

Helena Chemical Company – Tampa Plant
2405 North 71st Street
Tampa, Florida
County: Hillsborough
District: Southwest
Site Lead: EPA
Placed on National Priorities List: February 7, 1998
ERIC ID # 3865

Site Description and History

Helena Chemical Company is located at 2405 North 71st Street in Tampa, Hillsborough County, Florida, 0.5 mile west of the Tampa Bypass Canal in Township 29S, Range 19E, Section 14 at 27° 57' 51.2771" N, 82° 22' 26.6409" W. The site covers approximately 8 acres and is located in the easternmost area of Tampa known as Orient Park Industrial section. The central area of the facility is covered with concrete and a chain-link fence surrounds the entire site. Important features include an office, laboratory, bathhouse, processing and storage building, warehouse, numerous holding tanks, and an unlined run-off retention pond. Land use in the immediate vicinity of the facility includes residential, institutional, commercial, and industrial areas. Stauffer Chemical, another Superfund site, is located to the southeast and Wheelblast, Inc. is situated immediately south of the Helena site.

The facility was built in 1929 as a chemical plant for the production of sulfates. Helena Chemical purchased the facility in 1967 and converted the sulfur plant to the manufacturing and distribution of agricultural chemicals, including pesticides. Chemicals used at the site include organochloride and organophosphate insecticides, herbicides, inorganic salts, acids, bases, and organic chelating agents. Xylenes were the most commonly used carrier in pesticide formations. Numerous small pesticide spills have occurred over the years during packaging and transfer operation.

Manufacturing continued until 1981 when the processing pesticide applications were moved to another Helena site in Georgia. Present operations consist of repackaging bulk agricultural chemicals, manufacturing liquid fertilizers, and warehousing and distribution of products.

Threat

The primary contaminants of concern in both soil and groundwater are pesticides. The key pesticide constituents identified in soil samples are DDT, chlordane, toxaphene, and BHC isomers. Generally, toxaphene encompasses all areas of soil contamination. The presence of ethylbenzene and xylene in the soil and groundwater enhances the ability of pesticides to leach from soil and increases their mobility once in groundwater.

Groundwater contamination in the surficial aquifer is comprised primarily of BHC isomers, DDT, endosulfan, lead, and arsenic. The main contaminants in the Floridan aquifer (22 to 28 feet bls) are BHC isomers, aldrin, and dieldrin with lower concentrations of DDT. Tetrachloroethene (PCE) and trichloroethene (TCE) identified in the surficial and Floridan wells appear to be related to the former Alaric property northwest of the site.

The health risks associated with this site are primarily from potential and future direct ingestion and dermal exposure to contaminated surface soil, and ingestion and inhalation of contaminants from groundwater beneath the site. Several private wells are located within the immediate area of the site. There are no potable wells completed in the affected surficial aquifer. A Memorandum of Agreement was established between EPA and the Water Management District in 2012 to prevent exposure to contaminated groundwater by restricting permitting and installation of private wells in the area.

Response Strategy and Status (July 2020)

The Florida Department of Environmental Regulation (FDER, now DEP) conducted a compliance inspection in December 1982. Between 1984 and 1988, the waste collection and treatment system was closed by Helena Chemical without regulatory mandate or supervision. The EPA conducted initial site investigations in November 1989 and March 1990. The underground waste tanks and retention pond were designated as source areas for the investigation. Based on these initial results, Helena Chemical was placed on the National Priorities List on August 30, 1991. Initiation of the Remedial Investigation was voluntarily entered into by Helena Chemical.

The preliminary Public Health Assessment was completed by HRS in November 1993, and the Draft Remedial Investigation (RI) was submitted to the EPA in February 1994. The DEP reviewed and submitted comments to EPA for the Draft RI and Draft Baseline Risk Assessment (BRA). The main review comments were: absence of a leachability study for soil impact on groundwater contamination; nonexistence of a study for potential ecological impact; and the acceptable carcinogen risk level was based on a lower rate than the established state policy.

The Revised RI was submitted to the EPA in September 1994 with subsequent review comments by DEP in October 1994. In March 1995, the EPA granted conditional approval of the RI report based on inclusion of minor comments into the report format.

A Draft Feasibility Study (FS) prepared by EN-SAFE was submitted to the EPA in January 1995. The DEP's main comments were: incomplete delineation of the groundwater plume in the Floridan Aquifer and exclusion of remedial efforts for this aquifer. The FS focus is upon the remediation of large areas of soil contamination.

The EPA signed a Record of Decision (ROD) in May 1996, which included: institutional controls; excavation of contaminated surface soils and sediments; biological treatment of contaminated soils; and extraction and treatment of contaminated groundwater. A contingency for soil remediation was incorporated into the ROD, since the use of biological treatment for pesticides was an innovative technology. Delineation of the contaminant plume in the surficial and Floridan aquifers would be completed during the remedial design phase. The DEP reviewed the ROD and concurred with the selected remedy.

The PRPs, in Consent Decree negotiations with the EPA, requested that the Risk Assessment (RA) information be re-reviewed, based on a statistical format. The EPA, in concurrence with the DEP, denied the request for re-evaluation of the RA. The EPA issued the Unilateral Administrative

Order in December 1996. The Draft work plan for the remedial action was completed in March 1997, and Revision #1 was issued in June 1997.

Helena Chemical, in conjunction with the EPA innovative technology group, conducted bench-scale tests for the remediation of pesticide-contaminated soils using iron-filing treatment. The bench-scale tests proved very effective and EPA, with DEP approval, initiated a pilot study test at Helena in January 1999. The EPA stopped all work on the soil biodegradation pilot study in June 1999, since field results indicated an extended timeframe for pesticide degradation.

Helena chemical conducted the first phase of the remedial action in March 1998, which consisted of sampling specific monitor wells to identify data gaps and contaminant concentration levels. The information was incorporated into the next phase, which included design of a groundwater monitor network for plume delineation.

A Draft Remedial Design for soil remediation was submitted to the EPA and DEP in late September 1999, which included excavation and offsite disposal of contaminated soil. The EPA approved the design in June 2000. Excavation of contaminated soil was initiated during the end of June and completed in July 2000. The EPA approved the Soil Removal Completion Report in February 2001.

In March 2001, Helena conducted groundwater direct push fieldwork to delineate xylenes and pesticide groundwater contamination to the south and southeast of the site. The report was submitted in November 2001, and indicated that the xylene plume had migrated south and southeast from the Helena site. The DEP requested the installation of two Floridian groundwater monitor wells to determine contaminant levels in this area.

In January 2002, EPA indicated that all new technologies would need to be evaluated to determine if another remedy could be more effective at the site. This was necessary because the groundwater remedy has not been implemented since the ROD was signed more than 5 years prior. A Focused Feasibility Study was completed by Helena in late April 2003, and identified Monitored Natural Attenuation (MNA) as the only remedy for groundwater contamination. The DEP did not concur with this remedy and sent specific comments to the EPA.

As part of the ROD requirements, Helena initiated Phase I of the sulfur pit removal in January 2004, which included the removal of sulfur-contaminated soil near the old warehouse to a depth of 4 to 5 feet below land surface. Phase II included removal of sulfur outside the immediate zone of the new warehouse building and delineation of sulfur under the loading dock area. Phase II was completed, and the xylene source zone was delineated in May 2005. The information from the xylene source zone report indicated high levels of xylenes in soils that are acting as an ongoing source for groundwater contamination.

In July 2005, the EPA submitted the Helena Draft Five-Year Review (FYR) Report to the DEP. The DEP did not agree with the recommendation for MNA as a suitable groundwater remedy, due to the presence of an ongoing, residual contaminant source to groundwater, and because the low pH at the site precludes the viability of natural attenuation processes.

In March 2006, a joint site inspection was performed by the EPA and DEP. Issues remained concerning the possible offsite migration of xylenes and implementing long-term institutional controls. At the time of the inspection, EPA discussed the possibility of addressing the groundwater issues with Helena.

In June 2008, the EPA met with DEP to discuss the migration of xylenes and BHCs in the groundwater. The EPA concurred with the DEP that MNA was not effective at this site and recommended the PRPs conduct additional assessment of the off-site plume. There appeared to be minimal degradation of the BHCs and xylenes in the groundwater even with the completion of Phase I and Phase II soil removals in 2004 and 2005. It appeared there may be another source area that would require further investigation.

In September 2008, EPA, DEP and the PRPs held a second meeting to discuss the recent lab data, and to discuss alternative methods for soil and groundwater remediation. The PRPs requested additional time for further assessment and to research alternative remediation methods.

In March 2009, the PRPs submitted a draft of the Pilot Study Work Plan recommending in situ remedies to address the sulfate, xylenes and BHCs onsite. In July 2009, the PRPs submitted the final Pilot Study Work Plan to EPA and DEP for review, and the DEP concurred with the recommendations. In August 2009, the PRPs implemented the Pilot Study Work Plan by performing baseline sampling prior to in situ remediation. In September 2009, injections of Zero Valent Iron (ZVI) and Hydrogen Release Compound (HRC) were completed as per the Pilot Study Work Plan.

Sampling activities were completed during January and March 2010. Results from the 120-day and 180-day analyses indicate a decrease in some of the Contaminants of Concern.

In July 2010, the EPA conducted its FYR of the site, and the facility appears to be in compliance.

In February 2011, the PRPs, EPA and DEP discussed the progress of the Pilot Study and determined the current data was inconclusive. One additional year of collected data will be required to determine if the Pilot Study is successful.

In November 2012, a meeting was held with the PRPs, EPA and DEP to discuss the results of the Pilot Study. EPA recommended performing additional studies at the site to determine a more effective form of treatment to address the sulfur- and BHC-contaminated areas. DEP concurred with EPA's recommendation.

A Supplemental Geochemical Data report was submitted for review in March 2014. The report provided field data documenting site groundwater geochemistry during both wet and dry seasons and resulting groundwater acidity and oxidative conditions that inhibit natural attenuation of pesticide contamination in groundwater at the site. The report concludes that in situ groundwater treatment methods to raise the pH and to create a more "reducing" environment should be further evaluated, including use of a permeable reactive barrier.

A work plan was submitted in July 2014, detailing proposed pilot scale treatability testing in two onsite locations to evaluate the effectiveness of adding various carbon amendments and buffering agents to the aquifer to create a more favorable reducing environment that promotes reductive dechlorination of pesticides. EPA and DEP provided review comments in October 2014. The revised work plan was submitted in January 2015 and approved by EPA.

A FYR site meeting was conducted in February 2015. The FYR report documenting the progress of site cleanup and evaluation of the continued protectiveness of the site remedy was issued by EPA in March 2016. The FYR concluded that the site remedy is expected to be protective upon completion of the remedy and in the interim, exposure that could result in unacceptable risk is being controlled.

Initial assessment conducted as part of the pilot study identified an onsite area of concentrated sulfur in soils in one of the pilot test areas. Removal of the sulfur contaminated source area was completed in March 2017 and a Removal Report submitted in July 2017.

Groundwater monitoring events were completed in 2018 and 2019. Upon review of each associated technical memorandum, FDEP recommended installation of additional monitoring wells. Chlorinated VOCs were added to pesticide (BHC) sampling & analysis in 2019. Results suggested stable contaminant concentrations.

Schedule

The Neutralization Pilot Study was initiated in 2017 following the source removal, with pilot test injections of buffering amendments to adjust the groundwater pH. Results will be used to support selection and design of an in situ groundwater treatment remedy to address pesticides in groundwater.