

Gulf States Chemical
County Road 158
Lloyd, Florida
County: Jefferson
District: Northeast
Site Lead: Waste Cleanup Program
Approved for Cleanup: February 28, 2002
HWC # 131

Site Description and History

The Gulf States Chemical site is located in a rural area approximately 2 miles from the town of Lloyd in Township 01N, Range 03E, Section 14 at 30° 28' 42.7899" N, 84° 00' 00.4811" W. The site covers an area of approximately 6 acres including an office, warehouse, 2 elevated uncovered storage tank areas, and 2 evaporation/percolation ponds. The former Gulf States Chemical Company repackaged, stored, and distributed chemicals including acids, bases, and organic solvents between 1975 and 1983. The plant received an estimated 15 – 55 gallon drums containing chemical residues daily during the period of operation. These drums were rinsed and refilled with other chemicals for sale and distribution. Tank rinsate was discharged to the evaporation/percolation ponds. At least 130 drums were observed onsite by the Florida Department of Environmental Regulation (FDER, now DEP) in 1982. It has been reported that runoff from leaking tanks was directed to a drainage ditch located to the south of the property.

Gulf States entered into a Consent Order with FDER in May 1983 and a plan for cleanup was approved in July 1983. The remedial action included installation of a down gradient interceptor trench for the surficial aquifer and a Floridan Aquifer recovery well. Recovered groundwater was treated using an air stripper and discharged to the site by spray irrigation. Groundwater was sampled for total volatile organic compounds (VOCs) on a biannual basis. Concentrations of total VOCs fluctuated by more than an order of magnitude since 1989 with no clear pattern. Groundwater samples collected in June 2002 were analyzed for specific volatile contaminants. *Cis*-1,2 dichloroethene (CIS) and trichloroethene (TCE) exceeded state drinking water standards in the surficial aquifer. These contaminants, plus tetrachloroethene (PCE) exceeded drinking water standards in the Floridan aquifer.

Threat

Contaminants, including PCE, TCE, CIS and *trans*-1,2-dichloroethene (TRANS), exceed drinking water standards in the surficial and Floridan aquifers on- and offsite. Site soils exceed leach-based Soil Cleanup Target Levels (SCTLs) for PCE and TCE. This contamination poses a potential threat to potable wells in the vicinity of the site. The site drains toward Lloyd Creek, approximately ¼ mile from the site. The creek flows north toward Creek Sink and Lake Drain Sink about ¾ and 1 mile from the site, respectively, and ultimately to Lake Miccosukee. Lloyd Creek is reportedly used for swimming by local residents. Contamination in surface runoff from the site potentially threatens surface waters in Lloyd Creek as well as groundwater via Creek Sink and Lake Drain Sink.

Response Strategy and Status (June 2016)

The site was accepted for state funded cleanup in February 2002. Preliminary data from samples taken in July and August 2004 indicated groundwater contamination by chlorinated solvents extending offsite towards the south and west in both the surficial and Floridan Aquifers. Pre-existing, but non-functional groundwater treatment equipment was demolished and relocated in December 2005. Soil data collected in March and June of 2006 indicated PCE above leach-based SCTLs. The majority of contaminated soil was located in the southwest portion of the site, within an area of the former drum rinse station. This area of soil contamination was further delineated in October 2006. In February 2007, the contaminated soils in the former drum rinse area were excavated to the groundwater table. During the excavation approximately 218 tons of soils were removed and 300 gallons of Hydrogen Release Compound (HRC™) was placed in the bottom of the excavation to assist with the bioremediation of residual soil and groundwater contamination. The soil was characterized as non-hazardous and disposed of offsite.

Additional shallow monitor wells were installed in May 2007 to further delineate the groundwater contamination both on- and offsite. In June 2007, WRS collected groundwater samples from all on-site monitoring wells, and collected surface and sediment samples from Lloyd Creek. The data collected during the June 2007 event and previous assessment activities were summarized in a preliminary Site Assessment Report (SAR); submitted in September 2007. The groundwater data indicates concentrations of contaminants in upper Floridian monitoring wells have decreased significantly since 2004. However, concentrations remain above the groundwater cleanup target levels for VOCs and chloroethane. There were no contaminants detected in sediment or surface water samples collected during the 2004 and 2007 sampling events. Assessment activities were completed in April 2008.

The final SAR was completed in June 2008. A limited source removal was conducted in September 2008 to address localized areas with arsenic exceeding soil criteria for residential use. No further soil remediation is anticipated.

Groundwater monitoring continues to show concentrations that exceed state Groundwater Cleanup Target Levels (GCTLs), but are below Natural Attenuation Default Concentrations. There is a clear decreasing trend shown in the analytical data. The plume shows that it is stable and shrinking in size. Due to funding, groundwater monitoring was not conducted in 2010 but was conducted in 2011. In the 2011 sampling event, 1,4-dioxane was sampled for and found in groundwater above cleanup target levels but below Natural Attenuation Default Concentrations. Groundwater sampling was conducted in November 2012, and included the installation and sampling of additional monitoring wells to further define the depth of the plume. Off-site wells continue to show concentrations above applicable GCTLs. In October 2013, five of the nine wells sampled in the Surficial Aquifer had GCTL exceedances but none had contaminant concentrations exceeding NADCs. Concentrations of PCE and TCE increased in the sample collected from down gradient monitor well MW043 relative to the previous sampling event. Five of the eight wells sampled in the Floridan Aquifer produced groundwater samples with no CTL exceedances. No contaminant concentrations exceeded NADC's in Floridan Aquifer groundwater samples. In November 2014, contaminant concentrations detected in the Surficial Aquifer well MW042, showed significant

increases: PCE (1.50 to 160 µg/L), TCE (5.56 to 738 µg/L), CIS (329 to 353 µg/L), 1,1-DCE (1.83 to 88.3 µg/L), and vinyl chloride (37.5 to 72.6 µg/L). Increases in contaminant concentrations may be related to the drop in the water table relative to previous sampling events. The only MCL/CTL exceedances detected in groundwater samples collected from offsite surficial aquifer wells was in the sample collected from MW056 (4.59 µg/L PCE and 11.3 µg/L TCE). None of the down gradient, off-property Floridan Aquifer wells produced groundwater samples with MCL/CTL exceedances. Contaminant concentrations in groundwater samples collected from the Floridan Aquifer monitor wells continue to slowly decline.

Groundwater monitoring was conducted at the site on October 28, 2015. Ten (10) wells were sampled: MW032, MW033, MW042R, MW043, MW044, MW048, MW051, MW052, MW055 and MW056. All the groundwater samples were analyzed for VOCs (Method 8260). Two groundwater samples (MW044 and MW052) were analyzed for 1,4-dioxane (Method 522).

Surficial Aquifer: Monitor wells MW033, MW042R, MW043, MW048 and MW056 were sampled. No contaminants were detected in concentrations exceeding an MCL/CTL in the groundwater samples collected from two (2) off-property, downgradient monitor wells (MW043 and MW048). Three wells (MW033, MW042R and MW056) produced groundwater samples with contaminant concentrations exceeding MCLs/CTLs. These contaminants include PCE, TCE, CIS, 1,1-DCE, vinyl chloride and chloroethane. Contaminant concentrations dropped in MW033 and MW056 relative to the previous sampling event conducted on October 19, 2014. Contaminant concentrations of PCE (42 µg/L) and TCE (91.2 µg/L) rose relative to the previous sampling event (4.59 and 11.3 µg/L respectively).

Floridan Aquifer: Monitor wells MW032, MW044, MW051, MW052, and MW055 were sampled. Only the two source property well (MW044 and MW052) produced groundwater samples with contaminant concentrations exceeding MCLs/CTLs. PCE, TCE, CIS, 1,1-DCE, vinyl chloride and 1,4-dioxane were detected above CTLs/MCLs. Concentrations of TCE (61.3 µg/L), CIS (138 µg/L), 1,1-DCE and vinyl chloride (40.7 µg/L) in samples collected from MW044, increased relative to the previous sampling event: 9.69 µg/L PCE, 21.4 µg/L 1,1-DCE and non-detect (0.970 U µg/L) vinyl chloride. The 1,4-dioxane concentration was 7.2 µg/L vs. the previous sampling event, 7.7 µg/L.

No contaminants were detected in concentrations exceeding NADCs

Schedule

The Department continues to monitor groundwater to evaluate the contamination plume on an annual basis. The last groundwater monitoring event took place in October 2015 and is under review at DEP.

Continued monitoring will be scheduled on an annual basis with the next event in November 2016.