

Report Name: *Report on Phase II and III Environmental Investigations, Rochford Field and Mill Rock Park, Hamden, Connecticut*

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Prepared for: Town of Hamden

What Is This Report About?

This report is about what the Town of Hamden found during their investigation of two Town-owned properties located east of Newhall Street in the Newhall Street Study Area. These properties included Rochford Field and Mill Rock Park. The investigations described in this report are the second and third stages of a three-part study of hazardous materials underground on public properties in the Newhall neighborhood. The first stage of the study focused on researching existing reports and histories about the two sites (as well as some others) and interviews. These follow-up stages in the investigation focused on the two town-owned properties and included test borings (digging out a narrow tube of earth from the ground), excavation of shallow pits, installing wells in some of the borings holes, and laboratory analysis of the soil and water samples taken from the ground. This report documents the details of the two investigations including how they were done, where the testing took place, and what the results of the laboratory analysis showed. It includes numerous appendices with photographs of the test pit excavations, copies of the raw data collected, and laboratory worksheets showing the analysis process and results.

Why Did They Investigate?

The soil contamination found in the Newhall Street neighborhood is associated with landfills that were located in the area from the late 1800s through the 1950s. A variety of fill materials (such as household garbage, industrial waste, and soil from other places) was thrown away in the dumps. The purpose of this study was to better understand the types and concentrations of hazardous chemicals in the ground and possibly in groundwater at town-owned properties resulting from that former dumping.

Where Did They Investigate?

The investigations were conducted at Rochford Field and Mill Rock Park. Rochford Field is a large grassy area, 4.84 acres in size. Mill Rock Park is 2.94 acres in size with a large open grassy area, playground, and tennis courts. Soil and water samples were collected from 15 locations At Rochford Field and eight locations at Mill Rock Park (see map). The test pits were dug up to four feet deep. Some surface soils samples were also collected. The test borings were

drilled from 4 to 12 feet deep. The monitoring wells were installed at the same locations as some of the test boring sites. They were installed deep enough to reach groundwater. This was generally seven feet below the surface.

How Did They Investigate?

The method used to perform the investigation followed a process spelled out by the U.S. Environmental Protection Agency (EPA). This process is known as a Phase II/III Environmental Site Assessment. It involves a combination of taking soil and water samples from the ground and chemical testing. The soil and water sampling and chemical testing took place between August 9 and August 28, 2002.

Soil and water sampling included:

- Rochford Field: five test pits dug; 15 borings drilled; water monitoring wells installed in four of the test boring holes
- Mill Rock Park: one test pit dug; seven borings drilled; water monitoring wells installed in three of the boring holes

The contaminants tested for in the soil and water samples are listed below. For each substance, you can click on its name to go to another website that describes what it is and how it may be harmful. The methods for the laboratory testing were based on Connecticut Department of Environmental Protection and US Environmental Protection Agency approved processes.

- Soil samples tested for
 - Pesticides and Poly-Chlorinated Biphenyls (PCBs)
 - Volatile Organic Compounds (VOCs)
 - Chlorinated Pesticides
 - Extractable Total Petroleum Hydrocarbons (ETPH)
 - Semi-Volatile Organic Compounds (SVOCs)
 - Total Metals
 - Leachable Metals
 - Total Cyanide
- Groundwater samples tested for:
 - PCBs
 - VOCs
 - Chlorinated Pesticides
 - ETPH
 - SVOCs
 - Total Metals
 - Total Cyanide

What Did They Find?

The Connecticut Department of Environmental Protection has published standards for what is considered an acceptable level (concentration) of a variety of chemicals in the ground and in water. The standards identify the concentrations of those substances that could be potentially harmful to people who come into contact with them. The standards were developed to protect people's health and the environment. The investigations compared the concentrations of the contaminants found in the soil and water samples to several of these state standards.

The concentrations of substances found in the soil samples were compared to:

- Residential Direct Exposure Criteria (RDEC): The RDEC sets a contaminant concentration level for many different substances. Substance concentrations below the RDEC level are considered not harmful in a home. Contaminant concentrations at or above the RDEC require further investigation to determine the potential risk to people's health.
- Pollutant Mobility Criteria (PMC): This state standard relates to the ability of soil contaminants to pollute groundwater. Soil contaminants with concentrations at or above the PMC could result in polluted groundwater and require further investigation to determine the potential risk to groundwater that may be used for people's drinking water.

The concentrations of substances found in the groundwater samples were compared to:

- Groundwater Protection Criteria (GWPC) and Surface Water Protection Criteria (SWPC): The GWPC and SWPC set a concentration level for many different substances in water. Contaminant concentrations below this level are considered not harmful. Contaminant concentrations above this level require further investigation to determine the potential risk to the quality of groundwater resources.
- Residential Groundwater Volatilization Criteria (RGWVC): This is a state standard that sets concentration levels for certain types of chemicals that may give off dangerous fumes from groundwater in residential areas. Contaminant concentrations below the RGWVC are considered not harmful. Contaminant concentrations above this level require further investigation to determine the potential risk to people's health.

Rochford Field: Results of the chemical testing from Rochford Field found widespread presence of VOCs, SVOCs, ETPH, and metals within the fill material below the surface. These substances were at levels in excess of RDEC and/or PMC standards. More than 50 percent of the samples that tested in excess of the standards came from industrial fill. This fill included Slag (a mix of waste from smelting, welding, and heating metals), cinders and ash (from industrial trash

burning), wood box fragments, sawdust, batteries, scrap metal gun parts, shell casings, furnace bricks, along with other miscellaneous trash. Chlorinated pesticides were found in shallow soil samples from eight of the test borings at Rochford Field. The concentrations did not exceed regulatory standards and did not appear to be related to the previously dumped or fill materials.

The results of groundwater testing at Rochford Field found the VOC naphthalene, SVOCs, and ETPH in one of the monitoring wells. The concentrations of SVOCs and ETPH exceeded SWPC. ETPH was also detected in another monitoring well and the metals nickel and zinc were found in groundwater samples from two more wells. In one well, the concentration of nickel exceeded GWPC while the concentration of zinc exceeded SWPC.

Mill Rock Park: The ground under Mill Rock Park includes domestic fill (household garbage). The chemical testing of soil samples from Mill Rock Park found SVOCs and lead in the domestic fill layer. The levels were over the RDEC and/or PMC standards. Generally, however, the concentrations found were lower than those found at Rochford Field. ETPH and metals were detected in several locations, but at concentrations below the regulatory standards. VOCs and PCBs were not found. One chlorinated pesticide was found in shallow soil samples but the concentrations did not exceed regulatory standards.

The test results from the groundwater samples from Mill Rock Park did not indicate any of the contaminants that were investigated.