



The Technical Outreach Services to Communities (TOSC) program is providing technical assistance to Chemical Commodities, Inc. (CCI) Concerned Citizens Group (CCG) in Olathe, Kansas, on environmental issues related to the CCI Superfund site. The goal of TOSC assistance is to assist the community and other stakeholders with an independent understanding of underlying technical issues, so that they may participate substantively in the decision-making process. One form of support is to review technical reports related to the site.

CCI CCG requested TOSC assistance in reviewing the Agency for Toxic Substances and Disease Registry (ATSDR) health consultations. CCI CCG is particularly interested in obtaining an understanding of the seriousness of the potential human health risk from contaminated indoor air measured in some homes near the CCI site. TOSC performed a review of the two most recent ATSDR health consultations for the CCI site (dated June 5, 2002, and March 31, 2003).

Acknowledgement

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Summary of TOSC Review of ATSDR Health Consultations for Chemical Commodities, Inc. Superfund Site Dated June 5, 2002, and March 31, 2003

BACKGROUND

CCI operated a chemicals recycling business from 1951 to 1989 adjacent to a residential neighborhood in Olathe, Kansas. The facility occupied about 1.5 acres at the address of 320 South Blake Street. Residential areas are to the west and north of the site, which is on the National Priority List of Superfund sites. In 1991, the U.S. Environmental Protection Agency (EPA) completed a removal action there. Chemicals contaminating soil and groundwater on the site and under residential properties include trichloroethylene (TCE), a volatile chemical used to clean metal parts. Other volatile chemicals found in groundwater and indoor air include carbon tetrachloride, chloroform, chloromethane, 1,2-dichloroethane, 1,1-dichloroethene, cis 1,2-dichloroethene, trans 1,2-dichloroethene, methylene chloride, 1,1,2,2-perchloroethane, tetrachloroethylene, 1,1,1-trichloroethane, trichloroethylene, and vinyl chloride.

A remedial investigation/feasibility study (RI/FS) is being conducted by Boeing and the Department of Defense, two potentially responsible parties. ATSDR has been involved at the CCI site for several years, assisting the EPA by periodically assessing potential threats to the health of nearby residents.

DISCUSSION

Human health risk assessment is a four-step process, including hazard identification, exposure assessment, dose-response assessment, and risk characterization. These steps are being performed by EPA and ATSDR in determining potential risk to residents living near the CCI Superfund site in Olathe, Kansas.

Investigation of the CCI site identified contaminated groundwater under homes near the site and measured volatile chemicals (chemicals that evaporate easily) in the groundwater. Volatile chemicals in groundwater are sometimes a source of indoor air pollution to buildings located over contaminated groundwater. This is step 1: identification of a possible hazard to people living in homes near the CCI site.

Indoor air monitoring in some crawl spaces under homes and in some living areas revealed contaminant levels in air above action levels set by EPA and ATSDR. This is step 2: determining how much and for how long people are likely to be exposed to identified contaminants. Some residents have lived near the CCI site for many years.

The third step, evaluating the dose-response relationship (how much of a chemical is needed to cause a health effect in humans), is very difficult. Typically, animal studies are used to determine if a chemical may be harmful to humans. Then, safe doses for

animals are divided by uncertainty factors to make up for a lack of knowledge in deriving lower more conservative values for allowed exposure levels more certain to be safe for humans.

Minimal risk levels (MRLs) for non-cancer effects and cancer risk evaluation guide (CREG) values for cancer effects are commonly used by ATSDR as safe comparison values when investigating the potential for adverse human health effects from contaminated sites. More information about the ATSDR MRLs may be found at this Web site: <http://www.atsdr.cdc.gov/mrls.html>, where, ATSDR states, "ATSDR does not use serious health effects (such as irreparable damage to the liver or kidneys, or birth defects) as a basis for establishing MRLs. Exposure to a level above the MRL does not mean that adverse health effects will occur. MRLs are intended to serve as a screening tool to help public health professionals decide where to look more closely."

CREG values used in the ATSDR health consultations were calculated to limit the increased risk of cancer to a chance of one in a million (1×10^{-6}). EPA often recommends an increased cancer risk range of one in ten thousand to one in a million when making regulatory decisions. ATSDR has chosen the most protective (one in a million) end of this range when establishing CREG values for the CCI site health consultations.

After determining the information for the first three steps of the human health risk assessment, the

fourth step is completed. This is risk characterization, or determining the increased risk to people living near the CCI site. Each of the previous three steps appears to have been conducted appropriately by EPA and ATSDR, with care taken to be protective of human health when considering uncertainties in the available information. Some of the samples taken from living spaces or crawl spaces of homes had a higher concentration of some contaminants than the MRL or CREG values. This does not mean that people living in these homes will become sick or have health problems due to contaminated air. MRL and CREG values are established to be very safe. However, it is an indication that more indoor air testing is advisable and that it would be a good idea to install ventilation systems in homes where MRL or CREG values were exceeded. These are the recommended actions of EPA and ATSDR. EPA is proceeding with additional air monitoring and installation of ventilation systems where needed.

CONCLUSION

TOSC staff reviewed indoor air sampling results, methods used by ATSDR for the health consultation, conclusions reached in the health consultations, and recommendations by ATSDR. The methods and recommendations appear to be appropriate and consistent with approaches considered protective of human health for residents living near the CCI site. Although the risk to health appears to be minimal and it is unlikely individual residents will become ill from exposure to contaminated indoor air, the recommended precautions of additional indoor air monitoring and installation

of ventilation systems in homes where MRL or CREG values have been exceeded seems appropriate.

TOSC INFORMATION

The Midwest HSRC receives funding via an EPA grant to provide *independent* technical assistance to stakeholders, free of charge, at Superfund, RCRA, brownfield, and other types of contaminated sites. Information herein is a summary of existing information in documents generated by others. It does not necessarily represent the views of Kansas State University nor the EPA. No preferences or warranties, express or implied, are intended or made.

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