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Raymark Bulletin #37

August 2001

EPA Continues Evaluation of Indoor Air Quality

This bulletin discusses the results of the second phase of soil gas and indoor air quality sampling

Introduction

This fact sheet provides an update on the second phase of indoor air investigations that was recently conducted by the US Environmental Protection Agency (EPA) at selected homes and businesses in Stratford, CT. Groundwater in some parts of Stratford adjacent to the former Raymark Facility is contaminated with hazardous wastes, including volatile organic compounds (VOCs), which were previously used at the Raymark Facility. These VOCs have the potential to change from a liquid to a gas then migrate upward through the soil and into homes/buildings through cracks and holes in foundations. People who live or work in these buildings can be exposed to contaminated vapors simply by breathing.

To evaluate whether this is occurring, EPA has been testing the soil gas and indoor air levels of homes in the surrounding area. Testing for soil gas, which is the air that fills the tiny voids between soil particles, is done outside the home in the soil adjacent to the building's foundation. Indoor air testing evaluates the air inside the home that people actually breathe.

The first round of soil gas and indoor air testing, conducted in April 2000, found site-related contaminants in some of the homes/buildings that were sampled. Details of these results are discussed in Raymark Bulletin #34 which is available at the Stratford Library. A second phase of more extensive soil gas and indoor air sampling was performed during February/March of 2001. The sampling was purposely conducted at this time of year because contaminants in indoor air are likely to be present at their greatest concentrations when buildings are closed up during the winter months. The results of this second phase of sampling are described below.

Results of February/March 2001 Indoor Air Quality Investigation

EPA sampled soil gas at approximately 125 properties that were selected based on both location as well as the property owners' willingness to participate. Based on the results of this soil gas sampling and with consideration of the previous sampling round, EPA then sampled the indoor air of eight homes/buildings.

Four of these eight homes were found to have significantly elevated VOCs in their soil gas as well as the presence of Raymark related VOCs in their indoor air. The remaining four homes were found to have much lower levels of VOCs in their soil gas and even lower levels of Raymark related VOCs in their indoor air. This finding confirms that elevated soil gas levels were a very good way of predicting the potential for Raymark related indoor air contamination inside a nearby building.

The Raymark related VOCs that were found in the indoor air include 1,1-Dichloroethylene (1,1-DCE), Trichloroethylene (TCE), benzene, 1,1,1-Trichloroethane (1,1,1-TCA), and toluene. All analytical results are available in a report titled "Final Report, Raymark Industries Site, June 2001" by Lockheed Martin. A copy has been placed in the Stratford Library and is available to the public.

Comparison of the Indoor Air Sampling Results to the Risk-based Screening Criteria

The results of the February/March 2001 indoor air quality investigation have been compared to levels that are considered safe for both cancer and non-cancer health effects. EPA, in coordination with the CT Department of Public Health (CTDPH), developed screening criteria in order to identify homes that should have their exposure to indoor air contaminant levels reduced. Of the eight structures that had indoor air samples taken, four had indoor air levels that were above the screening criteria. In all four of these structures, the only contaminant exceeding the screening criteria was 1,1-DCE. TCE, benzene, 1,1,1-TCA, and toluene were found in the indoor air, but at levels well below the screening criteria.

What does this mean?

Health professionals from the EPA, CT Department of Environmental Protection

(CTDEP), CTDPH, Agency for Toxic Substances and Disease Registry (ATSDR), and the Stratford Health Department have all evaluated the test results. They all agree that the indoor air findings present no immediate danger to building occupants. However, EPA does need to take action to reduce exposure in the near term at the four buildings that exceed the 1,1-DCE indoor air-screening criteria.

What will be done?
EPA plans to implement the following three actions to address the problem of elevated 1,1-DCE levels in indoor air as follows:

(1) *Prevent the contaminated air from accumulating inside the buildings.* This summer a contractor for EPA will work with each of the four affected property owners to design and install an air exchange/removal system beneath each of the affected buildings. These systems will be designed to vent the vapors before they enter the buildings.

(2) *Conduct some additional soil gas and indoor air sampling.* After venting systems are installed at the four affected properties, EPA will then collect additional samples to ensure that the systems are operating effectively. EPA will also attempt to resample soil gas at all nearby properties.

(3) *Conduct additional groundwater investigations throughout the area in and around the former Raymark Facility and Ferry Creek.* This work will include the installation and sampling of additional monitoring wells as well as the resampling of existing wells. This additional sampling is an effort to continue to refine the extent of the groundwater contamination problem in the area.

Where to find additional information:
The Stratford Library has the following related documents:
Final Report, Raymark Industries Site, June 2001 by Lockheed Martin
Raymark Bulletins #32, 33, 34, and 35.

Who should you contact for more information?

Jim Murphy, EPA Community Involvement Coordinator
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Get Involved!

Come to the next Raymark Advisory Committee (RAC) meeting scheduled for 6:30 PM, September 11, 2001 at the Stratford Army Engine Plant, 550 Main Street

Come and hear status and updates on various investigations throughout the Raymark Superfund Site and associated issues.

Please call Jim Murphy at (888) EPA-REG1 for additional information.