

Health Consultation

OAKGRISBY PLANT #2
CRYSTAL LAKE, MCHENRY COUNTY, ILLINOIS

EPA FACILITY ID: ILD1110155161

DECEMBER 16, 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.

You May Contact ATSDR TOLL FREE at
1-800-CDC-INFO

or

Visit our Home Page at: <http://www.atsdr.cdc.gov>

HEALTH CONSULTATION

OAKGRISBY PLANT #2
CRYSTAL LAKE, MCHENRY COUNTY, ILLINOIS

EPA FACILITY ID: ILD1110155161

Prepared By:

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

Health Consultation

OakGrisby Plant #2

CERCLIS No. ILD1110155161

Crystal Lake, McHenry County, Illinois

Prepared by the
Illinois Department of Public Health
Under a cooperative agreement with the
Agency for Toxic Substances and Disease Registry

Purpose

In May and August 2006 and in July 2007, the Illinois Environmental Protection Agency (IEPA) requested that the Illinois Department of Public Health (IDPH) interpret environmental sampling results from private wells near the OakGrisby site and respond by sending letters to the residents. This document summarizes our response and contains our evaluation of the site.

Background and Statement of Issues

The OakGrisby Plant #2 site occupies about 5 acres at 200 East Crystal Lake Ave., Crystal Lake, McHenry County, Illinois. Triangular in shape, the OakGrisby site is bounded by railroad tracks on the northeast and northwest, and by East Crystal Lake Avenue on the south.

The National Yeast and Grain Company owned and operated the property from 1928 until it was sold in 1935. Then, the property operated under the names, Oak Manufacturing and Oak Switch, before merging with Standard Grisby in 1981 to form OakGrisby. Oak Industries purchased OakGrisby in the mid 1990s. The OakGrisby facility manufactured and assembled radio and television components, mostly electrical switches and rotary channel selectors. Activities included plating operations, metal parts cleaning, facility maintenance, research, development, testing, and fabrication (IEPA 2005).

Corning Incorporated (Corning) purchased the site in 2000. Corning removed chemicals, removed all remaining above ground storage tanks, and scrapped equipment and supplies in preparation for building demolition. Corning demolished the site building in 2000 and entered into the IEPA Site Remediation Program in July 2001. Corning physically restored the site in 2001, with the placement of clean fill, topsoil, and grading to provide proper drainage. Areas of potential concern on the site include the following (IEPA 2005):

- former vapor degreasers that used trichloroethene,
- area of two former 660-gallon above ground storage tanks,
- area of three former 10,000-gallon above ground storage tanks,
- an area of former above ground storage tanks northwest of the former main production building,
- an area of oil and water pits and former hazardous waste storage,
- two in-place abandoned gasoline underground storage tanks,
- a former truck dock/solid waste management unit,
- a cistern east of the former main production building, and
- a grassy area west of the main production building.

In September 2005, IEPA reported that on-site and off-site monitoring wells were contaminated with volatile organic compounds (VOCs). This led to the sampling of potentially contaminated private wells in the area.

On May 11, 2006, IEPA collected samples from private wells around the site (Rivera 2006). IDPH reviewed the sampling results and sent the residents and owners of these wells letters interpreting the results. In one case, IDPH recommended that residents not drink the water because of trichloroethene contamination.

In response to the finding of contaminated wells, on July 27, 2006, the Illinois Attorney General (IAG) filed suit against OakGrisby. The lawsuit demanded that Corning determine the extent of the problem, pay for the cleanup, and pay a fine to cover the cost of the lawsuit. The IAG also filed an emergency motion that asked a judge to require provision of potable and bottled water to all residences and businesses with wells in the affected area (Keeshan 2006; Phillips and Long 2006; Tribune Staff 2006).

In August 2006, Conestoga Rovers and Associates and IEPA sampled additional wells around the site, finding another contaminated well (Black 2006a). IDPH sent letters again to the residents and owners of these wells, including a recommendation that people with contaminated wells not drink the water. Beginning August 11, 2006, Corning, Inc. started supplying bottled water to residents with affected wells near the site.

On September 14, 2006, Corning, Inc. installed an activated carbon water treatment unit on the water supply of a rental home, studio apartment, and business served by Well B. Corning will maintain this filter to ensure its effectiveness until the properties are connected to the City of Crystal Lake municipal water supply (Black 2007, Black 2006b). According to the Illinois Public Area Sanitary Practice Code, because this well serves a rental home and an apartment, it classifies as a semi-private water supply. According to the Illinois Public Area Sanitary Code, any residential dwelling served by a semi-private water supply must be provided with an uncontaminated water source for drinking, cooking, and washing. The City of Crystal Lake municipal water supply is the only viable source of water in the area that would meet this code. The McHenry County Health Department is responsible for enforcing this code, and IDPH has referred this case to the McHenry County Health Department.

Corning, Inc. offered to provide the home served by Well A with municipal water. However, the resident declined, because they did not want to be annexed by the City of Crystal Lake (Black 2006b).

On September 20, 2006, the IAG and OakGrisby filed an Agreed Order for Immediate and Preliminary Injunction with Defendant OakGrisby, Inc. (Circuit Court of the 19th Judicial Circuit, McHenry County 2006). The Agreed Order settled the July lawsuit by the IAG and was filed in the Circuit Court for the 19th Judicial Circuit, McHenry County. According to this document, Corning would continue to provide bottled water to all well owners near the site until:

- the buildings are connected to a public water supply;
- the buildings are supplied with a whole-building water treatment system;
- IEPA or the court determines that Corning is not the responsible party;

- IEPA or the court determine that the groundwater does not pose a threat to residents;
- further order of the court; or
- written agreement by the parties.

Corning, Inc. agreed to provide records of hazardous wastes formerly used at the site. They also agreed to conduct a groundwater investigation to determine the vertical and horizontal extent of the contamination, and the rate of flow and flow direction of groundwater. In addition, Corning, Inc. agreed to investigate the extent and nature of soil contamination. They also agreed to evaluate site hazards and develop and implement a remedial action plan. All these actions will be done under IEPA oversight (Circuit Court of the 19th Judicial Circuit, McHenry County 2006).

In May 2007, Conestoga Rovers again sampled area wells and IDPH sent letters to the residents and owners of these wells, advising those with contaminated wells not to drink the untreated water.

Site Visit and Demographics

Commercial, industrial, and residential properties surround the OakGrisby site. The sidewalk in front of the OakGrisby site is part of the Prairie Trail, a bicycle trail that connects with the popular Fox River Trail. IDPH staff visited the site most recently in July 2008. The site is covered by grass and is fenced, but the fence lacks barbed wire, enabling easy access. The nearest homes are about 200 feet east of the site, and other homes are about 500 feet north of the site. Downtown Crystal Lake, with many small retail stores, is about 300 feet west and northwest of the site.

Municipal Well 7 of the City of Crystal Lake is about 1,400 feet deep and is about 0.30 miles east of the site. Routine sampling of this well from 2003, 2004, and 2005 found no volatile organic compounds (IEPA 2005). The estimated 2005 population of the City of Crystal Lake was 40,922 (U.S. Bureau of the Census 2006).

Community Concerns

People near the site are concerned about the groundwater contamination. Since an alternative water supply or whole building water treatment units have been provided to all well users near the site, exposure has ended. The following sections of this document discuss the possible health consequences of past exposure to contaminated groundwater.

Discussion

Chemicals of Interest

IDPH compared the maximum level of each chemical detected during environmental sampling with appropriate screening comparison values. This was to select contaminants for further

evaluation for both carcinogenic and noncarcinogenic health effects. Chemicals that exceeded comparison values were selected for further evaluation. A description of each comparison value is found in Attachment 1.

IDPH used the comparison values to screen for chemicals that warranted further evaluation. These comparison values do not represent thresholds of toxicity. Although some of these chemicals may exist at levels greater than comparison values, the contaminants can affect only someone exposed to sufficient doses. The amount of the contaminant, the duration and route of exposure, and the health status of exposed individuals are important factors in determining the potential for adverse health effects.

Groundwater Contamination

In September 2005, IEPA reported VOC contamination in monitoring wells on the OakGrisby site and in monitoring wells about 2,000 feet east and northeast of the site (Table 1).

On May 11, 2006, IEPA sampled six potable private wells and one non-potable private well near the OakGrisby site. The non-potable well serves a skating rink, and the well is used only to fill the Zamboni machine used to smooth the ice. PDC Laboratories, Inc. of Peoria, Illinois, analyzed the samples for VOCs. In Well A, trichloroethene was the only chemical of interest (Table 2). No other VOCs detected exceeded a health-based comparison value.

In August 2006, Conestoga Rovers and Associates sampled 28 private wells, and IEPA collected duplicate samples of 11 of these wells. Most of these wells served homes; however, seven wells served businesses including an ice rink, a plant nursery (one well for drinking and one well for irrigation), two restaurants, an automotive body repair shop, and a rental business. First Environmental Laboratories, Inc. analyzed the Conestoga Rovers samples, and Suburban Laboratories, Inc. analyzed the IEPA samples (Table 2). Trichloroethene remained a chemical of interest in Well A, and vinyl chloride was found to be a chemical of interest in Well B. Well A serves a home, and Well B serves a home, a studio apartment, and a concrete contractor business.

In May 2007, Conestoga Rovers again sampled area wells and the levels of trichloroethene and vinyl chloride were consistent with levels detected in 2006.

Exposure Pathways

Hazardous chemicals can affect people only if they come into contact with them through an exposure pathway at a sufficient concentration to cause a toxic effect. This requires (1) a source of exposure, (2) an environmental transport medium, (3) a route of exposure, (4) point of exposure, and (5) an exposed 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 a pathway are absent, if data are insufficient to decide whether the pathway is complete, or if exposure may have occurred at some

time in the past, may be occurring in the present, or may occur in the future, then it is considered to be a potential pathway. If part of a pathway is not present and will never exist, the pathway is considered to be incomplete and is not given further consideration.

Exposure to Chemicals in Groundwater

Water from precipitation can dissolve contaminants in soil, percolate downward, and contaminate groundwater. The geology of a site controls the flow of groundwater. Sand and gravel enhances the movement of groundwater, but clay inhibits this movement (Christensen et al. 1994). The geology of the site has not been investigated, but the area consists of glacial deposits over dolomite bedrock. The highly contaminated monitoring wells drew water from a depth of 55 feet to 69 feet, and no one drank the water from these monitoring wells. Of the wells with known depths, the private wells were deeper (90 feet to about 200 feet). These deeper wells have lower levels of contamination. The municipal well east of the site is about 1,400 feet deep, and many layers of impervious shale and other rock should prevent its contamination.

In the past, any people drinking water from Well A or Well B were exposed to VOCs. Providing an alternative water supply or a drinking water treatment unit ended these exposures. Because past exposure to contaminated groundwater occurred only from private wells, contamination in monitoring wells will not be discussed further.

Public Health Implications

Trichloroethene

Well A was contaminated with trichloroethene, at a maximum concentration of 16 micrograms per liter ($\mu\text{g/L}$). For an adult or child, consumption of water from Well A would not be expected to cause adverse non-cancerous health effects. Long-term exposure to trichloroethane in drinking water may pose a low increased risk of cancer. USEPA classifies trichloroethene as a probable human carcinogen, based on animal studies. Whether trichloroethene caused cancer in humans is not conclusive and controversial. Ingestion of trichloroethene can cause liver cancer in mice, but not in rats (ATSDR 1997).

Vinyl Chloride

Well B was contaminated by vinyl chloride, at a maximum concentration of 12.9 $\mu\text{g/L}$. For an adult or child, consumption of water from Well B would not be expected to cause non-cancerous adverse health effects. Vinyl chloride is a known human carcinogen. Lifetime ingestion of this water by children and then adults could pose a moderate increased risk of cancer. In workers, inhalation exposure to vinyl chloride has caused a rare liver cancer, hepatic angiosarcoma. Studies of people ingesting vinyl chloride are lacking, but several animal studies found increased hepatic angiosarcoma after the ingestion of vinyl chloride (ATSDR 2006).

Child Health Considerations

IDPH recognizes that children are especially sensitive to some contaminants. Exposed to the same contaminant concentrations, children are more likely to receive larger doses than adults. Children have a smaller body size, meaning that they receive a greater dose from the same amount of absorbed contaminant. The contaminant concentrations found in Well A and Well B are too small to cause adverse non-cancerous effects in children. However, ingestion of water from these wells by children could contribute to an increased lifetime cancer risk.

Conclusions

Before Corning supplied homes near the site with an alternative water supply or water filters, the OakGrisby site posed a public health hazard. Consumption of water from Well A and Well B may contribute to an increased risk of cancer. The provision of an alternate water supply and water treatment units ended the exposure to contaminated water. Consequently, the site currently poses no apparent public health hazard.

Recommendations

IDPH recommends that:

- The nature and extent of groundwater contamination on and near the site be determined. Under IEPA oversight, Corning is conducting a groundwater investigation.
- Corning, Inc. continue to supply residents and businesses with wells near the site with an alternative water supply and properly maintain water treatment units that remove the contaminants.

According to the Illinois Public Area Sanitary Practice Code, the apartment with the contaminated well must be connected to a clean water supply for drinking, cooking, and washing. This will require connection to the City of Crystal Lake municipal water supply. The McHenry County Health Department will enforce this code.

IDPH will evaluate any new environmental data and make any necessary health-based recommendations.

Preparer of Report

Thomas A. Baughman, Ph.D.
Environmental Toxicologist
Illinois Department of Public Health

References

- Agency for Toxic Substances and Disease Registry (ATSDR). 2006. Toxicological Profile for Vinyl Chloride. July. Accessed at: <http://www.atsdr.cdc.gov/toxprofiles/tp20.html> on November 3, 2006.
- Agency for Toxic Substances and Disease Registry (ATSDR). 1997. Toxicological Profile for Trichloroethylene. September. Accessed at: <http://www.atsdr.cdc.gov/toxprofiles/tp19.html> on November 3, 2006.
- Black, S. 2007. Telephone log sheet of January 10, T. Baughman, IDPH.
- Black, S. 2006a. Email from IEPA to K. Runkle, IDPH. September 1.
- Black, S. 2006b. Email from IEPA to T. Baughman, IDPH. October 10.
- Circuit Court of the 19th Judicial Circuit, McHenry County. 2006. Agreed Order for Immediate Preliminary Injunction with Defendant OakGrisby, Inc. September 20.
- Illinois Environmental Protection Agency. 2005. Site Evaluation, LPC# 1110155161, Oak Grisby Plant #2. September.
- Illinois Environmental Protection Agency. 1994. A summary of selected background conditions for inorganics in soil. IEPA/ENV/94-161.
- Keeshan, C. 2006. Firm Makes Deal to Clean Up Water Supply. Daily Herald. September 21.
- Phillips, R. and Long, K. 2006. Chemical in Water Alleged. Northwest Herald. July 29.
- Rivera, T. 2006. Letter from IEPA to K. Runkle, IDPH. May 17.
- Shacklette HT, Boerngen JG. 1984. Elemental concentrations in soils and other surficial materials of the conterminous United States. U.S. Geological Survey Professional Paper 1270.
- Tribune Staff. 2006. Corning Sued by State. Chicago Tribune. July 29.
- U.S. Bureau of the Census. 2006. Accessed at: <http://www.census.gov/> on November 3, 2006.

Table 1. Chemicals of interest in on-site and off-site monitoring wells sampled December 2003 to July 2005 in micrograms per liter (µg/L). (IEPA 2005)

Chemical	On-site Monitoring Wells	Off-site Monitoring Wells	Comparison Value	Source
cis-1,2-Dichloroethene	ND	89	70	MCL
Methylene chloride	ND	45	5	MCL
Tetrachloroethene	ND	47	5	MCL
Trichloroethene	3,000	1,300	5	MCL

MCL = Maximum Contaminant Level

ND = Not detected

Table 2. Chemicals of interest in private wells sampled May 2006 to May 2007 in micrograms per liter (µg/L).

Well	Chemical	Maximum Level Detected	Comparison Value	Source
Well A	Trichloroethene	16.0	5	MCL
Well B	Vinyl chloride	12.9	2	MCL

MCL = Maximum Contaminant Level



Date December 18, 2008

From Division of Health Assessment and Consultation, ATSDR

Subject Health Consultation
OakGrisby Plant #2

To Mark Johnson
Senior Regional Representative, ATSDR, Region V

Enclosed please find a copy of the December 16, 2008 Health Consultation on the following site prepared by the Illinois Department of Public Health under cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR).

OAKGRISBY PLANT #2
CRYSTAL LAKE, MCHENRYCOUNTY, ILLINOIS

EPA FACILITY ID: ILD1110155161

The Division of Health Assessment and Consultation requires copies of all letters used to transmit this document to the agencies, departments, or individuals on your distribution list. The copy letters will be placed into the administrative record for the site and serve as the official record of distribution for this health consultation.

Please address correspondence to the Agency for Toxic Substances and Disease Registry (ATSDR) Records Center, 1600 Clifton Road, NE (F09), Atlanta, Georgia 30333.

Freda Dumas
Manager, ATSDR Records Center

Enclosures

cc: W. Cibulas, Jr. R. Gillig C. Walcott L. Luker L. Daniel

You May Contact ATSDR Toll Free at
1-800-CDC-INFO or
Visit our Home Page at: <http://www.atsdr.cdc.gov>