

# **Health Consultation**

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**H.O.D. LAND FILL  
ANTIOCH, LAKE COUNTY, ILLINOIS**

**Prepared by the  
Illinois Department of Public Health**

**July 2, 2009**

Prepared under a Cooperative Agreement with the  
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Agency for Toxic Substances and Disease Registry  
Division of Health Assessment and Consultation  
Atlanta, Georgia 30333

## **Health Consultation: A Note of Explanation**

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners 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 or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

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## **Purpose**

The Illinois Department of Public Health (IDPH) is writing a follow-up health consultation for the H.O.D. landfill site in Antioch, Lake County, Illinois. In 1998, the Agency for Toxic Substances and Disease Registry (ATSDR) released the original Public Health Assessment (PHA) for this site, which was prepared jointly by IDPH and ATSDR. Changes at the site since the release of the PHA precipitated the need to re-evaluate the property.

## **Background and Statement of Issues**

### **Site Location and History**

The former H.O.D. landfill is located in Lake County, Illinois. It is within a former gravel pit on the eastern boundary of the Village of Antioch. The site is on a 121.47 acre tract of land off of McMillen Road and Highway 173. The actual landfill area consists of approximately 51 acres. [1]

Agricultural land, housing subdivisions, and undeveloped land are north of the site. Commercial establishments line Highway 173 south of the site. Silver Lake is approximately 200 feet southeast of the site. Sequoit Creek borders the site on the south and west. The Silver Lake Park residential subdivision is east of the site. Antioch High School is at the intersection of McMillen Road and Highway 173, approximately 0.25 miles southwest of the site. About 14,300 people live within 3 miles of the site [1].

The Village of Antioch has six active municipal wells at depths between 130 and 230 feet within 3 miles of the site. The municipal wells draw water from a sand and gravel dolomite aquifer. Municipal well number four was the closest municipal well to the site (approximately 350 feet). Municipal well four was decommissioned in 1997 and replaced with well number seven, about one mile southwest of the site. The municipal wells serve a population of about 4,400. Approximately 40 private wells are within 3 miles of the site. The nearest residential well is within 100 feet of the site. The privately-owned wells also draw water from the deep sand and gravel dolomite aquifer, and are completed at depths of approximately 85 to 250 feet [1].

H.O.D. Landfill is next to the Sequoit Acres Industrial Park, which has supported light industry since the 1950s. The industrial park contains several small generators of hazardous wastes and five underground gasoline storage tanks. The park was thought to be constructed over a former municipal and industrial landfill. Part of the former landfill also is thought to be between the light industrial area and the western bank of Sequoit Creek [1].

The H.O.D. site consists of two landfilled areas, the "old" and "new" landfills, which were legally outlined in the Illinois Environmental Protection Agency (Illinois EPA) permitting process. Operations at the "old" landfill began in 1963. The "old" landfill occupies 24.2 acres on the western third of the site. Wastes were placed in excavated trenches and covered with the excavated materials from the next trench. The "new" landfill consists of 26.8 acres east of the "old" landfill. Operations in the "new" landfill began in 1975. A clay barrier was constructed

between the “old” and “new” landfills, and a leachate collection system that discharges leachate to the publicly owned treatment works (POTW) was also installed. It is bordered on the south and west by Sequoit Creek, which was rerouted along the southern boundary of the site as the “old” landfill expanded. A large wetlands area is south of the landfill. [1]

In February 1990, the site was placed on the National Priorities List (NPL) based on a hazard ranking score of 34.68 out of 100. The U.S. Environmental Protection Agency (USEPA) minimum score for inclusion on the NPL is 28.5 [1].

A Remedial Investigation and Feasibility Study (RI/FS) was performed at the site between 1990 and 1994. The final RI/FS was approved by USEPA in February 1997. Groundwater, leachate, landfill gas, surface water, sediment, and surface soil samples were collected during the RI/FS to determine the extent of contamination and the best alternative for remediation at the site [1].

On August 11, 1998 staff from IDPH visited the former landfill before attending a public meeting regarding remedial action for the site. Ground cover at the site appeared to be in good condition, and a chain-link fence restricted site access.

On September 23, 1998, ATSDR released a public health assessment (PHA) for H.O.D. Landfill. A follow-up health consultation for the site was released in December of 1998. The conclusions from that health consultation were:

“Based on the information reviewed, IDPH concludes that no apparent public health hazard exists from the contamination at H.O.D. landfill. A potential exposure to vinyl chloride in groundwater exists if migration of the contaminant occurs. Because it addressed the recommendations of the PHA, IDPH concurs with the USEPA Final ROD at H.O.D. Landfill.”

### **More Recent Activities**

Since the release of the 1998 health consultation, Region 5 USEPA issued an administrative order to the potentially responsible parties (PRPs) in April 1999 to perform a remedial design and a remedial action (RD/RA). The RD was approved in August 2000. A preliminary closeout report documenting that the PRPs have completed remedial action construction at the site was issued in June 2001. The PRPs are responsible for long-term monitoring of the site. [2]

Multiple cleanup activities occurred at the site between August 2000 and August 2002. Routine monitoring of the area private wells and groundwater began in 2000. In July 2002, the site was awarded a Superfund Redevelopment Initiative program grant to promote redevelopment. The local high school was in need of athletic facilities. Approximately 30 acres of the site were covered with additional soil layers and set aside for construction of the athletic facility. In 2005, a Landmark Ready for Reuse Certificate was issued to the H.O.D. landfill site. [2] Work on the athletic facilities was completed in the summer of 2007.

In December of 2002, workers began the construction of an energy system to use the landfill’s gas to produce electricity and heat for Antioch Community High School. This system continues to operate. Because of the extensive landfill gas extraction system, USEPA does not expect that

fugitive landfill gas will escape from the site in any way other than via the landfill gas extraction wells.

### **Site Visit**

Most recently, IDPH staff visited the site on September 5, 2008. Staff observed the new athletic facilities, which are now known as McMillan Park. Several soccer, hockey, softball and baseball fields and tennis courts are now being used on the former landfill site.

## **Discussion**

### **Chemicals of Interest**

IDPH compared the results of each private well and groundwater sample collected 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 1. The chemical of interest is vinyl chloride.

### **Exposure Evaluation**

A chemical can cause an adverse effect only if people contact it at a sufficient level for a sufficient time. That requires:

- a source of exposure,
- an environmental transport medium,
- a point of exposure,
- a route of exposure, and
- a receptor population.

An exposure pathway is complete if all of the components are present, and people were exposed in the past, are currently exposed, or will be exposed in the future. If parts of a pathway are absent or if data are insufficient to decide whether the pathway is complete or whether exposure could occur at some time (past, present, future), then a potential exposure pathway exists. If part of an exposure pathway is not present and will never exist, the pathway is incomplete and can be eliminated from further consideration.

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

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

Before remediation, a potential exposure pathway existed for groundwater contaminated with vinyl chloride. With remediation complete, and because the private wells and groundwater are

monitored routinely under the remediation plan, future exposure is unlikely. The contaminants in the groundwater also are being allowed to naturally decrease over time through natural attenuation. [2] No documented exposures have been identified since the release of the 1998 PHA.

### **Community Health Concerns**

USEPA and the PRPs addressed numerous community concerns while developing the alternative gas recovery system. These were primarily about the safety of the system and the cost savings for the school district. [2]

### **Child Health Considerations**

IDPH recognizes that children are especially sensitive to some contaminants. For this reason, IDPH included children when evaluating exposures to contaminants related to the H.O.D. landfill site. Children are the most sensitive population considered in this health consultation. Children are not currently exposed to site-related contamination.

### **Conclusions**

From the information reviewed, IDPH concludes that the former H.O.D. landfill site poses no public health hazard. The site has been deemed ready for reuse by USEPA. A large portion of the site has been capped, and converted into athletic facilities used by the Antioch Community High School. An innovative gas recovery system has been put into place on the site and is being used to provide heat and electricity to the Antioch Community High School. The private wells and groundwater are being monitored routinely. No documented exposures have been identified since the release of the 1998 PHA.

### **Recommendations and Public Health Action Plan**

IDPH recommends that routine monitoring of the private wells and groundwater in the area continue.

### **Preparers of Report**


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## **References**

1. Agency for Toxic Substances and Disease Registry. Health consultation concerning H.O.D. Landfill. Atlanta: U.S. Department of Health and Human Services; 1998 December.
2. U.S. Environmental Protection Agency. H.O.D. Landfill NPL Fact Sheet. 2006, October.

### Certification

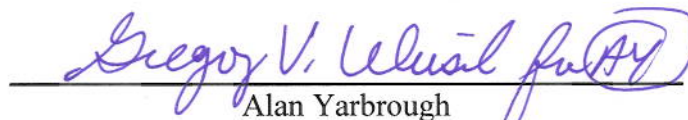
This H.O.D. Landfill health consultation was prepared by the Illinois Department of Public Health under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It was completed in accordance with approved methodologies and procedures existing at the time the 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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### **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.