

CITY CHEMICAL - UNIVERSITY BOULEVARD
6586 University Blvd.
Winter Park, Florida
County: Orange
District: Central
Site Lead: Bureau of Waste Cleanup
HWC# 41

Site Description and History

The City Chemical Company - University Boulevard is located at 6586 University Boulevard, Winter Park, Florida. This one-acre site was used by City Industries to store 55-gallon drums of waste chemicals that could not be stored at the nearby City Chemical plant on Forsyth Road. Many of the drums leaked or were dumped onto the ground, resulting in soil and groundwater contamination. Analytical results show that groundwater below the site is contaminated with volatile organic contaminants and metals.

Approximately 3500 drums of waste chemicals were stored at the site from the spring of 1980 to the late fall of 1980. The site has since been cleared, clean fill has been placed over it, and buildings and a parking area have been constructed.

Threat

Hydrogeologic data indicate that a surficial aquifer contaminant plume is flowing slowly toward the east-southeast. The closest receptor wells are located approximately 1/2 mile downgradient of the site. There is no immediate threat to surface water bodies, no danger of public contact with any remaining surface contaminants, and there are no receptor wells located downgradient from the site.

Response Strategy and Status (September 2004)

The Florida Department of Environmental Protection (FDEP) did not take enforcement action against the potential responsible parties (PRPs) due to insufficient information identifying generators who sent waste to the site. Although judgments were won against PRPs for two related sites, City Chemical-Sanford and City Chemical-Forsyth Road, there appeared to be little chance of cost recovery for the University Boulevard site.

The FDEP contractor, Environmental Science & Engineering (ES&E), completed a contamination assessment of the site in April 1986. Investigation revealed that the major concern at the site is contaminated groundwater, and the primary contaminants are tetrachloroethene and trichloroethene. It was also discovered that the plume had migrated off-site approximately 200 feet to the east-southeast.

ES&E completed a Risk Assessment and Feasibility Study (RA/FS) in January 1987. The RA developed acceptable on-site groundwater concentrations to meet long-term drinking water criteria. The FS identified the selected remedial alternative to be recovery and treatment of the contaminated groundwater. ES&E completed Phase I of the selected remedial alternative development in June 1987.

A work plan for preliminary design of the selected remedial alternative was submitted by the new FDEP contractor, Woodward-Clyde Consultants (WCC), and was approved by FDEP in July 1988. Groundwater sampling of monitor wells was conducted in August 1988, and a pilot surficial aquifer injection test was performed in October 1988 as part of the Preliminary Design. WCC submitted the Preliminary Design Report in January 1989.

Based on the Preliminary Design results, further assessment of site conditions was necessary prior to continuing with design of the treatment system, and additional fieldwork was completed in June 1989. The results disclosed that the groundwater contaminant plume had migrated approximately 250 feet further downgradient than anticipated. The fieldwork also confirmed the presence of an isolating clay layer at a depth of 30-35 feet, and a clay lens on the western side of the site at a depth of 20 feet. In November 1989, additional fieldwork was conducted to locate the leading edge of the groundwater contaminant plume. In December 1989, WCC submitted a draft 35% Design Report, followed in January 1990 with the 35% Design Report Addendum, which included the November fieldwork results.

In March 1990, WCC was tasked for completion of the design. In June 1990, WCC determined that injection to the surficial aquifer was not feasible. In January 1991, WCC was tasked to develop a work plan for additional design requirements, including construction of a Floridan Aquifer injection well and dynamic sampling and analysis of recovery. In March 1991, WCC was tasked to implement the activities in the workplan. In October 1991, property adjoining the site was leased by FDEP for location of the treatment system.

Installation of the injection well was completed in January 1992, and WCC submitted a report on dynamic well sampling and injection well testing in February 1992. Low-level contamination by toluene and EDB in the injection well precluded its use for effluent discharge. The Orange County Public Health Department had not detected contamination in the local, private drinking water wells.

Subsequently, the FDEP pursued surface water discharge for the disposal of treated groundwater. In November 1992, FDEP tasked WCC for additional design evaluations and modifications to the proposed groundwater treatment system to comply with the National Pollutant Discharge Elimination System (NPDES) permit. In December 1992, WCC submitted the results of the most recent sampling event. Extremely elevated contaminant levels upgradient indicated the possibility of additional contaminant sources. In February 1993, WCC resampled the site and reconfirmed the results of the previous analysis.

The FDEP received the Final Design for the groundwater treatment system in November 1994, and concurrently received the final NPDES permit for discharge of the treated groundwater to a surface water drainage ditch. Phase I construction of the groundwater treatment system was completed in March 1996. Solicitation for the contract and bid specifications for the Phase II construction of the groundwater treatment system began in May 1996, and installation of the treatment system began in July 1996. Installation of the treatment system was completed in September 1996. Treatment system effectiveness samples and an effluent sample, in accordance with the NPDES permit, were collected monthly to monitor the system.

In December 1996, an iron biofouling problem was identified and a sequestering agent injection system was added to the treatment train in January 1996.

Operation & Maintenance (O&M) of the treatment system was transferred to Groundwater Technology Incorporated (GTI) in March 1997. The system removed approximately 214 lbs. of total chlorinated solvents from the upper and lower aquifer (about 8% of the total predicted mass in the saturated zone) before the system had to be shut down due to constant iron fouling and failure to meet the NPDES discharge criteria.

GTI submitted a Remedial Design Modification Report at the end of July 1998, which contained recommendations for improving the current remedial action at the site. It was determined that, in order for the system to have the potential to improve the amount of contaminant mass removed from soils and groundwater, it would be necessary to submit a Design System Modification. The modification would include recommendations for the complete overhaul of the existing system and complete soil sampling in the source area. An additional soil assessment, and a Remedial Design Modification Addendum Report were completed in December 1999. In August 2001, the existing treatment system was removed, and the property leased by FDEP was restored to its' previous conditions.

GTI submitted a Remedial Alternatives Evaluation (RAE) in January 2001, proposing Potassium Permanganate In-situ Chemical Oxidation as the recommended remedy for the site. The report was approved in May 2001, and FDEP tasked GTI to complete additional soil assessment activities downgradient of the site in July 2001. This additional assessment was to assess possible areas of source DNAPL. Also included in this task assignment was the development of the Remedial Action Plan (RAP).

GTI submitted a draft RAP in April 2002. The FDEP reviewed the draft document and considered it unacceptable, because the technology had not been properly evaluated. GTI requested that additional soil cores be obtained in order to determine the appropriate technology for site remediation.

In January 2003, Shaw Environmental, formerly GTI, obtained 16 soil borings to identify unknown clayey strata underlying the site. Shaw used these data to evaluate enhanced bioremediation with air sparging and in-situ chemical oxidation with air sparging as potential remedial options. In October 2003, Shaw submitted a revised Draft RAP for an

in-situ, recirculating chemical oxidation treatment system. In May 2004, the RAP was approved by FDEP and the cost estimate was prepared by Shaw. The FDEP is currently reviewing the cost estimate and requesting a change to the proposed installation of the wells from direct push to conventional.

Schedule:

Construction permitting should begin in October 2004. Construction is anticipated to begin in December 2004.