

Health Consultation

LEFTON IRON AND METAL COMPANY
EAST ST. LOUIS, ST. CLAIR COUNTY, ILLINOIS
EPA FACILITY ID: ILD984809244

MAY 29, 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

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HEALTH CONSULTATION

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Prepared By:

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

Purpose

The Illinois Department of Public Health (IDPH) has evaluated two Lefton Iron & Metal Company properties at 205 South 17th Street and 1901 Converse Avenue in East St. Louis upon the request of the Illinois Environmental Protection Agency (Illinois EPA). In 1994, IDPH reviewed and evaluated information provided by Illinois EPA and determined that the site posed a public health hazard for on-site workers and area residents (IDPH, 1994). Since that time, several investigations and cleanup activities have taken place. This health consultation will determine if current conditions pose a hazard to the public. Illinois EPA, the U.S. Environmental Protection Agency (USEPA), and other agencies provided data and reports to IDPH regarding the two Lefton properties.

Background

Site Description

The Lefton Iron & Metal Company, Incorporated site is in East St. Louis, St. Clair County, Illinois, within one of the more elevated areas of the American Bottoms. The American Bottoms is a large region that is part of the natural flood plain of the Mississippi River. The area of East St. Louis where the sites are located is a federally-recognized wetland. Lefton Enterprises owns several properties in East St. Louis in old, industrialized areas where residential and commercial properties are interspersed with wetlands.

This report evaluates two Lefton properties. One is at 205 South 17th Street (considered as the main plant site and sometimes called Lefton West) and is about 3.4 acres in size. The other is at 1901 Converse Avenue (referred to as a scrap yard and Lefton East) and is about 2.9 acres in size. Both properties are within the city limits of East St. Louis and are about 0.25 miles apart.

Site History

Historically, a metal foundry existed at the 17th Street property as far back as 1905. In the same era, the Converse Avenue property was residential, but at a later date became a steel baling operation during the first half of the twentieth century.

Lefton Iron & Metal began operating a scrap metal recovery operation at the 17th Street property around 1961 and later at the Converse Avenue property. Operations at Lefton included separating unwanted material from metal objects such as wood, paper, and plastic (IEPA, 1993). The scrap metals would be sorted, compacted, and baled. At one time, two hydraulic crushers and one vehicle shredder were used. These hydraulic processes may account for soil contaminated by polychlorinated biphenyls (PCBs).

Over the years, many different scrap items were accepted at these sites in an effort to remove usable metals for recycling. Eventually, the metal scrap was sold and shipped to regional steel mills for recycling and smelting (USEPA, 2003).

Illinois EPA received a complaint on October 31, 1988 about open burning of wire, discharging of oily substances onto the ground, and the processing of drums that were not always completely empty. Reportedly, the owners refused Illinois EPA access to the property and the following day directed their workers to move and cover suspect soils with rock (St. Louis Post Dispatch, 1988; IEPA, 1990).

The earliest Illinois EPA inspections observed darkly stained soils on and near these two properties, as well as piles of scrap metal, 55-gallon drums, and garbage. Four composite soil samples (three from the Converse Avenue property and one from the 17th Street property) were collected in November 1988 from visibly-contaminated areas. Lab results showed PCB levels greater than 50 parts per million (ppm).

On December 8, 1988, an unfenced, two-acre area at the rear of the Converse Avenue property was sealed by the Illinois EPA. This property was believed to be owned by the city of East St. Louis (St. Louis Post Dispatch, 1988). A surface and subsurface soil investigation for PCBs was completed by an Illinois EPA contractor on July 10, 1989 (IEPA, 1989).

Illinois EPA referred the site to USEPA in September 1990 (IEPA, 1990) and the Lefton properties were placed on the Comprehensive Environmental Response, Compensation and Liability Act Information System (CERCLIS) list on June 4, 1991. Subsequently, Illinois EPA completed a preliminary site assessment on this active facility in 1992 (IEPA, 1993).

In 1993, Illinois EPA collected 14 soil samples and forwarded the laboratory results to IDPH for interpretation. The samples were collected from three residential properties, the affected city property, nearby wetlands, and from the two site properties. IDPH reviewed the data, and in January 1994, issued a letter to Illinois EPA stating that the site poses “both an immediate and long-term health risk for on-site workers and area residents, particularly children who may gain access to the site.” The chemicals of interest were benzo(a)pyrene, aldrin, arsenic, beryllium, cadmium, chromium, lead, and manganese (IDPH, 1994).

Illinois EPA completed a CERCLA Screening Site Inspection Report in 1993, and collected additional environmental samples in 1995 and 1997. The owners of Lefton Iron & Metal discontinued operations in 1997.

East St. Louis Gateway Initiative

In a separate investigation known as the East St. Louis Gateway Initiative, IDPH received funding from USEPA Region 5 to conduct soil sampling in the greater East St. Louis area to determine the levels of lead in various neighborhoods. Soil sampling in residential areas near industrial site properties found one soil lead level as high as 30,000 ppm. Some families in these neighborhoods participated in blood lead sampling, which found some children with elevated blood lead levels (IDPH, 1998).

USEPA used the Gateway Initiative data and previous environmental sampling results as evidence of a need to investigate the Lefton site further. In 2001, with IDPH input, the USEPA

Region 5 Removal Branch unit determined that the site posed a hazard to nearby populations (USEPA, 2003).

Site Cleanup

USEPA and its contractors began to document site conditions and prepare for cleanup activities. USEPA targeted areas where PCB levels were greater than 50 ppm and lead levels were greater than 1,000 ppm.

USEPA determined that PCBs contaminated most of the Converse Avenue property and the center portion of the 17th Street property. Badly stained areas were evident on the surface soils. To remove the large amount of scrap metal wastes, contractors repaired railroad spurs and loaded scrap onto railroad cars using heavy equipment. These activities necessitated repair and reinforcement of the on-site roadways. Bulk metals were shipped to a metal recycling company in Louisville, Kentucky. A variety of items and waste streams were discovered and removed at the two Lefton properties during the 12-month clean up including:

- 26,650 tons of PCB and lead contaminated soil determined to be hazardous waste shipped to Oklahoma,
- 25,170 tons of soil considered special waste, disposed of locally,
- Approximately 3,200 tons of scrap metal shipped to a recycling facility in Kentucky,
- Ordinance found -- 14 dummy bombs -- handled by staff from Scott Air Force base,
- About 12,000 used tires sent to recycling facility,
- Underground storage tanks and buried drums, and
- An estimated 126 tons of railroad ties.

In addition, piles of firebrick were tested by the Illinois Department of Nuclear Safety, and were found to contain only background levels of naturally-occurring radioactive materials.

Due to budget constraints, the removal action was halted, and demobilization occurred in August 2002 (USEPA, 2003). In some areas, cleanup goals for PCBs and lead were not achieved at depth. Demobilization by USEPA contractors at the two Lefton properties consisted of sampling soil and laying plastic orange fencing material at the depth to which they were able to remove contaminated soil. The depth of the excavation was about 2 feet below the ground surface along the perimeters of the properties, with excavations to 4 feet below the ground surface in other areas of the properties. The depth of excavation was based on the level of contamination present. The dug areas were backfilled with clean soil, vegetation was established, and mulch was placed for erosion control. Old fencing around the site was repaired and new fencing was installed. One of the final activities included placing barriers at the gates of the sites to discourage trespassing. USEPA listed the cleanup cost at \$4,195,770 (USEPA, 2006).

Table 1 is a summary of the data for metals, PCBs, and pesticides collected by USEPA contractors and Illinois EPA in subsurface soil following cleanup.

Adjacent Property Cleanup

In a separate cleanup project, USEPA funded soil removal at a trucking firm next to the Lefton site on Converse Avenue (USEPA, 2004). The soil at this four-acre industrial property was contaminated with arsenic, cadmium, chromium, lead and PCBs. During this project, soil also was removed from six occupied residential properties located along Converse and McCasland Avenues and 17th Street. The soil removed from the six residential properties was reported to be contaminated with lead. This three-month cleanup occurred from July 1 to September 13, 2002 and removed 7,073 tons of lead-contaminated soil. The target cleanup level at the industrial acreage was 1,000 ppm lead and the target cleanup level at the six residential properties was 400 ppm. The depth of the excavation varied based on the levels of lead encountered in the sub surface soil. In general excavation was from about 2 to 4 feet below the ground surface. Clean fill soil was used and properties were graded and seeded with fescue grass.

Illinois EPA and USEPA staff reported that the non-residential properties may ultimately be used for commercial purposes such as truck staging and parking.

Site Visit

In May 2006, IDPH staff visited the Lefton site. The properties are surrounded with a fence, some of which is covered with vegetation and screens the site visually. Some homes are across the street from the cleaned up site properties. Several schools and parks are within a one-mile radius. The East Side Health District reports that two elementary schools in the neighborhood will be closing and the school populations will transfer to the new Dunham Elementary School in 2007. All three elementary schools are approximately six blocks from the Lefton properties.

The nearby homes are connected to municipal water that comes from the Mississippi River at an intake located about two miles northeast of the site. No private drinking water wells are present within four miles of the Lefton sites. Any issues associated with the aquifer underlying this area, considered shallow and unconfined, have not been addressed. The aquifer likely has been affected; however, no groundwater samples are known to exist and none were reviewed by IDPH for this report.

Discussion

The contaminants remaining in the subsurface soils at the two Lefton properties are under the clean soil cover. The known subsurface contamination includes metals, PCBs, and pesticides (IEPA, 2005). Previous surface soil sampling data was not evaluated for this health consultation, since the sampling sites were excavated and the material shipped off the site. Soils from an adjoining industrial site and six occupied residential properties also were cleaned up and shipped out of the area (USEPA, 2004).

Chemicals of Interest

The most recent environmental data for the Lefton properties were generated by Illinois EPA and USEPA when sampling the contaminated subsurface soils and testing them for metals, PCBs,

and pesticides (Table 1). IDPH compared these data with health-based comparison values developed for soil exposures for both children and adults (Attachment 1). The chemicals of interest in subsurface soil include cobalt, copper, lead, mercury, nickel, PCBs, and pesticides.

Exposure Assessment

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 chemical may have occurred in the past, may be occurring now, or may occur in the future. When all these elements linking the chemical source to an exposed population are known, a completed exposure pathway exists. When one of the elements is missing, a potential exposure pathway can exist if conditions would change.

Presently, no current completed exposure pathway is known to exist. Since the site cleanup and establishment of clean fill and vegetation over the known contaminated areas, exposures to neighbors or trespassers have been eliminated. This cleanup, which was conducted to depths ranging from 2 to 4 feet below ground surface, also served to reduce any migration of contaminants off the site via surface water runoff. Covering areas with clean fill and planting vegetation also reduces the likelihood of contamination blowing off the site during windy conditions. No one uses groundwater for drinking purposes in this area.

No open burning or disturbance of the ground surface is occurring since the site was abandoned by the owners. Fencing was repaired and gates secured in 2002 at the conclusion of clean-up efforts. Because most of the items that made up the piles of scrap metals were removed and recycled, the site is less attractive to scavengers and trespassers.

Community Health Concerns

In 1988, Illinois EPA received a complaint about open burning occurring at the site and smoke traveling into the neighborhood from the facility. This was the initial event that prompted site evaluation, which led to the site cleanup by USEPA (USEPA, 2003). Today, the Lefton properties are fenced, cleared, and ground cover has been established.

While no dumping has occurred on the properties since the clean-up efforts concluded, dumping continues to occur along city streets in this neighborhood. There are nearly as many vacant homes as occupied homes in this area. The East Side Health District continues to address the illegal dumping of trash in the neighborhood. Currently, there are no known site-related concerns.

Child Health Considerations

In the 1990s, the East St. Louis Gateway Initiative discovered that some East St. Louis children had elevated blood lead levels and were exposed to elevated soil lead levels. We do not know if the Lefton properties were a source of exposure for any of these children. USEPA removed lead

contaminated soils from six occupied residences near the Lefton properties in 2003. Children are not currently exposed to site-related contamination at the Lefton site.

Conclusions

IDPH concludes that the Lefton Iron and Metal Company site currently poses no apparent public health hazard. Contamination remains at depths of 2 to 4 feet below the ground surface, but no known completed human exposure pathways exist. The planned future use of the site is industrial/commercial and plastic orange fencing material has been placed in the subsurface soil to indicate the depth of excavation and cleanup.

In 1994, a site-related public health hazard was identified by IDPH for nearby residents. A health hazard also may have existed in the past for workers although no information was available regarding biological monitoring, workplace hygiene practices or air concentrations during peak operations.

Contaminated soil and piles of scrap metal waste have been removed as part of the USEPA cleanup of the site in 2001 and 2002. Clean soil was used as fill and the surfaces stabilized by planting vegetation and covering with gravel or mulch. Complaints about the site have ceased. Use of the adjacent wetlands or trespassing has not been observed or reported to local health officials (East Side Health District, 2006) since the clean up occurred.

Recommendations

IDPH recommends that:

- Illinois EPA ensure that the site remains fenced and posted to limit access to the site.
- Local authorities record information on the title of the Lefton properties to alert future owners to the subsurface contamination to reduce exposure should construction occur on this industrial/commercial property.

If any future data is generated as a result of additional sampling, IDPH will review the results and provide a health-based interpretation.

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Table 1. Chemicals of Interest in Subsurface Soil (depths greater than 2 feet) at Lefton Iron and Metal Site after USEPA Cleanup in parts per million (ppm).

Chemical	Maximum Level Detected at 17th Street Property	Maximum Level Detected at Converse Avenue Property	Comparison Value	Comparison Value Source
Metals				
Cobalt	156,979	618,906	500	I-EMEG (child)
Copper	899	1,120	500	I-EMEG (child)
Lead	3,730	50,000	400	USEPA
Manganese	1,909	6,000	3,000	RMEG (child)
Mercury	12,499	23,296	20	RMEG (child)
Nickel	1,150	5,459	1,000	RMEG (child)
Semi-Volatile Organics				
PCBs (total)	373.7	350	1	C-EMEG (child)
Pesticides				
Aldrin	0.048	0.0099	0.00004	CREG
b-BHC	0.042	0.0059	0.0004	CREG
Chlordane	0.042	0.4	0.002	CREG
Dieldrin	0.011	0.027	0.0004	CREG
4,4-DDD	0.2	0.087	0.003	CREG
4,4-DDE	0.54	0.13	0.002	CREG
4,4-DDT	1.7	0.34	0.002	CREG
Endrin	0.33	0.022	0.02	C-EMEG (child)
Heptachlor epoxide	0.06	0.075	0.00008	CREG

I-EMEG = Intermediate Environmental Media Evaluation Guide
 USEPA = U.S. Environmental Protection Agency Lead Guidance.
 RMEG = Reference Dose Media Evaluation Guide
 C-EMEG = Chronic Environmental Media Evaluation Guide
 CREG = Cancer Risk Evaluation Guide

Comparison Values Used In Screening Contaminants For Further Evaluation

Environmental Media Evaluation Guides (EMEGs) are developed for chemicals based on their toxicity, frequency of occurrence at National Priorities List (NPL) sites, and potential for human exposure. They are not action levels but are comparison values. They are developed without consideration for carcinogenic effects, chemical interactions, multiple route exposure, or exposure through other environmental media. They 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. They are developed without consideration for carcinogenic effects, chemical interactions, multiple route exposure, or exposure through other environmental media. They are very conservative concentration values designed to protect sensitive members of the population.

Cancer Risk Evaluation Guides (CREGs) are estimated contaminant concentrations based on a probability of one excess cancer in a million persons exposed to a chemical over a lifetime.

Certification

This Lefton Iron & Metal Co. public 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.



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