

EXECUTIVE SUMMARY

The NUS Corporation Region I Field Investigation Team (NUS/FIT) was directed by the Waste Management Division (Superfund Branch) of the Region I U.S. Environmental Protection Agency (EPA) to design and implement a hydrogeologic Remedial Investigation of the Wells G & H site in Woburn, Massachusetts. The purpose of the Remedial Investigation Part I was to determine the nature and extent of groundwater contamination at the Wells G & H site, and to collect data necessary to support a Feasibility Study. GCA Technology Division, Incorporated (GCA) of Bedford, Massachusetts will address contaminant source characterization and assessment of environmental impact of waste disposal activities in a separate Remedial Investigation report (Wells G & H Remedial Investigation Part II).

This report summarizes site history and environmental investigations conducted at the site by others, describes NUS/FIT Remedial Investigation efforts, and discusses Remedial Investigation findings.

SITE BACKGROUND

The Wells G & H site (hereafter referred to as the site or the Study Area) is located in the City of Woburn approximately ten miles north of Boston, Massachusetts. The site is bordered by State Route 128 (Interstate Route 95) to the north, Interstate 93 to the east, Cedar Street and Salem Street to the south, and Wildwood Avenue to the west. The approximately 450 acre site includes part of the Aberjona River Floodplain and light commercial and industrial parks bordering the river floodplain.

In May, 1979, the Massachusetts Department of Environmental Quality Engineering (DEQE) analyzed water sampled from Wells G & H and detected concentrations ranging from 1 to 400 parts per billion (ppb) of several chlorinated volatile organic

compounds including: trichloroethene, trans-1,2-dichloroethene, 1,1,1-trichloroethane, and tetra-chloroethene. The sampling of Wells G & H was performed in response to the discovery (by DEQE) of drums containing polyurethane and toluene diisocyanate located on a vacant lot on Mishawum Road north of Wells G & H. Wells G & H were subsequently shut down and EPA initiated a series of studies to determine the nature and extent of contamination by hazardous waste in North and East Woburn. Ecology and Environment, the previous EPA/FIT contractor, conducted numerous Site Inspections and hydrogeologic investigations of groundwater and surface water quality of a ten square mile area of East and North Woburn (Section 2.0).

Ecology and Environment's investigations indicated that the major contamination problem within their study area was groundwater contamination by chlorinated volatile organic compounds, primarily trichloroethene, trans-1,2-dichloroethene, 1,1,1-trichloroethane, and tetrachloroethene. Ecology and Environment identified general source areas for some of the contaminants detected at Wells G & H. As a result of Ecology and Environment's investigations and subsequent studies by EPA, three Administrative Orders pursuant to Section 3013 of the Resource Conservation and Recovery Act were issued to W.R. Grace and Co., Inc. (Cryovac Division), UniFirst, Inc., and Beatrice Foods, Inc. in May, 1983. The Administrative Orders requested that these companies determine the nature and extent of groundwater contamination on or emanating from their properties.

In June, 1984, EPA directed NUS/FIT to conduct a Remedial Investigation of the Wells G & H site to determine the nature and extent of groundwater contamination and to gather all necessary data to support the Feasibility Study. The Remedial Investigation Part I objectives were to describe the hydrogeology of the Wells G & H site, to identify contaminant source areas, to provide data sufficient to support the Feasibility Study, and to collect information adequate to support enforcement actions.

Field activities conducted during the NUS/FIT Remedial Investigation included the following:

- Initial groundwater, surface water, and sediment sampling for volatile organic analysis by NUS/FIT.
- Installation of 55 groundwater monitoring wells at 24 locations.
- Collection of surficial soil, overburden and bedrock cores during monitoring well installation.
- In-situ (field) permeability testing and laboratory grain size analysis of soil samples.
- Vertical and horizontal datum control surveying of new and previously existing monitoring wells.
- Three groundwater and surface water sampling rounds for chemical analysis for EPA Hazardous Substance List (HSL) constituents through the EPA contract laboratory program (CLP).
- Measurement of water levels in new and previously existing monitoring wells.
- Performance of a magnetometry survey.

The field investigative phase of the Remedial Investigation was conducted between October, 1984 and June, 1985, and resulted in the following findings:

- The most prevalent and widespread contamination at the site was volatile organic contamination of groundwater. The predominant volatile organic compounds detected were trichloroethene, tetrachloroethene, trans-1,2-dichloroethene, and 1,1,1-trichloroethane.

- Based on an evaluation of the distribution of groundwater contamination, the overburden stratigraphy, groundwater flow directions, and the pathways and mechanisms of contaminant transport, four areas of groundwater contamination were identified: a northeastern plume of volatile organic groundwater contamination consisting primarily of trichloroethene and trans-1,2-dichloroethene, a northern plume of volatile organic contamination consisting primarily of tetrachloroethene, a western area of shallow overburden groundwater contamination consisting primarily of trichloroethene with isolated high concentrations of other chlorinated volatile organic compounds, and a northwestern contaminant area consisting primarily of the volatile organic and extractable organic constituents of gasoline.
- Source areas of contamination were identified as follows: the northeastern plume of groundwater contamination emanates from the W.R. Grace property, the northern plume of groundwater contamination emanates from the UniFirst Corporation property, the western area of groundwater contamination primarily emanates from the Wildwood Conservation Corporation property, and the northwestern area of groundwater contamination likely emanates from a gasoline spill(s) or leaky underground storage tank(s).