

Kenbar Electroplating
14575 71st Street
Largo, Florida
County: Pinellas
District: Southwest
Site Lead: Waste Cleanup Program
Approved for Cleanup: January 29, 2009
ERIC ID # 3859

Site Description and History

Kenbar Electroplating is located on a ½ acre site in Largo, Florida in Township 30S, Range 16E, Section 06 at 27° 54' 17.3011" N, 82° 44' 13.9246" W. Surrounding land use is primarily residential with high-density manufactured housing to the north, east and west of the site and a trucking business located to the immediate south of the site. Kenbar and this trucking business are the only commercial-use properties in the immediate area.

Kenbar Electroplating operated from 1968 to 1985. The former building has been razed and only the concrete pad remains. Zinc and cadmium electroplating followed by chromate dyeing was conducted. Spent electroplating solutions were placed into two open-topped 900-gal steel evaporation tanks. In addition, prior to the installation of a treatment system in 1982, the facility discharged wastewaters into a percolation pond (50 ft long, 30 ft wide, and 6 ft deep). This pond was likely excavated and backfilled during an EPA removal action. Three vats associated with electroplating operations were situated inside the operations building. The property is currently vacant and overgrown with brush and pepper trees. In the past, K & K Collision used the site for vehicle storage. The Down Yonder Mobile Home Park (MHP) and Whispering Pines MHP border the site to the east and west, respectively.

While in operation, several complaints were received by the Florida Department of Environmental Regulation (FDER, now DEP). Beginning in 1979, surrounding property owners reportedly witnessed the dumping of wastes onto the ground behind the facility. Inspections of the facility by state regulators in 1986 found the facility abandoned with evidence of illegal dumping and discolored soil.

Threat

Onsite soils contaminated with trichloroethene (TCE), *cis*-1,2-dichloroethene (CIS), and benzo(a)pyrene (BaP) exceeded State Soil Cleanup Target Levels (SCTLs) for residential direct exposure. Chlorinated solvents have also leached into the surficial groundwater, causing groundwater to be contaminated above drinking water standards. Direct contact or ingestion of contaminated groundwater is not anticipated since area residents are on municipal water. Additional assessment indicated that there was cadmium and chromium contamination onsite that exceeded the SCTLs for residential direct exposure.

Response Strategy and Status (December 2020)

In April 1987, an FDER contractor (OH Materials) pumped off and removed liquids in the two chemical vats, placed them in drums and removed them from the site for proper disposal. In 1987,

an EPA Superfund contractor, NUS Corporation conducted a site reconnaissance and a Preliminary Assessment of the site. A review of soil sample results indicated the presence of cadmium, chromium, cyanide, and zinc at elevated concentrations. The area of the percolation pond and tanks appeared impacted with the highest levels of contamination. Cadmium and chromium detected in soils near the evaporation tanks ranged as high as 2,500 milligrams per kilogram (mg/kg) and 1,800 mg/kg, respectively. Nickel and zinc were as high as 320 mg/kg and 970 mg/kg, respectively. Cyanide levels ranged as high as 360 mg/kg.

In January 1990, the EPA FIT 4 contractor collected soil and groundwater samples from the site. Elevated levels of chromium (490 to 850 mg/kg), cadmium (1,400 to 1,700 mg/kg), nickel (220J [estimated] mg/kg), and cyanide (430 to 1,300 mg/kg) were detected in the onsite soil samples. In addition, elevated levels of cadmium (4,100 and 7,900 micrograms per liter [$\mu\text{g/L}$]), chromium (2,100J and 5,800J $\mu\text{g/L}$), lead (140J and 220J $\mu\text{g/L}$); nickel (1,800 and 4,200 $\mu\text{g/L}$), and cyanide (30 $\mu\text{g/L}$) were detected in onsite groundwater samples. These levels were significantly higher than the background levels. In late 1991 and mid-1992, the USEPA removed 1,200 tons of contaminated soil from the site. In 1994, the building, with the vats removed, was razed to the concrete slab. Over time, to attempt mitigation of flooding problems, the owner brought fill dirt to heighten the grade. This resulted in runoff problems onto neighboring residential properties. To alleviate the offsite flooding, the owner built a storm water collection pond on the northern edge of the property.

On June 7, 2001, the DEP Southwest District requested technical assistance from DEP's Site Investigation Section (SIS) in Tallahassee. Between February 2004 and December 2005, DEP SIS conducted a contamination assessment of the former Kenbar Electroplating Facility. This involved the installation of 20 direct push micro-wells, the collection of groundwater samples for laboratory analysis, a groundwater elevation survey, and the collection of soil samples for laboratory analysis. Sediment and water samples were also collected from the storm water collection pond. In addition, a nearby private well located immediately south of the site (Berry well) was sampled. Eleven shallow monitor wells and nine deep monitor wells were installed onsite to depths of approximately 15 ft and 30 ft, respectively. Chlorinated volatile organic compounds (CVOCs) including vinyl chloride (VC - 2.4 to 220 $\mu\text{g/L}$), CIS (1.2 to 3.6 $\mu\text{g/L}$), *trans*-1,2-dichloroethene (0.65 to 7.1 $\mu\text{g/L}$), and TCE (1.3 to 360 $\mu\text{g/L}$) were detected in the groundwater samples collected from the site. Many of the VC and TCE levels exceeded the Groundwater Cleanup Target Levels (GCTLs). The highest levels of CVOCs were detected in micro-wells situated immediately north of the old process-building pad. Elevated levels of metals were also detected in the groundwater samples collected from the micro-wells. The highest levels of metals were detected in monitor wells located around the former 900- gallon evaporation tanks and near the southeastern edge of the former percolation pond. BaP (120 and 100 $\mu\text{g/kg}$) was also detected in soil samples. The TCE, CIS, and BaP detections in soil exceeded SCTLs for residential direct exposure. These sample locations were situated near the former 900-gallon evaporation tanks and immediately north of the former process building, respectively. Cadmium was detected in shallow soil samples (320 mg/kg and 210 mg/kg). Cyanide (52 mg/kg) was also detected. These sample locations were situated along the northern edge of the former process-building pad. The cadmium and cyanide detections exceeded the SCTL for residential direct exposure. A TCLP analysis of the soil sample from one sample showed a leachate of 2.9 mg/L of cadmium. This level exceeded the maximum

limit of 1.0 mg/L. Lower levels of heavy metals (arsenic, cadmium, chromium, lead, & nickel) were found dispersed across the site. No contaminants of concern were detected in either the storm water retention pond or the Berry well.

Based on the results of the investigation, DEP SIS concluded that the contaminated soils with the highest historic concentrations at the site had been removed. The exceptions were metal contaminated soils adjacent to the northern edge of the building foundation and an area just to the west with CVOC contaminated soil.

In January 2009, the Kenbar Electroplating site was accepted for State-funded cleanup. A site assessment work plan was submitted by AECOM Environmental (AECOM) and approved by DEP in September 2009. AECOM began the site assessment in December 2009, and the first phase of field work was completed in May 2010. Based on the data collected, additional assessment was warranted and began in September 2010. While completing the additional assessment, it was determined that the site had been cleared (surface soils removed) by the property owner. These soils and vegetation debris were all placed in a drainage ditch by the property owner. Composite samples from the ditch were analyzed in January 2011 and showed low levels of cadmium. Site assessment was completed in October 2011. The groundwater and soils have been completely delineated onsite and offsite except for the property to the south due to lack of access. Offsite notification letters were sent out in July 2010.

The Final Site Assessment Report was approved in February 2012. The final Remedial Action Plan (RAP) for Soil Excavation was approved in January 2012. The required Temporary Point of Compliance Notification has been completed and the RAP Approval Order has been issued. Excavation of soils contaminated with cadmium and chromium was completed in October 2012.

Groundwater monitoring for this site has been ongoing. The analytical data from this sampling indicated that the excavation did remove much of the source of metal contaminants, as shown by the decreased metals in the groundwater. Cadmium remains above GCTLs (5 mg/L and 160 mg/L, respectively). The analytical data also indicated that there are still CVOCs that remain above GCTLs and NADCs. The highest detected concentrations in groundwater were: TCE at 510 µg/L, CIS at 1,500 µg/L, and VC at 380 µg/L.

The Remedial Alternative Evaluation (RAE) was approved on June 27, 2013. The selected remedial strategy will be enhanced bioremediation to address the CVOCs that are present in the groundwater on site. The RAP to address the groundwater was approved on May 27, 2015.

Baseline sampling and injection well installation took place in January 2016. High Fructose Corn Syrup (HFCS) injections were performed between late March and early April 2016, and again in August 2017. Aquifer characteristics appear to be favorable for reductive dechlorination. Annual groundwater sampling summarized in the June 2019 report indicated all CVOCs in shallow monitoring wells were below their respective GCTLs except for VC. Cis-DCE exceeded its GCTL in a downgradient deep well. The Department's contractor recommends completing a remedial action plan modification for bioaugmentation to address VC.

On January 24, 2020, AECOM submitted a PFAS (perfluoroalkyl and polyfluoroalkyl substances) Sampling Report. All soil borings, except for two, were below the provisional SCTL of 7 µg/kg for PFOA (perfluoro-n-octanoic acid) and PFOS (perfluorooctanesulfonic acid). PFOA and PFOS concentrations exceeded the GCTL of 70 µg/kg in all but two shallow groundwater samples, and they exceeded the GCTL in three deep samples. AECOM recommended continuing soil and groundwater assessment for PFAS and to complete delineation of the shallow groundwater zone. FDEP approved the PFAS Sampling Report on April 27, 2020.

On June 25, 2020, AECOM submitted a Groundwater Monitoring Report. VC was the primary contaminant of concern, since it exceeded GCTLs in fourteen monitoring wells. AECOM recommended a RAP Modification for bioaugmentation of the groundwater. FDEP approved the Groundwater Monitoring Report on July 6, 2020.

Schedule

AECOM is currently working on getting offsite access to install new monitoring wells and conduct soil and groundwater PFAS sampling. AECOM is scheduled to conduct PFAS analysis in April 2021 and groundwater monitoring for VOCs in February 2021.