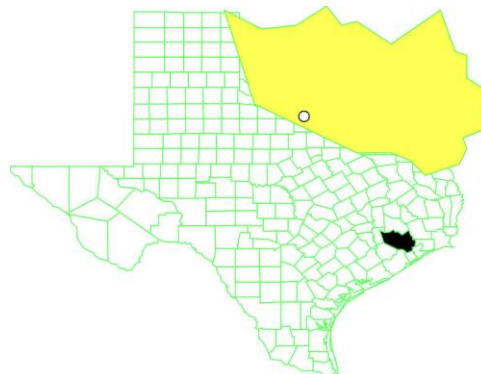


# CRYSTAL CHEMICAL COMPANY

## Harris County, Texas

EPA Region 6  
EPA ID# TXD990707010  
Site ID: 0603555

Contact: Ruben Moya, (214) 665-2755  
State Congressional District: 22  
Updated: March 2012



### Background

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The Crystal Chemical Site is located at 10985 Westpark Drive (formerly 3502 Rogerdale Road), in southwest Houston, Harris County, Texas. The Site spans approximately 6.8 acres and is bounded to the west by the Harris County Flood Control District drainage ditch (No. D124-00-00); to the east by the Union Pacific Railroad (UPRR) 5-acre tract that houses the ground water treatment plant (GWTP); to the south by the Shearton Development, Inc. (Shearton) tract (purchased by UPRR in November 2004), which is currently undeveloped; and to the north by Westpark Drive.

Crystal Chemical produced arsenical, phenolic, and amine-based herbicides on the site from 1968 to 1981. Between 1968 and 1979, Crystal Chemical leased the 6.8-acre tract from the owner Southern Pacific Transportation Company (Southern Pacific), now UPRR. In 1979, Crystal Chemical purchased the property. In 1981, Crystal Chemical ceased operations, filed for bankruptcy, and abandoned the site. With the exception of investigation and remedial activities, the site has been inactive since September 1981 (EPA 2005). The area surrounding the Crystal Chemical Site is primarily used for commercial, light industry, and residential purposes

### Current Status

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The project activities planned in 2010 included the following:

- Evaluation of alternative soil remedies to improve the cost-effectiveness of the long-term soil remedy and increase the potential for reuse of the property is still undergoing.
- Operation and maintenance of the Ground Water Treatment Plant (GWTP); The Groundwater Treatment Plant was temporarily shutdown in order to conduct a “pilot study” of a potential new or additional remedy...phytoremediation. This study has now been undergoing for approx. one and a half years. Data has been collected and is being currently analyzed; results will determine whether to continue remediation using only phytohydraulic controls, to add them to the already existing remedy or to continue with the GWTP as the sole remedy source.

- Performing semi-annual inspections of the slurry wall/pressure relief system (PRS), and perform maintenance, as needed;
- Monitoring ground water levels and collection of samples for arsenic analyses in the 15-foot zone, 35-foot zone, and 100-foot zone monitor wells will next be performed during the annual ground water monitoring event tentatively scheduled for the fourth quarter of 2010; and,
- A 5yr Review was conducted/completed in 2010. A protectiveness determination for groundwater was not made at the time pending the outcome of said phytohydraulic pilot testing and also the application for a Municipal Settings Designation (MSD) submitted to the City of Houston. An MSD certification issued by TCEQ and supported by the City of Houston regarding the site would prohibit the use of the affected groundwater at the site, the eliminating the groundwater ingestion exposure pathway for the entire site itself.

On March 26, 2008, the City of Houston has passed an ordinance supporting Union Pacific Railroad Company's (UPRR) application for a Municipal Setting Designation (MSD) with the Texas Commission on Environmental Quality (TCEQ). UPRR will continue efforts to obtain a MSD certification for the site and adjacent area.

## **Benefits**

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Site cleanup has reduced health risks for over 20,000 residents living within one mile of the site.

During the previous 5-year review (September 2005) the EPA found that the implemented soil and ground water containment system remedies, the ongoing ground water recovery and treatment remedy, the ongoing ground water monitoring, and the site operations and maintenance activities are protective of human health and the environment.



## National Priorities Listing (NPL) History

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Proposal Date: 7/23/1982  
Final Listing Date: 9/8/1983

## Site Description

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**Location:** The site is located at 10965 Westpark Drive, City of Houston, Harris County, west of the intersection of Westpark Drive and Sam Houston Parkway (Harris County Tollroad/Beltway 8).

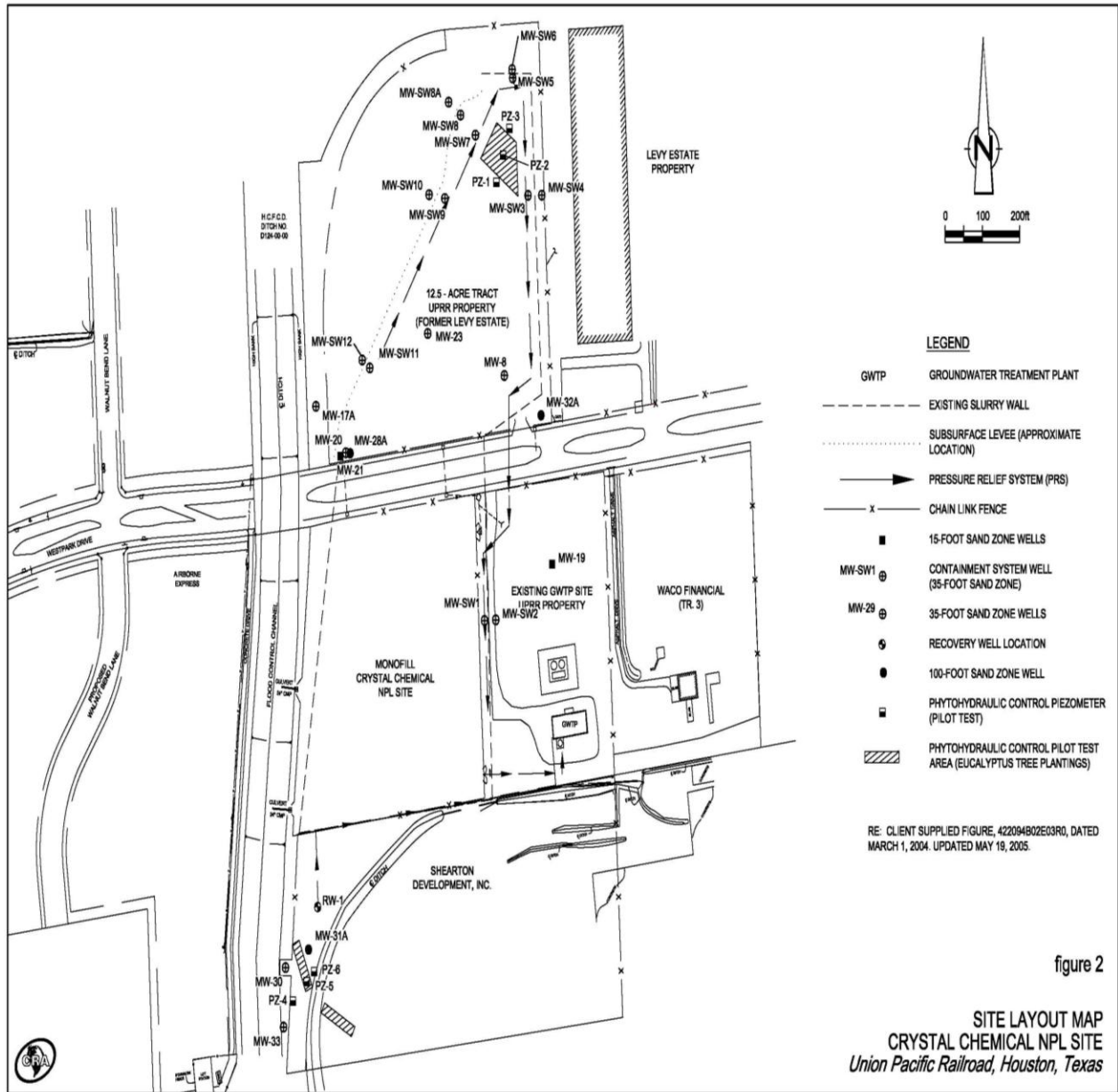
**Population:** Approximately 20,000 people live within a one-mile radius of the site. Land use in the area includes commercial, light industry and transportation.

**Setting:** The site covers approximately 25 acres. The most current water well survey shows that there are 650 wells within a five-mile radius of the site. These include public drinking water wells, and industrial, irrigation, and observation wells. There are no endangered species or critical habitats within close proximity of the site.

**Hydrology:** Soils at the site are mostly silty clay and sandy clay (poorly drained). The 35-foot sand aquifer beneath the site appears to be confined from the lower aquifers (100-foot sand) by a 10-foot clay zone with a migration rate of 0.1 ft/year. Drinking water supply wells are completed in the Chicot Aquifer. The site is located within the 100-year flood plain.

## Site Map

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## Wastes And Volumes

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In September 1995, excavation and consolidation of approximately 55,000 cubic yards of arsenic affected soils from areas on and off-site was completed into the onsite monofill.

As of December 31, 2007, a total of approximately 3.8 millions gallons of ground water has been recovered from site wells and treated at the ground water treatment plant

## Health Considerations

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Before cleanup, raw and finished materials from the manufacturer of arsenic-based herbicides were spread on surface soils and leached into the ground. These contaminants posed threats to public health by actual and potential contamination of ground water and transport of waste materials to populated areas by surface runoff. Potential human exposure risks included the risk of skin and lung cancer from direct contact, ingestion, and inhalation of contaminated soils and ground water.

## Record Of Decision

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The Record of Decision (ROD) was signed on September 27, 1990, and then amended on June 16, 1992. Following new information developed for the site, EPA issued an Explanation of Significant Differences (ESD)-Ground Water (GW) on March 19, 1997. The ESD-GW modified the ground water remedy from ground water recovery and treatment to slurry wall containment for only areas of the site that were deemed technically impracticable for implementation. No other changes were made for the remainder of the site.

### Soils

The original selected remedy for soils contained a component for treating all soils contaminated with arsenic greater than 300 ppm with a process called in-situ vitrification. Due to the unavailability of the in-situ vitrification technology, EPA amended the soils remedy in a ROD Amendment (June 16, 1992). This amended remedy called for excavation of offsite soils contaminated with arsenic greater than 30 ppm, consolidating these soils back onsite, and capping. This amended soils consolidation and capping remedy was completed as a monofill in September 1995. This monofill consisted of a geocomposite clay layer cap (20-mil high density polyethylene flexible membrane liner with a bentonite bedding) covered by 18 inches of buffer soil and six inches of seeded topsoil.

### Ground Water

The remedy for ground water is to recover and treat or contain (depending on the area) the ground water in two shallow water-bearing sand zones underneath the site (identified as the 15-foot and 35-foot sand zones) with arsenic concentrations greater than 0.05 milligrams per liter (also known as 0.05 ppm).

- The ground water recovery and treatment system includes a recovery well south of the monofill and a ground water treatment plant.
- The ground water containment system includes a slurry wall, a natural subsurface levee, and the PRS. The eastern and northern portions of the slurry wall and most of the PRS, including performance monitor wells, were installed in 2002. The ground water containment system was completed in August 2003 when the final section of the PRS beneath Westpark Drive was constructed.

## Operations and Maintenance

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The *Remedial Action Operations and Maintenance Plan* (dated November 30, 1994), and *Operation and Maintenance Plan for the Ground Water Remedial Design Addendum—Revised Slurry Wall with Pressure Relief System* (dated March 19, 2004) provided a program for assessing the long-term integrity of the soil and ground water remedies.

The O&M activities for the soil remedy consist of monofill inspections, currently performed semi-annually, and include evaluations of:

- erosion on the top surface and side slopes;
- areas of distressed vegetation or areas with grass over 18 inches high;
- ant mounds or evidence of burrowing rodents;
- condition of fencing and gates; and,
- sediment/debris accumulation in the perimeter drainage ditches and outfall inlet drains.

The O&M activities for the ground water recovery and treatment system consist of:

- replacement of piping, pumps, and valves as necessary to maintain ongoing ground water recovery and treatment operations.

The O&M activities for the ground water containment system consist of inspections, currently performed semi-annually, and include evaluations of:

- settling of the slurry wall;
- leaks in the PRS pipe;
- operation of the pumps; and
- condition of well vaults and sumps.

The *Ground Water Monitoring Plan* (GWMP) (Revision No. 2, dated December 12, 2003), provided a program for assessing the long-term effectiveness of the soil and ground water remedies. These monitoring activities include:

- ground water monitoring of a select group of 15-foot zone wells;
- ground water monitoring of all 35-foot zone wells associated with the ground water containment system and other select 35-foot zone wells; and,
- ground water monitoring of all three 100-foot zone wells.

O&M and GWMP activities for each calendar year are presented in the *Annual Remedial Action Report for Soil and Ground Water Remedies*.

## Community Involvement

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Community Involvement Plan: Developed 8/1989, revised 2/1991  
Open Houses: 4/1990, 6/1990, 2/1992, 10/1994  
Proposed Plan: 6/1990  
Public Meeting: 6/1990  
Technical Assistance Grant: Grant Award: 8/16/1991 (Westchase Business Council)  
Current Status: TAG closed

City of Houston MSD Hearing: 3/12/2008

## Site Contacts

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### EPA:

Superfund Remedial Project Manager:	Ruben Moya	(214) 665-2755
Superfund Site Attorney:	Anne Foster	(214) 665-2169
Superfund Regional Public Liaison:	Donn Walters	(214) 665-6483

### TCEQ:

Superfund Project Manager:	Luda Voskov	(512) 239-6368
Superfund Site Attorney:	Charmaine Backens	(512) 239-0634

### PRP:

Project Manager:	Geoffrey Reeder Union Pacific Railroad Company	(281) 350-7197
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Consultant:	Michael Wisniowiecki Conestoga-Rovers & Associates	(713) 734-3090
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EPA Toll Free Region 6 Superfund Information Line: (800) 533-3508

EPA Region 6 Freedom of Information Act Online Request Form:

<http://www.epa.gov/region6/6md/foia/foiaform.htm>

EPA Region 6 Contact Us Online Request Form: <http://www.epa.gov/region6/r6coment.htm>

