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Raymark Bulletin #34

November 2000

EPA Discusses the Results of its Residential Indoor Air Quality Investigations in Stratford

This bulletin discusses the results of indoor air quality sampling that EPA conducted in a small number of properties in Stratford in April of 2000.

Introduction

This fact sheet provides the results of the indoor air quality investigations that were conducted in April 2000 by the US Environmental Protection Agency (EPA) as part of its investigations at the Raymark Superfund Site.

Based on EPA's ongoing investigations, groundwater in the vicinity of the Raymark Superfund Site is contaminated by hazardous wastes originally produced at the Raymark Facility. Much of this groundwater contamination has been characterized as organic solvents, which easily evaporate. These solvents are collectively called volatile organic compounds (VOCs). As groundwater is not used as a drinking water source, EPA's concern for possible exposure for people arose from the potential for the VOCs to evaporate from the groundwater, move underground through the soil, and infiltrate through cracks and openings into overlying buildings (see "Area of Interest" map).

To ensure the safety of Stratford residents, EPA, Connecticut Department of Environmental Protection (CTDEP), Connecticut Department of Public Health (CTDPH), the Agency for Toxic Substances and Disease Registry (ATSDR), and the Stratford Health Department sampled indoor air from selected homes and businesses within the area of interest. Structures were sampled based on several factors such as location, type of construction, and willingness to participate in the sampling. EPA also sampled soil gases at locations around these same locations. The purpose of the sampling program was to determine if volatile contaminants present in groundwater were migrating into homes or businesses. It was found that some contaminants do appear to be migrating into some structures, however, at concentrations so low that it does not present an immediate danger to anyone who lives or works in the buildings. Additional sampling is planned for early next year to confirm this finding.

Questions and answers about indoor air sampling

How can groundwater produce pollution in an indoor setting?

It is known that groundwater contaminated with volatile pollutants can act as a source of contaminated vapors. These vapors migrate from the groundwater upward through the soil and can infiltrate cracks and holes in buildings thereby contaminating the air inside. Since the entry point is the building foundation, contaminant levels are generally higher in basements than on first floors. People who live or work in these buildings could be exposed to contaminated vapors simply by breathing.

How many indoor environments were sampled?

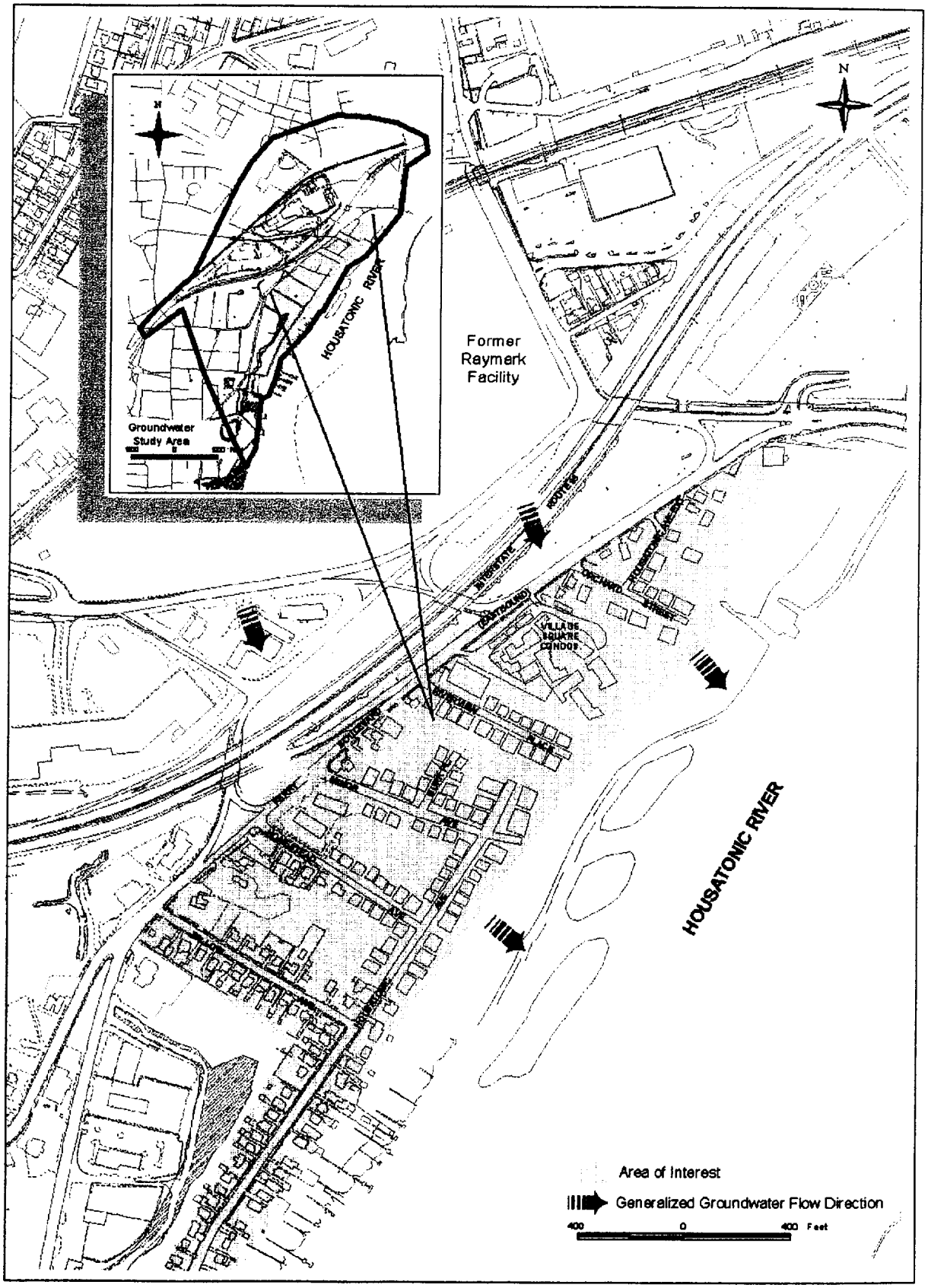
EPA investigators conducted a total of 16 air-sampling tests in six buildings, and performed 25 soil gas tests at six different properties in the area of concern (see map).

What were the results of the sampling?

Not surprisingly, some air contaminants were detected in all indoor locations sampled. The results suggest the groundwater is a likely source for some, but not all, of the contaminants detected in the indoor environments. Numerous sources of indoor air pollution exist in addition to the groundwater, such as home heating oil, cleaning solvents, building materials, and cigarettes. Additional sampling within the area of interest is planned for early next year.

What were the primary contaminants detected in indoor air?

Of all the compounds analyzed in the indoor air, only three compounds of concern were identified as having likely originated from groundwater. These compounds are 1,1 Dichloroethylene (1,1-DCE), Trichloroethylene (TCE), and 1,1,1 Trichloroethane (1,1,1-TCA). Each of these three contaminants is known to be present in the groundwater in this area. Benzene and toluene were also identified at every indoor location sampled but the data obtained suggest a source other than the groundwater for



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Former
Raymark
Facility
HOUSATONIC RIVER
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Study Area
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Area of Interest
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these pollutants. For example, a household source of benzene is gasoline and potential household sources of toluene are rubber, paints, lacquers, and also gasoline.

Can people in this area be exposed to VOC groundwater contaminants in other ways?

The most significant exposure pathway for groundwater contamination typically results from use of groundwater as a drinking water supply. However, the source of drinking water for residents in this area is a public water supply that is safe to drink and to use for domestic purposes. Sampling of the air outdoors in the general area did not indicate that groundwater had any measurable impacts on the outdoor air. It is possible to come into contact with the groundwater during flooding or deep construction work. These exposures are considered insignificant because of their infrequent nature.

Do contaminant levels in indoor air present a danger to people who live or work in the buildings?

No. The EPA, CTDEP, CTDPH, ATSDR, and the Stratford Health Department collectively believe the indoor air results do not present an immediate danger to building occupants. The agencies will continue to monitor the situation and evaluate the need for action as appropriate. As a public health practice, any voluntary steps taken to improve ventilation, or reduce the home sources of indoor air pollution, will tend to lessen the indoor air concentrations of all pollutants and thus lessen exposure. In addition, anyone with a private well should discontinue its use. Homeowners with private wells that want their well water sampled should contact Ron Jennings, EPA Project Manager, (see number below) to discuss sampling of your well.

What are agencies doing about the contaminant levels found in homes?

Since the levels measured do not pose any immediate health risk, the agencies will continue to monitor the situation in the neighborhood this heating season and to plan for additional indoor air testing scheduled for early next year. In the meantime, the agencies will be contacting the owners of each building already sampled to discuss any concerns that each owner may have.

What about other homes in the neighborhood that were not tested? Is the indoor air in those homes safe?

At this time, the agencies do not have the necessary information to answer these questions. Additional sampling is being planned now and will be conducted early next year. It is anticipated that the results of that sampling will help to answer the question of whether the indoor air is safe to breathe. This will depend on the type of construction, any other indoor air pollution sources, and the building use(s). It is believed that the sampling of the homes to date was done in the area of highest potential groundwater contamination, where contaminated vapors are most likely to be an issue. If unacceptable levels of contamination are ever found, cleanup actions will be taken immediately.

Indoor air sampling is part of ongoing EPA cleanup efforts at the Raymark Superfund Site

EPA is completing a Remedial Investigation (RI) report for groundwater contamination throughout the Raymark Superfund Site. The RI will describe the nature and extent of groundwater contamination caused by Raymark waste. It will include the data from the indoor air sampling conducted last April. The RI will be followed by a Feasibility Study report that will evaluate cleanup options for groundwater in the area. Any cleanup actions needed will be undertaken by the government.

Where can you get more information?

To get more information about the Raymark Superfund Site, or the issue of groundwater contamination and indoor air quality in particular, look for these bulletins at the Raymark Information Repository in the Stratford Library Association reference room:

Raymark Bulletin #24 Raymark Superfund Site: An Overview and Update, December 1999

Raymark Bulletin #32 EPA Plans to Evaluate Possible Links between Groundwater Contamination and Residential Indoor Air Quality, April 2000

Raymark Bulletin #33 Questions and Answers about groundwater, Volatile Organic Compounds (VOCs) and residential indoor air quality at the Raymark Superfund Site, April 2000

Health Consultation, Residential Indoor Air Evaluation, Raymark Industries, Stratford, Fairfield County, Connecticut, October 2000.

You can also contact these individuals for additional information:

Ron Jennings, EPA Project Manager
Phone: 617-918-1242, or toll-free (888) 372-7341

Ron Curran, CTDEP Project Manager
Phone: 860-424-3764

Margaret Harvey, CT Health Department
Phone: 860-509-7748

Elaine O'Keefe, Stratford Health Department
Phone: 203-385-4090

Mailing List Additions/Deletions/Changes

If you or someone you know would like to be added to (or deleted from) the Raymark Superfund Site mailing list, please fill out and mail this form to:

Jim Murphy, Community Involvement Coordinator
U.S. Environmental Protection Agency
One Congrress Street
Suite 100 (RAA)
Boston, MA 02214-2023
or
toll free call: 1-888-372-7341 x81028
email: murphy.jim@epa.gov

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