The lead found in the soil at the site is most likely from the glazing process used when making pottery and plumbing fixtures. Samples were obtained with a Geoprobe and lead levels were determined by an X-ray fluorescence device (XRF). Samples were collected at the ground surface and 6 inches, 1 foot, 2 feet, 3 feet, 4 feet, 5 feet and 6 feet below ground surface. When determining exposure, IDPH prefers using soil samples collected from 0-3 inches. Therefore, IDPH interpreted the surface soil sample results to determine possible health effects. Lead levels found in the surface soil of the site ranged from 15 parts per million (ppm) to 114,995 ppm.

A total of 27 residential yards also were sampled using the XRF. All residential soil average lead levels were less than 400 ppm, the USEPA screening level for lead in residential soil. The Knox County Health Department sent letters to residents providing a health-based interpretation of their soil sample results.

Exposure Evaluation

A hazardous chemical can affect people only if they contact it through an exposure pathway at a sufficient concentration to cause a toxic effect. This requires:

- A source of exposure,
- An environment transport medium
- A route of exposure,
- A point of exposure, and
- A receptor population.

A pathway is complete if all its components are present and exposure of people occurred in the past, is occurring, or will occur in the future. If parts of the pathway are absent, data are insufficient to decide whether it is complete, or exposure may occur at some time, then it is a potential pathway. If part of the pathway is not present and will never exist, the pathway is incomplete and can be eliminated from further consideration.

Persons can be exposed to lead in residential soil through dermal contact, inhalation, and incidental ingestion during gardening and play activities. The same routes of exposure are present for trespassers who contact lead-contaminated surface soil at the vacant South Plant property.

The levels detected in residential soil were less than the USEPA screening level, while on-site lead levels were much greater. The frequency of exposure to on-site soil would depend on how often persons trespass onto the property. In the spring of 2007, Illinois EPA posted warning signs on the site (Attachment 2).

Toxicological Evaluation

No minimum risk level has been established for exposure to lead, which can pose a health hazard, particularly to children and fetuses. Children who play in a contaminated area can have increased exposure. Lead is not absorbed well through the skin. Children can be exposed through ingestion and inhalation while playing. Because of the elevated levels of lead at the site, IDPH and Knox County Health Department recommended that children living in Abingdon have their blood lead tested.

Community Health Concerns

On April 11, 2007, Illinois EPA, IDPH, Knox County Health Department and the Mayor of Abingdon held a public availability session to meet with area residents. Residents were living near the site were told that they could have their soil tested. Health concerns about lead in soil also were discussed.

Blood Lead Testing

During the April 2007 public availability session, the Knox County Health Department offered free blood lead testing to individuals living in Abingdon. IDPH received data from the Knox County Health Department for children and adults tested for lead in the Abingdon area. A total of 10 blood leads samples had been drawn since February 2007. All blood lead levels were less than 5 micrograms per deciliter [3].

Child Health Considerations

IDPH recognizes that children are especially sensitive to some chemicals. Children tend to play in soil, wash hands less frequently than adults and commonly exhibit hand-to-mouth activity. Children also have smaller body size therefore they get a larger dose from the same amount of exposed chemical.

Children are more susceptible to the harmful effects of lead than adults. IDPH considers exposure of children to the lead contamination on the site unlikely.

Conclusions

According to the results of the Illinois EPA environmental sampling, a public health hazard exists at the south plant site. There is no current evidence that exposure to lead is causing adverse health effects; however, without cleanup, future exposures at levels of health concern may occur. The residential yards that were sampled pose no apparent public health hazard, and limited recent blood lead data in the Abingdon area indicate that the current exposure to lead in on-site soil is low. These results are limited because they only capture recent exposures to lead. The blood test does not provide information about past or possible future exposures. Because access to the site is unrestricted, past, present and future potential routes of exposure exist.

Recommendations

IDPH recommends that:

- Illinois EPA work with USEPA to remove the contaminated soil at the South Plant site. According to Illinois EPA, USEPA is currently in negotiations with the responsible parties for cleanup of the property, which could take place in fall 2008. If cleanup does not occur, the contaminated soil should be fenced to minimize the potential for exposure.
- Illinois EPA perform additional soil sampling at the North Plant site. According to Illinois EPA, USEPA has conducted additional soil sampling and anticipates receiving results by late summer 2008.

Public Health Action Plan

IDPH has worked with the Knox County Health Department to address the concerns of residents living near the site.

Knox County Health Department sent letters to the residents providing an individual interpretation of their soil sampling results. They also have offered free blood lead testing to residents who are concerned about exposure. To date, no elevated blood levels have been identified.

IDPH will continue to work with USEPA, Illinois EPA and the Knox County Health Department to monitor conditions and developments at the site and will provide a health-based interpretation of any new data that is collected.

Preparer of Report

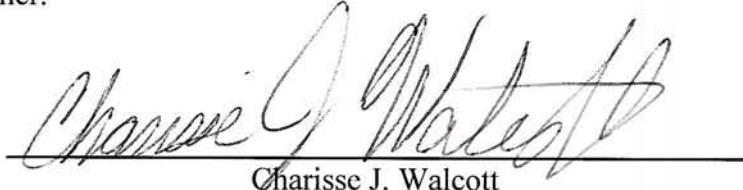
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References

1. Illinois Environmental Protection Agency. 2007. Former Abingdon Pottery (South Plant) Knox County, Illinois Fact Sheet.
2. Cookie Jar Club. The Plant: The Abingdon Pottery, Briggs Manufacturing Accessed May 3, 2007. <http://cookiejarclub.com/archives/abingdonhistory.htm>
3. McCrery, Katherine. 2007. Phone conversation with Tiffanie Denny.

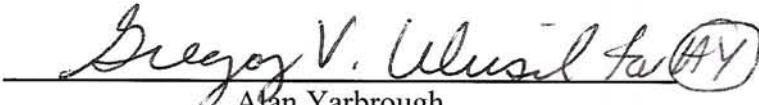
Certification

This Abingdon Pottery/Briggs Manufacturing health consultation was prepared by the Illinois Department of Public Health under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It was completed in accordance with approved methodologies and procedures existing at the time the health consultation was initiated. Editorial review was completed by the Cooperative Agreement partner.



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The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this health consultation and concurs with its findings.



Alan Yarbrough
Team Lead, CAT, CAPEB, DHAC, ATSDR

Attachment 1

Comparison Values Used in Screening Contaminants for Further Evaluation

Environmental media evaluation guides (EMEGs) are developed for chemicals on the basis of their toxicity, frequency of occurrence at National Priorities List (NPL) sites, and potential for human exposure. They are derived to protect the most sensitive populations and are not action levels, but rather comparison values. They do not consider carcinogenic effects, chemical interactions, multiple route exposure, or other media-specific routes of exposure, and are very conservative concentration values designed to protect sensitive members of the population.

Reference dose media evaluation guides (RMEGs) are another type of comparison value derived to protect the most sensitive populations. They do not consider carcinogenic effects, chemical interactions, multiple route exposure, or other media-specific routes of exposure, and are very conservative concentration values designed to protect sensitive members of the population.

