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Raymark Bulletin #33

April 2000

Questions and Answers about groundwater, Volatile Organic Compounds (VOCs) and residential indoor air quality at the Raymark Superfund Site.

EPA's groundwater investigations at the Raymark Superfund Site have shown that groundwater in a portion of Stratford is contaminated due to past activities by Raymark Industries, Inc. Some of the contaminants that have been found in the groundwater are known as Volatile Organic Compounds (VOCs). Under certain conditions VOCs have the ability volatilize (turn into a gas) and migrate up from the groundwater through the soil and into overlying structures where they can accumulate in the indoor air. EPA, the Connecticut Department of Environmental Protection (CTDEP), the Connecticut Department of Public Health (CTDPH), and the Stratford Health Department, working together, have decided to visit homes that are located above the most significant areas of groundwater contamination (see attached map). These visits will inform residents of the groundwater contamination and help the agencies find volunteers for indoor air tests, which are the primary way to determine if VOCs are present inside homes.

This Bulletin provides answers to some common questions about this issue.

Q. What contaminants have been identified in groundwater?

A. EPA has identified more than 100 different contaminants in the groundwater beneath a portion of Stratford. Fortunately, Stratford residents get their drinking water from the municipal water system so direct consumption of these contaminants is not a concern. Of these 100 contaminants, three have been found in the shallow groundwater beneath a residential area at levels that could present an indoor air concern. These contaminants are vinyl chloride, 1,1-dichlorethene (DCE) and trichlorethylene (TCE).

Q. Can exposure to these chemicals in indoor air affect my health?

A. Exposure to these chemicals in indoor air can potentially affect your health, but the risk is determined by the concentration of the chemical and the length of time you are exposed to the chemical. The results of indoor air tests will provide information on whether there may be any long-term (chronic) health effects or short-term (acute) health effects. Acute effects associated with breathing these compounds are unlikely.

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Q. What is vinyl chloride and what are its health effects?

A. Vinyl chloride is a chemical used to make a variety of plastic products. Breathing vinyl chloride for long periods of time can cause changes in the liver, including liver cancer. Breathing very high levels of vinyl chloride can cause dizziness and sleepiness. These effects have been seen in people who work directly with vinyl chloride and are exposed to much higher concentrations than what would be expected from exposures occurring in the environment.

Q. What is 1,1-dichloroethene and what are its health effects?

A. 1,1-dichloroethene (1,1-DCE) is a chemical used to make certain types of plastics and packaging materials. Breathing 1,1-DCE for long periods of time can cause damage to the nervous system, liver, and lungs. Some studies in which animals breathed very high levels of 1,1-DCE have found birth defects and increases in tumors. It is not known, however, if similar effects occur in people. Studies of workers with high exposures to DCE have not shown an increased risk of cancer.

Q. What is trichloroethylene and what are its health effects?

A. Trichloroethylene (TCE) is a chemical used to remove grease from metal parts. It is also an ingredient in paint removers and adhesives. Breathing TCE may cause headaches, lung irritation, dizziness and difficulty concentrating. Breathing TCE for long periods of time may cause nerve, kidney and liver damage. Some animal studies have suggested that high levels of this chemical may cause liver or lung cancer.

Q. In general, what can be done if VOCs are found inside a home?

A. If contamination is found at unacceptable levels, there are both immediate and long-term solutions that can reduce and/or eliminate problems with VOCs in the home. The easiest short-term solution is improving ventilation (with fans and/or open windows). This will immediately improve indoor air quality. Long-term solutions include sealing sumps and drains, and patching and sealing cracks or other openings in the foundation. EPA and CTDEP will work closely with the local health department and other health agencies to make sure that if any exposures to VOCs are found, they are addressed as quickly as possible.

Q. How did the agencies select the homes that are being visited?

A. As noted above, VOCs have been found in groundwater beneath certain areas of Stratford. EPA uses computer models which take information on

contaminant concentrations, groundwater depth, soil characteristics, and other issues and use that information to predict whether VOCs have the potential to migrate into overlying structures. These models have shown that some areas in Stratford do have the potential for VOCs to accumulate in indoor air. A team of public health and environmental officials from EPA, CTDEP, CTDPH, and the Stratford Health Department have reviewed these modeling results. The agencies decided to visit homes in an area in which two of the VOC contaminants (vinyl chloride and 1,1-dichlorethene) are thought to pose the greatest risk of contaminating indoor air in homes.

The computer models that EPA has used can only predict what <u>might</u> be occurring in the environment. Whether VOCs are actually volatilizing and migrating into homes depends on many different factors, such as the type of home construction, the integrity of the home's foundation, and the presence or absence of sumps and drains in the basement. The only way to be certain if VOCs are actually present is to test the air within the home.

Q. How will homes be selected for indoor air testing?

A. Staff from EPA, CTDEP, CTDPH and the Stratford Health Department will distribute a homeowner survey to approximately 60 homes within the area under investigation. The survey asks questions about basement use, home construction, and other issues that will help the agencies determine which homes are suitable for indoor air testing. The homes that will be selected for testing will have characteristics that make it easier for VOCs to migrate into enclosed spaces. EPA will be conducting the actual tests. They are currently planned for the last week in April 2000.

Q. What is the purpose of the Indoor Air Assessment Survey?

A. The Indoor Air Assessment Survey is a set of questions about the occupants and physical characteristics of a home. The questions mostly fall into three general categories: questions about the occupants use of the home, questions about the structure of the home, and questions about activities that could affect indoor air quality measurements. Questions about the occupants help researchers understand who may be facing risks in the home. Researchers need to understand the structure of the home to determine the likelihood of VOCs to migrate inside. Indoor air testing is extremely sensitive, and the questions about activities and appliances within the home will help researchers determine what other factors, besides VOCs from the groundwater, might affect indoor air quality measurements.

Q. How will air be sampled?

A. In homes selected for indoor air sampling, EPA will test the air over an 8-hour period. EPA staff will set up sampling canisters in the basement of the house,

as well as in the main living space (to provide a comparative sample). EPA will simultaneously conduct soil gas sampling outside the house. An EPA sampling technician will check on the sampling equipment several times over the course of the day to make sure that it is working properly. At the end of the day, the sampling canisters will be collected and sent to a laboratory for analysis. Full analysis and quality control usually takes 8 weeks, but preliminary results will be shared with the homeowner within approximately 3 weeks. Depending on the results, some resampling may be necessary. Because humidity affects the ability of VOCs to volatilize, the tests must be conducted on a rain-free day.

Q. What will EPA do with the results of these tests?

A. When results become available, EPA and State or local health officials will meet with the homeowner to privately discuss and explain them. If the testing results indicate that a potential health problem exists, the cooperating federal and state agencies will work with the homeowner to develop a remedy for the problem. After the results are presented to the homeowner, they will be used to help determine EPA's next steps in the groundwater investigation.

Q. Can I volunteer to get my home tested?

A. All indoor air testing will be voluntary. EPA will seek volunteers among homes in areas in which shallow groundwater contamination is highest. The results of the homeowner survey will be used to identify the homes that are suitable for indoor air testing and the agencies hope to obtain volunteers from these homes.

Q. Will EPA "clean" the groundwater? What is EPA's long-term strategy to take care of the problem of VOCs?

A. EPA is completing groundwater investigations at the Raymark Site, and has not yet proposed what actions, if any, will be taken to clean up the groundwater. The indoor air quality investigations will help EPA, CTDEP, CTDPH, and local agencies determine if immediate actions are needed to protect the environment and the health of Stratford residents. They will also help EPA achieve a better understanding of the relationship between VOCs in the groundwater and indoor air in overlying structures.

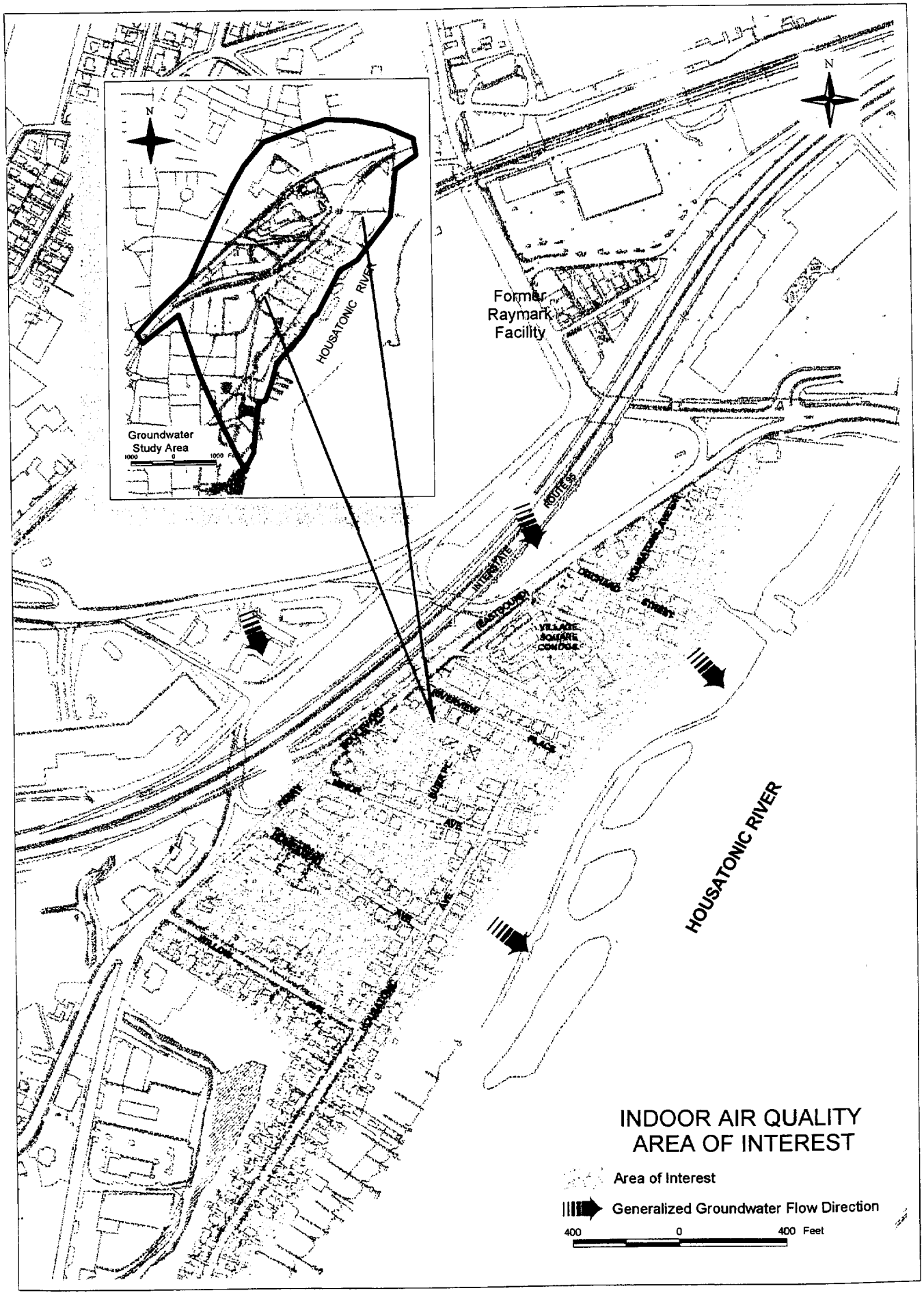
EPA will release a Remedial Investigation report in the summer that will fully describe the nature and extent of groundwater contamination at the Raymark Site. EPA will then prepare a Feasibility Study, which will identify potential cleanup solutions for the groundwater.

Q. What agencies are involved in this effort? What are their responsibilities? How can I contact them?

A. EPA, CTDEP, CTDPH, and the Stratford Health Department are all assisting with this outreach and survey effort. The contact list below provides the names of the individuals involved and describes their general responsibilities in the Raymark Superfund Cleanup. Please contact them if you have any questions or comments about this fact sheet, or other issues related to the Raymark Superfund Site cleanup.

Raymark Superfund Site Local, State, and Federal Contacts

Name, title and contact information	Role in the Raymark Site cleanup
US Environmental Protection Agency, Region 1 EPA Toll Free (All Staff): 888-372-7341	
Ron Jennings, Project Manager Phone: 617-918-1242. Fax: 617-918-1291 Email: Jennings.Ron@epa.gov	Project manager for entire Raymark cleanup. Oversees all data gathering, technical analysis, risk assessment, and decisionmaking.
Jim Murphy, Community Involvement Coord. Phone: 617-918-1028. Fax: 617-918-1029 Email: Murphy.Jim@epa.gov	Ensures that the public is informed about, and involved in, EPA's decisionmaking process at the Raymark Superfund site.
Connecticut Department of Environmental Protection	
Ron Curran, Project Manager Phone: 860-424-3764. Fax: 860-424-4057 Email: Ronald.Curran@po.state.ct.us	Oversees Raymark cleanup for the State of Connecticut. Ensures that cleanup satisfies Connecticut laws and regulations.
Connecticut Department of Public Health	
Jennifer Kertanis, Epidemiologist Phone 860-509-7742. Fax: 860-509-7785 Email: Jennifer.Kertanis@po.state.ct.us	Assists local health department in evaluating health-related issues for all aspects of the Raymark site cleanups. Responds to public concerns and provides health education on health issues of concern or interest.
Diane Aye, Epidemiologist Phone 860-509-7742, Fax: 860-509-7785 Email: Diane.Aye@po.state.ct.us	Primary investigator on town wide health study investigating cancer incidence and birthweight in relation to exposure to Raymark waste.
Stratford Health Department	
Elaine O'Keefe, Director of Health Phone: 203-385-4090. Fax: 203-381-2048 Email: e-okeefe@earthlink.com	Assesses and responds to Stratford residents' health concerns about the Raymark site. Serves as local contact and clearinghouse for disposal site cleanup information. Makes recommendations to EPA to protect public health during site cleanup.



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Former
Raymark
Facility
HOUSATONIC RIVER
Groundwater
Study Area
1000
0
1000
ROUTE 95
INTERSTATE
(EASTBOUND)
VILLAGE
SQUARE
CONDOS
HOUSATONIC RIVER
INDOOR AIR QUALITY
AREA OF INTEREST
Area of Interest
Generalized Groundwater Flow Direction
400
0
400 Feet