

Health Consultation

FORMER ELECTRO FINISHERS
1662 WEST FULLERTON AVENUE
CHICAGO, COOK COUNTY, ILLINOIS

ORIGINAL EPA FACILITY: ILD009437906

CURRENTLY LISTED AS EPA FACILITY ID: ILN000508159

SEPTEMBER 6, 2007

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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Prepared By:

Illinois Department of Public Health
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

Purpose

The U.S. Environmental Protection Agency (USEPA) requested that the Illinois Department of Public Health (IDPH) conduct a follow-up health consultation for the Former Electro Finishers site in Chicago, Cook County, Illinois, to determine whether current conditions pose a public health hazard. In 2001, the Agency for Toxic Substances and Disease Registry (ATSDR) released the original health consultation for this site, which was prepared jointly by IDPH and ATSDR.

Background and Statement of Issues

Site Location and History

The Former Electro Finishers site is at 1662 West Fullerton Avenue in Chicago, Illinois. The property is about 1,000 feet east of the north branch of the Chicago River (Attachment 1) and about 2 miles west of Lake Michigan. The site is approximately 0.44 acres in size. A building on the property is currently used as a classic automobile body shop. A residential property, 1704 West Fullerton Avenue, is next to the site. In the past, the buildings at 1706 and 1710 West Fullerton Avenue were commercial on the ground floors and residential on the upper floors. However, these buildings have been torn down and removed, leaving a graveled lot.

Electro Finishers, a chromium plating and finishing company operated at the site for about 40 years until ceasing operations in 1990. On March 9, 2000, staff from the Illinois Environmental Protection Agency and the Chicago Metropolitan Water Reclamation District responded to a complaint from a resident at 1704 West Fullerton Avenue who had a green and yellow crystalline material forming in the basement and flood control pit. A sample from the flood control pit contained 302 milligrams of chromium per liter of water (mg/L). This basement is used for storage and the resident spends little time in this area of the home.

Because some vats or tanks that were part of the former plating operations may have leaked into the subsurface soil and shallow groundwater, USEPA also began investigating the property in 2000. USEPA sampled the site and surrounding properties for arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and cyanide.

2001 Health Consultation

In 2001, IDPH and ATSDR prepared the original health consultation for this site. In this document it was concluded that the Former Electro Finishers site presented a public health hazard for persons who may be exposed to chromium VI and lead in the dust and air inside the automobile shop building. Although indoor air data had not been collected at that time, the toxic properties of chromium VI and lead warranted that precautions be taken to avoid contact with these chemicals. Children are especially susceptible to lead exposure. The health consultation also concluded that the potential for exposure at the residential properties west of the site needed to be characterized.

IDPH and ATSDR recommend that USEPA:

1. sample the air inside the Former Electro Finishers building for chromium VI and lead,
2. sample the air in the basement and sample the surface soil at the 1704 West Fullerton address, and
3. investigate the basements and surface soils at the residential properties both north and west of the Electro Finishers site to better characterize the extent of contaminant migration (ATSDR, 2001).

IDPH and ATSDR, by letter, advised the workers in the building (at that time being used as a classic automobile body shop) of the importance of limiting their exposure to dirt inside the building and the potential for bringing contaminated dust into their homes on their work clothing. They also advised people not to bring children into the building or onto the grounds and shared a copy of the health consultation and letter with the local health department.

More Recent Activities

Since the release of the 2001 health consultation, USEPA issued a unilateral administrative order to the potentially responsible parties for the Former Electro Finishers site. Removal activities began at the site in May 2002 and were completed in August 2003.

In May 2002, yellow staining on the masonry foundation indoors at 1704 West Fullerton was cleaned with a sodium bisulfate solution followed by four layers of white Kilz™ primer. Some yellow staining was still visible through the primer. (USEPA, May 2002). By June 2002, the yellow staining had leached through the primer. The resident applied a stucco-like material to the walls and no further leaching has occurred.

Also in June 2002, surface soil, subsurface soil and groundwater samples were collected. Lead was found at 1,450 milligrams per kilogram (mg/kg) in the surface soil. Chromium was detected at 167 mg/kg at 2 to 3 feet below the ground surface. Chromium was detected in shallow groundwater at 290 mg/L at a depth of 7 to 8 feet below the ground surface (USEPA, July 2002).

In February 2003, USEPA received a work plan for the remediation of the Former Electro Finishers property. Under the approved work plan, buildings would be demolished (after removal of asbestos containing material and encapsulation of chromium present on the building walls), underground storage tanks would be removed, and soil would be excavated to sufficient depth to remove chromium and lead contamination (USEPA, April 2003).

With USEPA oversight, buildings and contaminated soil were removed in Spring 2003. In the fall of 2003, USEPA issued a letter to the property owner recognizing the completion of the remedial work plan. In all, four on-site buildings were demolished, two fuel oil underground storage tanks were removed, more than 1,000 tons of contaminated surface and subsurface soil were removed, and the site was backfilled with gravel (USEPA, August 2003).

Site Visit

IDPH staff revisited the site on August 8, 2006. All buildings on the property have been removed, and access to the site along Fullerton Avenue is restricted by an 8-foot tall, temporary chain-linked fence. The property immediately east of the site at the corner of West Fullerton Avenue and North Clybourn Avenue has been developed into National City Bank facility. The two buildings formerly at 1706 and 1710 West Fullerton Avenue have been torn down and removed. This area is now a vacant lot. The only residence on the north side of the 1700 block of West Fullerton Avenue is 1704 West Fullerton Avenue, next to the site. The surface of the site was either gravel fill material or the former concrete floor of the buildings; however, IDPH staff saw no evidence of staining of the gravel or concrete.

Discussion

Chemicals of Interest

IDPH and ATSDR compared the results of each environmental sample collected by USEPA with the appropriate screening comparison value to select contaminants for further evaluation for carcinogenic and noncarcinogenic health effects. Chemicals found at levels greater than comparison values or those for which no comparison values exist were selected for further evaluation. A description of each comparison value used is found in Attachment 2.

From the data results of samples collected before and after cleanup of the site, no chemicals of interest remain at the Former Electro Finishers property.

Exposure Evaluation

The potential for exposed persons to experience adverse health effects depends on these three factors:

1. how much of each chemical a person contacts,
2. how long a person is exposed, and
3. the person's health condition at the time of exposure.

An exposure pathway consists of a source of contamination, environmental media and transport mechanisms, a point of exposure, and a receptor population. Exposure to a contaminant may have occurred in the past, may be occurring now, or may occur in the future. When all these elements linking the contaminant source to an exposed population are known, a completed exposure pathway exists. When one of these elements is missing, but may occur, a potential exposure pathway exists. If a part of a pathway is absent and will never exist, the pathway is incomplete and can be eliminated from further consideration.

Before remediation, an exposure pathway existed for on-site soil and building surfaces contaminated with chromium and lead. Though shallow on-site groundwater was contaminated with chromium, no one was exposed to this water; however, the shallow groundwater was likely the source of on-site chromium that was found on the masonry surfaces of the adjacent home.

With remediation complete and a barrier present on the basement of this home, future exposure would be unlikely and minimal.

Child Health Considerations

Previously, IDPH concluded that children could be at risk of exposure to the lead and chromium VI in the on-site buildings if they accompanied adults when they come to work. IDPH advised that children should not be allowed in the building, and sent a letter to this effect to the property owners. With remediation complete, no one will be exposed to contamination at the site.

Conclusions

From the information reviewed, IDPH concludes that the Former Electro Finishers site does not present a public health hazard. Buildings and contaminated subsurface soil and structures have been removed with USEPA oversight. The property has been backfilled with gravel and no future exposures to site-related contamination would be expected.

Recommendations and Public Health Action Plan

No further actions are necessary.

Preparers of Report

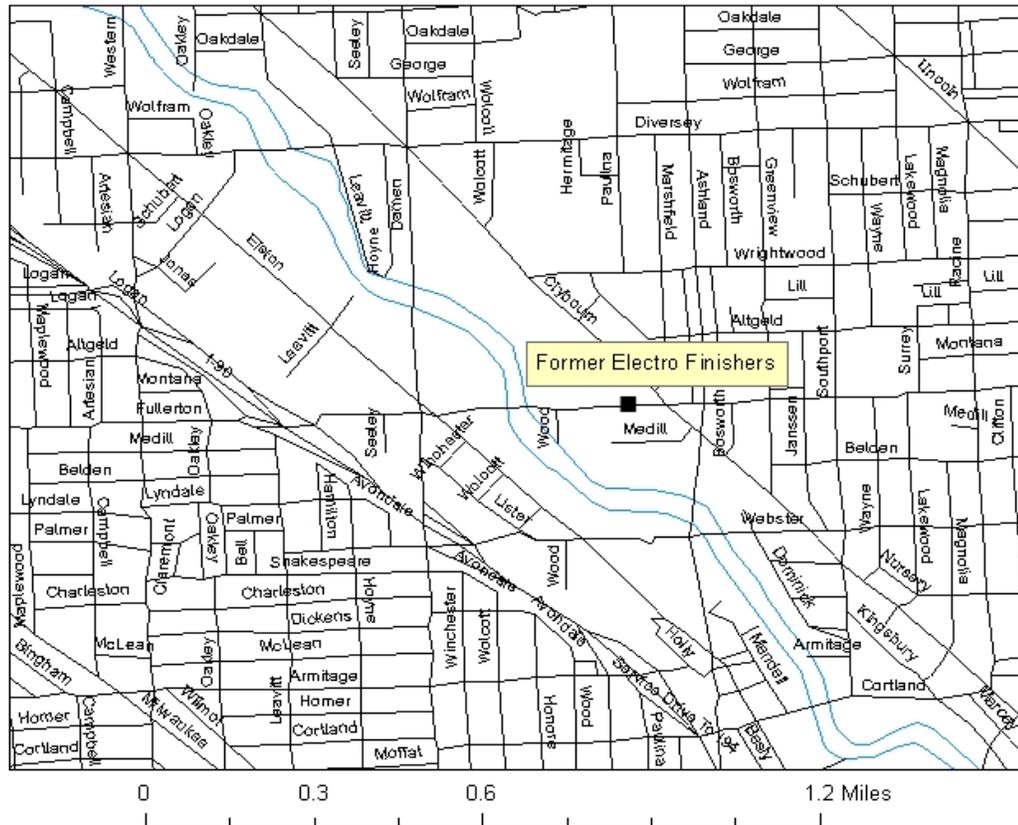
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References

1. Agency for Toxic Substances and Disease Registry. Health consultation concerning Electro Finishers. Atlanta: U.S. Department of Health and Human Services; 2001 May 11.
2. U.S. Environmental Protection Agency. Pollution report for Former Electro Finishers Site. 2002, May 22.
3. U.S. Environmental Protection Agency. Pollution report for Former Electro Finishers Site. 2002, July 2.

4. U.S. Environmental Protection Agency. Pollution report for Former Electro Finishers Site. 2003, April 18.
5. U.S. Environmental Protection Agency. Pollution report for Former Electro Finishers Site. 2003, May 29.
6. U.S. Environmental Protection Agency. Pollution report for Former Electro Finishers Site. 2003, August 29.
7. U.S. Environmental Protection Agency. Site assessment report for Former Electro Finishers Site. 2001, March 23.

Approximate Location of Former Electro Finishers



Legend

- Roads
- Rivers



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.

Cancer risk evaluation guides (CREGs) are estimated contaminant concentrations that are based on a probability of 1 excess cancer in 1 million persons exposed to a chemical over a lifetime. These are also very conservative values designed to protect sensitive members of the population.

Maximum contaminant levels (MCLs) have been established by USEPA for public water supplies to reduce the chances of adverse health effects from contaminated drinking water. These standards are well below levels for which health effects have been observed and take into account the financial feasibility of achieving specific contaminant levels. These are enforceable limits that public water supplies must meet.

Lifetime health advisories for drinking water (LTHAs) have been established by USEPA for drinking water and are the concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects over a lifetime of exposure. These are conservative values that incorporate a margin of safety.

Certification

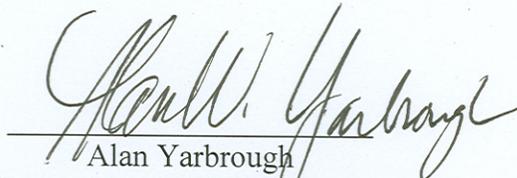
This Former Electro Finishers health consultation was prepared by the Illinois Department of Public Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the public health consultation was prepared. Editorial review was completed by the Cooperative Agreement partner.



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Division of Health Assessment and Consultation
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The Division of Health Assessment and Consultation, ATSDR, has reviewed this public health consultation and concurs with the findings.



Alan Yarbrough

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Division of Health Assessment and Consultation
ATSDR