Soil Cleanup Completion at Tower Chemical Superfund Site

The United States Environmental Protection Agency (EPA), in cooperation with the Florida Department of Environmental Protection (FDEP), has completed the excavation of contaminated soil at the Tower Chemical Superfund Site in Clermont, Lake County, Florida, with funding provided by the American Reinvestment and Recovery Act. This update provides an overview of completed and remaining site activities, including excavation, health and safety program, and cleanup actions.

EPA encourages community members who want more information about the Tower Chemical site cleanup to contact site representatives listed on page 6 of this update.

Community members who would like to review design and other decision documents for the site can find them in the Reference Section of the Cooper Memorial Library, 2525 Oakley Seaver Drive, Clermont, Florida 34711.
Site Background: EPA Site Operations and Removal Actions

The Tower Chemical Superfund site is located in Lake County, Florida, 3.8 miles east of the Town of Clermont on County Road 455. The site is about 20 miles west of the City of Orlando. Areas surrounding the site are in residential and commercial use.

From 1957 to 1980, Tower Chemical Company manufactured and repackaged various pesticides used primarily in the citrus industry and general agriculture. Contaminants of concern resulting from these operations include DDT-type pesticides and their partial breakdown compounds. Contamination from Tower Chemical operations has adversely impacted soil and shallow ground water on the site.
In 1983, EPA and the Florida Department of Environmental Regulation performed an emergency removal action to mitigate the immediate threat to human health and the environment posed by the former waste water lagoon and the burn/burial area. In 1988, a second removal action addressed contaminated storage tanks, concrete pads, and underlying contaminated soil. These excavated materials were disposed offsite.

Although Tower Chemical operations ended in December 1980, portions of the site were leased to other businesses from 1981 to 1998. Today, the Tower Chemical facility has been divided into four tax parcels—the largest of which is 15 acres. The other three parcels encompass the remaining one acre of the site.

Site Cleanup Plan

Cleanup plans for the Tower Chemical site involve three operable units (OU):
OU1: Soil and groundwater contamination and potable well replacement.
OU2: Interim action carbon filter systems.
OU3: Site-wide contamination, which replaces the OU1 remedy.

Each OU is authorized by a Record of Decision (ROD).

Operable Unit 1 (OU1)

In 1987, EPA issued a ROD to address soil and groundwater contamination and potable well replacement (OU1). Major components of OU1 were thermal treatment of contaminated soil plus groundwater recovery and treatment. However, during design of this remedy, tests failed to confirm the high concentrations of pesticides previously identified. As a result, the only portion of this remedy implemented was the potable well replacement.

Operable Unit 2 (OU2)

In 2000, EPA issued an interim action ROD to minimize the risk posed by the potential for off-site migration of site-related groundwater contaminants. OU2 cleanup actions included (1) survey of potable well users near the site; (2) installation of eight activated carbon filter systems on six potable water wells serving ten residences located immediately adjacent to the site; and (3) periodic monitoring to ensure carbon filters were working as intended. To date, no site contaminants have migrated to these private wells.

Operable Unit (OU3)

In 2006, the EPA issued a site-wide ROD that replaced components of the 1987 (OU1) remedy that were not implemented. Major cleanup elements of OU3 include the following actions:

- Excavate contaminated surface and shallow subsurface soils that exceed soil cleanup goals, consolidate the soil, and dispose of it off-site at an approved disposal facility.
- Delineate wetlands and contaminated sediments in wetland and surface water discharge areas adjacent to the site.
- Excavate contaminated sediments that exceed sediment goals and dispose of them off-site at an approved disposal facility.
- Treat any remaining contaminated soils (subsurface) and groundwater in-place by biodegradation, bio-venting, and bioaugmentation.
- Replace temporary carbon filter systems on nearby residential water wells with permanent connection to public water supply system.
- Monitor groundwater to check whether treatment is working.
- Restrict onsite land and groundwater use until cleanup goals are met.
Cleanup Actions

March - November 2010 Phase I

A Firm Fixed-Price 8(a) set-aside contract was awarded through competitive bid to Polu Kai Services, LLC. The contract addressed shallow contaminated soils with residual pesticide levels that continued to threaten the shallow ground water aquifer approximately 5-7 feet below land surface at the site. EPA also tasked the design contractor, Black & Veatch Special Projects Corporation, to oversee cleanup actions and provide confirmation sampling and analysis. Field construction activities began in March 2010 and concluded in November 2010 plus one year of quarterly wetland restoration monitoring events ending in October 2011. Approximately 63,600 tons of soil were excavated, characterized, and shipped off-site to a Subtitle D solid waste facility, and approximately 950 tons were shipped off-site to a Resource Conservation and Recovery Act Subtitle C landfill. The excavations were backfilled and restored to near pre-existing elevations except for one area where deeper excavation would be necessary to address newly discovered additional source materials.

Impacted areas of the eastern and western wetlands were excavated, backfilled and restored with new tree plantings. Four quarters of wetland restoration monitoring were conducted by Polu Kai, and two annual wetland restoration monitoring events (2012, 2013) have been conducted by Black & Veatch Special Projects Corporation. Overall, wetland restoration is considered successful, although drought, competition with invasive vegetation, and the time it takes for replacement soil to develop good hydric conditions have contributed to lower than anticipated tree survival rates. An additional 2 years of monitoring and invasive species control is recommended to continue to ensure satisfactory wetland restoration. The EPA will evaluate implementation options to continue the annual wetlands monitoring and exotic vegetation control to the 5-year post wetland restoration timeframe.

In a separate action completed in late-May 2010, the EPA has connected residences adjacent to the site, currently on carbon filter systems, to City of Clermont public water. One residence, located slightly up-gradient from the site, has chosen to remain on their private well. EPA will continue to sample these private wells as part of the on-going effort to track site contaminant migration. These wells were last sampled the week of May 13, 2013 and no site related contamination was detected.

Western Wetland – Photo Station 2, facing W (2013)  Western Wetland – Photo Station 2, facing W (2012)
March – May 2011/January – February
2012 Phase II

It was determined during Phase I activities that additional efforts would be needed to complete the contaminated soil cleanup due to the discovery of additional source material buried deeper under one of the planned excavation areas. WRScompass, under an Emergency Response and Cleanup Services contract, conducted the soil cleanup Phase II activities from March 2011 through May 2011 and conducted storm water drainage control and storm water control alteration activities in January and February 2012.

Soil and wetland sediment cleanup has been completed for the Tower Chemical Superfund site. However, sediment cleanup to Florida sediment quality guideline concentrations in the primary flow-way of the eastern wetland remains to be fully quantified. The EPA will be evaluating this in 2014. Contaminated subsurface soils located deeper in the surficial ground water zone and the contaminated surficial groundwater will be treated in place with the implementation of a ground water remedy currently under design.

Focus on Health and Safety

The health and safety of site workers and community members is EPA’s number one concern. For the duration of the project, EPA has implemented a comprehensive health and safety program for on-site workers, including conducting an ongoing, real-time air monitoring program during excavation activities. EPA is monitoring cleanup activities to insure safe operations at all times, and will respond promptly to community questions or concerns about Site activities.

Citizens who have questions about site cleanup operations may contact EPA at 1-800-435-9234 or FDEP at 850-245-8927.

Site Reuse

Portions of the site are currently in reuse as a boat, trailer, RV, and commercial vehicle storage facility. Excavation work is closely coordinated with current land owners to minimize business disruption while the cleanup is implemented.

Late 2011 – 2014

Initiation of a ground water design began in late 2011. Bench scale studies were conducted, in mid-2012, but resulted in partial conclusions due to limited success and projected pilot scale costs. An in-situ chemical oxidation pilot-scale study is scheduled to begin in mid-November 2013 using activated persulfate as the oxidant and sodium hydroxide as the base activator by injection into a limited area of the highest levels of on-site ground water contamination. Implementation of a full-scale ground water remedy will follow after a specific treatment approach is identified from the pilot-scale treatability study scheduled for completion in late 2014. When cleanup goals are met, the restrictions on on-site ground water use will be lifted.

Tower Chemical Site Drainage System Improvement Pond 1.
Current aerial view of Tower Chemical Site.

For More Information . . .

**EPA Contact**
Jan Rogers  
Remedial Project Manager  
561-616-8868  
rogers.jan@epa.gov

**FEDP Contact**
Chris Pellegrino  
Project Manager  
850-245-8927  
Christopher.Pellegrino@dep.state.fl.us

**U.S. EPA Region 4-South Florida Office**  
400 North Congress Ave., Suite 120  
West Palm Beach, FL  33401-2933

**FDEP**  
2600 Blair Stone Road  
Mail Stop:  4520  
Tallahassee, FL  32399

**Local Information Repository for the Tower Chemical Superfund Site**  
Cooper Memorial Library  
Reference Section  
2525 Oakley Seaver Drive  
Clermont, FL  34711
INSIDE: Community Update on the Cleanup of the Tower Chemical Superfund Site