

City Chemical – Sanford
Airport Boulevard
Sanford, Florida
County: Seminole
District: Central
Site Lead: Waste Cleanup Program
Approved for Cleanup: March 22, 1989
HWC # 058

Site Description and History

The Sanford facility occupies two acres west of Sanford in Seminole County, approximately one-quarter mile west of Airport Boulevard and two miles south of Highway 46 in Township 19S, Range 30E, Section 39 at 28° 48' 08.5196" N, 81° 18' 05.7723" W. City Industries, also known as Resource Conservation and Recovery of America, operated an unpermitted hazardous material storage facility at the site. This facility operated in conjunction with the City Industries raw materials reclamation business in Orlando, and at one time stored more than 3,000 drums on the site. The facility operated from the late 1970's until its mandatory closure in September 1981. Onsite structures included an abandoned storage tanker and a six-foot high chain link security fence placed by DEP, both of which have been removed. During site operations, the property was owned by Evergreen Enterprises and leased to City Industries. In October 1987, the property was sold for commercial development. The site is currently owned by Showtime Investments, Inc. and functions as a parking lot to store vehicles prior to weekly auctions.

Threat

Groundwater and soil investigations revealed contamination of onsite soils as well as the surficial aquifer both on- and offsite. November 2014 groundwater monitoring indicates that the plume of impacted groundwater that exceeds groundwater clean target levels (GCTLs) is limited to onsite areas only. The shallow aquifer is heavily contaminated with a variety of organic compounds, which include trichloroethene (TCE), tetrachloroethene (PCE) and 1,2-dichloroethane (1,2-DCA). Five of the compounds detected are known or potential human carcinogens. Contaminated groundwater is a potential health threat to local residents through direct contact, and use of private surficial aquifer wells, and a threat to the underlying Floridan Aquifer.

Response Strategy and Status (January 2016)

A Florida Department of Environmental Regulation (FDER, now DEP) inspection of the Sanford facility was conducted in April 1981, and revealed numerous safety and operational violations in addition to ruptured and leaking drums, that contained hazardous waste materials. Drums containing incompatible materials were being stored next to each other; many of the drums were not labeled for their contents. Based on the findings of the FDER site inspection, a court order for site cleanup was issued in September 1981. The court order allowed 84 weeks for City Industries to conduct the proper removal, transport, and disposal of all hazardous waste from the Sanford facility. The court order also specified that City Industries use the state's Hazardous Waste Management Treatment Fund money to conduct site remediation. Final surface cleanup activities were completed at the Sanford facility in June 1984.

In December 1986, the FDER Ground Water Section conducted an investigation of the abandoned Sanford facility at the request of the FDER Central District office. The resulting report indicated the presence of contaminated soils and groundwater. In March 1989, the Tallahassee FDER office was requested by the Central District to spend Water Quality Assurance Trust Fund money to conduct remediation of the Sanford site.

In April 1989, an FDER contractor, Woodward-Clyde Consultants (WCC), was tasked to conduct a Contamination Assessment (CA) of the Sanford site. In September 1989, the CA was completed and a CA report identified a small area of soils contaminated with PCE. The CA report also identified a fairly small groundwater contaminant plume. The possibility of isolating clay layers in the surficial aquifer necessitated additional fieldwork. In November 1989, WCC conducted the fieldwork required for completion of the assessment. A final CA Report was submitted to FDER in March 1990, and a CA addendum was submitted in July 1990.

In March 1991, WCC was tasked to conduct a Risk Assessment/Feasibility Study (RA/FS). In July 1991, WCC was tasked to conduct treatability studies as part of the RA/FS. In March 1992, the RA/FS report was completed. The report contained a conceptual design for groundwater treatment consisting of air stripping and carbon polishing. FDER completed a Decision Memo in February 1993, which recommended granulated activated carbon (GAC) for groundwater treatment. Disposal of treated groundwater would be discharged to the City of Sanford Publicly Owned Treatment Works (POTW). WCC was tasked by FDER to conduct a soil excavation, which was completed in September 1993. Approximately 40 tons of contaminated soils were excavated and disposed of at CEI-Harper in Michigan. Site access was obtained in February 1995. Construction of the GAC groundwater treatment system was completed in August 1995.

In July 1996, WCC completed a Geoprobe analysis of site groundwater. Potential DNAPL areas were detected near the site center at depths between 22 and 25 feet. These areas of extremely high concentrations extended at least 100 feet across the site.

Ecology and Environment, Inc. (E&E) took over operation and maintenance of the site for the DEP in 1997.

In August 2000, new owners of the property submitted plans to convert the property to an automotive auction lot entitled Sanford Auto Auction. DEP requested several changes to the plans from the owner's contractor, McKee Construction, to ensure that current groundwater treatment activities would not be significantly affected. The Auto Mall was completed by summer 2001, and the owners cooperated with DEP in locating several wells inadvertently buried by construction activities.

In September 2003, a RAP modification was submitted by E&E and was revised based upon DEP comments. In July 2004, a Limited Remedial Action Plan (LRAP) Modification was submitted to DEP. The LRAP consisted of injecting potassium lactate into 3 onsite wells to stimulate biodegradation of the remaining onsite groundwater contaminant plume, which consisted of PCE, TCE, and 1,1-dichloroethene.

The LRAP Modification was approved by DEP in April 2005, which consisted of a potassium lactate injection and recovery system. Construction of the LRAP Modification was completed in October 2005. Due to an NPDES discharge permit reporting violation involving the City of Sanford, the groundwater remediation system was shut down in December 2005 and remained shut down until June 2006, when DEP, E&E, and the City of Sanford concurred with the NPDES discharge permit reporting requirements and fines. The remediation system was restarted in September 2006, after being reconfigured to eliminate any effluent discharge to the City of Sanford POTW. As a result of the remediation system reconfiguration, the NPDES discharge permit is no longer required. In 2007, the lactate injection and recovery system was shut down due to equipment failures. The GAC system was also shut down because it was no longer necessary to control plume migration. The final lactate injection was performed in January 2008, by direct injection method without the use of recovery or recirculation wells. The size of the plume had shrunk considerably since the initial assessment but contaminant concentrations were not declining at a satisfactory rate.

In September 2008, Membrane Interface Probe (MIP) sampling activities were conducted within and adjacent to the former drum storage area to further delineate the extent of the remaining chlorinated solvent groundwater plume. The MIP sampling results indicated the presence of chlorinated hydrocarbon solvents and 1,4-dioxane groundwater contamination within and east of the former drum storage area at levels exceeding regulatory criteria.

In November 2008, the site was assigned to a new contractor, Arcadis US, Inc. (Arcadis). Arcadis recommended completion of a full round of groundwater sampling prior to recommending an appropriate method of supplemental assessment or a remedial alternative. A full round of groundwater sampling was completed in March 2009. Based upon the analytical data, Arcadis recommended the installation and sampling of additional monitor wells to delineate the extent of the 1,4-dioxane groundwater plume. The additional monitor wells were installed and sampled in June 2009. Arcadis delineated the areal extent of the 1,4-dioxane plume based upon the analytical data, and concluded it remains onsite. Arcadis also more clearly identified the areal and vertical extent of the chlorinated solvent groundwater plume. The Remedial Action Plan for the site was submitted in December 2009 and was approved in late January 2011 by the DEP.

The selected remedy is enhanced reductive dechlorination (ERD) by the injection of a dilute molasses solution, followed by monitored natural attenuation. In April 2011 installation of the necessary injection points, vapor monitoring points, and baseline groundwater sampling was performed. The first molasses solution injection event was completed in June 2011. The second molasses solution injection event was completed in October 2011. In July 2012, additional monitor wells were installed along the eastern site boundary to delineate the down-gradient extent of the 1,4-dioxane plume.

Analytical results from the July 2012 groundwater-sampling event indicated enhanced reductive dechlorination was occurring within the shallow surficial aquifer at the site. 1,4-dioxane concentrations remained above the Groundwater Cleanup Target Levels (GCTLs) but did not increase over historical concentrations.

Arcadis performed groundwater sampling on January 30, 2013. Analytical results indicated the highest contaminant concentrations continue to be present in the shallow aquifer. Contaminant concentrations in six shallow aquifer wells remain above their respective GCTLs. Only one well in the middle surficial aquifer exhibited a contaminant concentration above GCTLs. No wells within the lower surficial aquifer exhibited contaminant concentrations above GCTLs. Only one well in the shallow and middle surficial aquifer exhibited a 1,4-dioxane concentration above the GCTL.

Arcadis performed semi-annual Post Active Remediation Monitoring (PARM) in November 2013. Results were similar to those from the January 2013 sampling event, with slight declines in groundwater contaminant concentrations. The last semi-annual PARM event took place in May 2014.

The extent of all GCTL exceedances remains fully delineated and limited to onsite locations. Monitoring data demonstrates that adequate, subsurface conditions and levels of organic carbon are present for biological activity and on-going reductive dechlorination to continue to occur. Continued monitoring of contamination will proceed on an annual basis.

Schedule

Annual groundwater monitoring was conducted in November 2015. Arcadis will submit a Groundwater Monitoring Report to the Department by February 1, 2016.