

Stauffer Chemical Company – Tarpon Springs
Between Anclote Boulevard and the Anclote River
Tarpon Springs, Florida
County: Pinellas
District: Southwest
Site Lead: EPA
Placed on National Priorities List: May 31, 1994
HWC # 095

Site History and Description

The Stauffer Chemical Company – Tarpon Springs site occupies 158-acres adjacent to the north side of the Anclote River, two miles northeast of Tarpon Springs and 1.2 miles east of the Gulf of Mexico in Section 02, Township 27S, Range 15E at 28° 09' 60.0000" N, 82° 46' 32.5000" W. Surrounding land use includes industrial, commercial, recreational, and residential. The site is bordered by private residences to the west, an elementary school to the north, and commercial/industrial facilities to the east.

The plant was originally built by Victor Chemical Works in 1947. In 1959, the facility was sold to Stauffer Chemical Company. The plant processed elemental phosphorus from phosphate ore between 1947 and 1981 when operations ceased. Over 500,000 tons of chemical process wastes were deposited onsite during operations.

Most of the plant structures were demolished and removed from the site in 1991 and 1992. The remaining offices, previously used by Stauffer Management Company (SMC), were demolished in 2010. Seventeen (17) unlined, onsite lagoons or pits were developed and used as settling ponds during production. The pits and lagoons were backfilled with process wastes and sludge. These are generally dry, surrounded by unburied berms, and occupy the southern and westernmost portions of the site.

Threat

The contaminants of concern include heavy metals, radionuclides, polynuclear aromatic hydrocarbons (PAHs), and elemental phosphorous. Numerous sampling analyses have revealed arsenic, volatile organic compounds (VOCs), fluoride, and radium concentrations in violation of the Florida Department of Environmental Protection (DEP) and United States Environmental Protection Agency (EPA) cleanup standards for groundwater and soil. Elemental phosphorus is estimated to be present in 1,900 cubic yards of soil. Phosphate, slag, and other plant debris with elevated radium levels are found in subsurface soils and fill the settling ponds.

Contaminated onsite groundwater is a source of surface water contamination discharging into the Anclote River. At this time, no excessive groundwater contamination has been recognized in the Floridan Aquifer, which is separated from the surficial aquifer by a thin clay layer. The National

Oceanic and Atmospheric Administration (NOAA) is concerned that site contaminants could harm several endangered and threatened species in the Anclote River and the Gulf of Mexico.

Response Strategy and Status (June 2011)

Preliminary Florida Department of Environmental Regulation (FDER, now DEP) assessments between 1977 and 1980 documented numerous air emission violations, liquid discharges into settling ponds/pits, and releases into the river. Various environmental studies were conducted between the years 1977 and 1993 on soil, air, groundwater, surface water, and Anclote River sediments. The EPA conducted an air monitoring study in 1987 and a site inspection in 1990.

The SMC conducted sampling studies through ICI Americas, NUS, Post, Buckley, Schuh, and Jernigan, Inc. (PBS&J), Roy Weston, Inc. (Weston), Seaburn and Robertson, and Williams and Associates, during the period between 1987 and 1993. Stauffer initiated groundwater monitoring in 1985, in an attempt to implement a quarterly monitoring program. In 1988, the EPA contracted with NUS to conduct a site investigation. The investigation delineated contamination at elevated levels in surface and subsurface soils, surface water, and groundwater.

Between September 1989 and April 1990, Weston completed several sampling projects that included testing surface and pond soil and sediment, groundwater, and conducting a geophysical survey. Later studies included a PBS&J radiological evaluation in 1990 and a Weston elemental phosphorous survey in 1991.

The site was placed on the proposed National Priorities List (NPL) in February 1992, and was placed on the final NPL in May 1994. In July 1992, SMC entered into a Consent Agreement with EPA to complete an RI/FS to provide further details of site contamination and to provide alternatives for site cleanup.

The EPA completed the Proposed Plan for remediation of soils in May 1996. The Plan consisted of excavation, consolidation, solidification, and onsite containment of the contaminated soil, and institutional controls through deed restrictions. The DEP requested that groundwater contamination be addressed in a separate operable unit.

The discovery of previously undisclosed clarifier tanks containing phosphorous water led to the disruption of the Proposed Plan schedule. A plan to remove the remaining phosphorous water was discussed at the December 1996 public meeting. A tent was installed, and the phosphorous removal was completed inside the tent in October 1997. The excavated phosphorous was disposed at a Monsanto facility in Tennessee.

In October 1997, an air-monitoring device, installed for the onsite phosphorous removal activities, detected asbestos fibers. This led to sampling by Pinellas County, at the request of concerned residents and their representatives. Asbestos was not detected in further testing, but was added by the EPA as a Contaminant of Concern. The SMC conducted onsite asbestos

sampling in April and May 1998, as part of their asbestos investigation, and demonstrated that asbestos was neither a significant nor wide-spread contaminant at the site.

In November 1997, due to concerns raised by local residents, the DEP conducted sampling and analysis of offsite slag for metals of concern, and worked with the Florida Department of Health (DOH) in a radiological assessment of offsite slag. The DOH completed a statement of health concerns for slag exposure to residents in January 1998, and concluded that there is no elevated health risk based on gamma radiation or metals due to exterior slag exposure. The DEP also determined there is no exposure problem from the metals contained within the offsite slag.

The EPA subsequently conducted offsite slag sampling in the communities of Holiday and Tarpon Springs. The EPA and ATSDR issued reports in late January 1999, and a public meeting was held by the EPA to discuss the sampling results with residents. The EPA and ATSDR determined there are no health concerns for slag exposure to the residents, with the exception of one residence. The homeowner was provided guidelines for time of exposure in the basement of the residence.

In July 1998, the EPA finalized the Operable Unit 1 (OU1) Record of Decision (ROD) for soil contamination. The remedy included excavation of contaminated soils, consolidation of the excavated soils in the southeast area of the site, in situ solidification/stabilization of approximately 300,000 cubic yards of below-ground and consolidated soils, and institutional controls. DEP submitted review comments to the EPA in September 1998, stating that the ROD did not adequately address soil cleanup levels for arsenic. In May 1999, the EPA issued a Draft Explanation of Significant Differences (ESD) to DEP, which better explained their 21.1 mg/kg remedial cleanup goal for arsenic in the soil. However, this value still failed to meet the DEP soil cleanup target level of 0.8 mg/kg. In August 1999, the EPA issued an ESD for modifications to the beryllium cleanup goal in soils and clarifications to several other issues for DEP review. While the DEP agreed with the August 1999 ESD, the overall remedy still did not meet the DEP cleanup goals. Therefore, the DEP did not concur with the remedy.

In December 1999, the EPA entered into a Consent Decree with the Stauffer responsible parties (Zeneca) for implementing the OU1 remedy. From December 1999 through August 2000, the EPA Ombudsman held a series of investigative hearings in Tarpon Springs to hear concerns expressed by citizens regarding the selected remedy for the Stauffer site. The significant technological concerns raised at these meetings were: the Consent Decree failed to consider cleanup of the Stauffer site to achieve applicable or relevant and appropriate requirements of Florida law; the RI/FS failed to adequately define the geology of the site, the extent of contamination, and the risk of sinkhole development; and the selected remedy had not been demonstrated as reliable and effective due to the potential presence of a saline and karstic environment.

In February 2000, Black and Veatch completed a Data Evaluation Report for the EPA. The Data Evaluation Report identified data gaps significant to the remedial process, which included: extent of contamination with respect to the carbonate zone is not sufficiently delineated; extent and

integrity of the semi-confining layer is not known; hydraulic conductivity measurements are inadequate for the site; the presence or absence of karst features beneath the site has not been determined; and the capability of the proposed solidified monolith to withstand settling or collapse resulting from sinkhole formation has not been determined.

In May 2000, the EPA submitted an Amended Consent Decree and a Revised Remedial Design/Remedial Action Scope of Work. In June 2000, DEP submitted review comments on these documents. The revisions still did not satisfactorily address DEP concerns.

The EPA submitted a draft ESD to address the concerns raised in the EPA Ombudsman public meeting. In March 2000, DEP filed a Motion to Intervene in the Consent Decree in the District Court. In July 2000, The EPA and DEP entered into a Memorandum of Understanding (MOU), which detailed the roles and responsibilities of the EPA and DEP in addressing concerns regarding the cleanup and remediation of the site. As a result of the MOU, DEP withdrew the Motion to Intervene and, in August 2000, the EPA withdrew the Consent Decree.

In June 2000, the EPA submitted a Demolition Work Plan. The DEP reviewed the document and submitted comments in October 2000. O'Brien & Gere responded to the comments, and the document was approved in March 2001.

In October 2000, the EPA submitted a draft Geophysical Studies Work Plan to evaluate the sinkhole issue on the Stauffer site. The DEP drafted comments regarding the potential for exposure to elemental phosphorus, but concurred with the overall findings of the work plan in November 2000. The EPA approved the Geophysical Studies Work Plan in January 2001.

Also submitted in October 2000 were the Sampling and Analysis Plan and the Groundwater Studies Work Plan. The DEP submitted comments in November 2000.

In December 2000, the EPA submitted a revised version of the Master Studies Work Plan. Included with the revised document was the EPA response to DEP comments on the Ombudsman draft version of the. After reviewing the response to comments and the finalized version of the work plan, the DEP concurred with the Master Studies Work Plan.

The Agency for Toxic Substances and Disease Registry (ATSDR) submitted a Report of Findings and Recommendations Regarding the Stauffer Chemical Company Site in January 2001. This report assessed the conditions on the site and its effects to the surrounding communities during the years of operation, 1947 to 1981.

An archaeological survey was conducted in February 2001 to identify all possible Indian Mounds located within the boundaries of the Stauffer site. The cultural resource assessment considered the site ineligible for listing on the National Register of Historic Places.

The SMC submitted the Asbestos Survey Update Report and Asbestos Abatement Specification Report in February 2001. The Asbestos Abatement plan was utilized during the demolition

activities at the site starting in June 2001. During demolition activities in July 2001, a fuel spill occurred when a pipe that carried No. 6 diesel fuel to the boilers was punctured by heavy machinery. The fuel spill was contained and representatives from the DEP Bureau of Emergency Response were onsite to ensure the matter was handled appropriately. DEP representatives were present during the soil sampling and characterization of the waste fuel and soils for disposal purposes. In August 2001 a small fire occurred in the maintenance building as a result of the demolition of this building. The fire was contained and quickly put out. Stauffer completed demolition activities in October 2001.

In October 2001, Stauffer Chemical Company applied for permitting to stabilize the Meyer's Cove Shoreline along the Anclote River. The DEP Southwest District Office approved the permits and plans in December 2001. Stauffer completed the riprap stabilization of the shoreline in January 2002.

In February 2002, Envirocon, Inc. conducted clearing of undesirable trees and vegetation, to facilitate non-intrusive geophysical investigative work. During the site-clearing activities, floor tiles on the slab of a former building were found, and analysis confirmed that the tiles contained asbestos. Arrangements were made to remove the material on June 6, 2002. A notification was submitted to Pinellas County prior to commencing the work.

In April 2002, SMC held a "kickoff" meeting for implementation of the Geophysical Studies Workplan to ensure that all of the technical representatives were comfortable with the field procedures, data evaluation and limitations, and the expected results.

Also in April 2002, a survey was completed to identify and delineate all wetland areas at the site. Four areas were identified by representatives of the DEP Southwest District Office as jurisdictional wetlands. The DEP instructed SMC to submit an application for a De Minimus Permit Exemption for the areas in former manmade ponds, along with a Mitigation Plan for the area adjacent to the Meyer's Cove Community as compensation. Clearing of the former pond areas commenced in May 2002, following approval of the application by the DEP.

In May 2002, a meeting was held among regulatory agencies and other technical representatives to finalize the scope of work for the groundwater studies and conceptually agree on final revisions to the Groundwater Studies Workplan (GWSWP). In June 2002, the EPA approved the GWSWP and the Sampling and Analysis Plan.

In August 2002, a meeting was held to discuss draft findings of the geophysical study. It was determined that additional data would need to be collected. Also during this meeting, the Treatability Study Workplan was discussed. The workplan was revised based on the response to previously submitted comments. The DEP reviewed the revised document and submitted comments in October 2002. DEP comments were addressed during the March 2003 meeting in Tarpon Springs.

In March 2003, a meeting was held to discuss the additional work completed for the Groundwater Studies as well as the additional data collected for the Geophysical Study. Preliminary findings suggested there is no cross-contamination between the surficial and Floridan aquifers, and that the groundwater contamination is located in “hot spots” across the site.

In May 2003, the Groundwater Studies Report was submitted by the SMC to DEP. In December 2003, the draft Final Groundwater Studies Report and the draft Solidification/Stabilization Treatability Studies Report were submitted by SMC to DEP for review.

In June 2004, the EPA approved the three final reports (Groundwater Studies, Geophysical Studies, and Solidification/Stabilization Treatability Studies). Congressman Bilirakis held a “Town Hall” Public Meeting to present the results of the EPA Office of Inspector General (OIG) Report that assessed the overall remediation program for the Stauffer site. The OIG Report found that groundwater flow in the area of the paleokarst feature required better definition, and recommended that the EPA include further studies of this area during the remedy design phase.

In September 2004, Stauffer submitted an outline of proposed tasks to conduct additional groundwater studies in response to the OIG findings. The additional groundwater studies included installing additional surficial aquifer monitoring wells and characterizing the subsurface geology at each location using the split spoon sampling technique.

In June 2005, SMC submitted the Draft Remedial Design Work Plan to the DEP for review. The DEP recommended that SMC address the selection of background sampling locations and analysis method early in the design phase. Otherwise, the DEP found the work plan to be adequate.

Pre-design field work was conducted between August 2005 and December 2005. The field work consisted of 90 test pits to determine the horizontal and vertical limits of the ponds. Over 150 soil samples were collected for laboratory analyses from 130 soil borings.

In February 2006, Stauffer initiated the field-scale studies for in situ solidification and stabilization within Pond 48. An 8.5 ft auger was used to consolidate contaminated soil and materials with a cement slurry to a maximum depth of 20 ft bls. As a result of the cement curing the elemental phosphorous ignited and created a fire. 911 was called and Hazmat responded. The fire was extinguished after several hours by the contractor. Phosphine gas was detected at low levels on site but not high enough to warrant evacuation of the nearby residents. The Field Scale study was discontinued due to the uncertainty of potential locations of buried elemental phosphorous.

In July 2006, the EPA met with Stauffer to determine alternative remedies for the site. The Pond Remedy Conceptual Design Report was submitted to EPA in August 2006. The DEP requested but has not yet received a copy of the report. The EPA has not yet determined whether or not the ROD must be amended or an ESD will suffice.

After determining that an ESD was appropriate, EPA issued the ESD in May 2007, explaining the remedy approval for the construction of a cut-off wall and cap as a replacement for the in-situ stabilization remedy. A public availability session was held in June 2007, to allow the public to ask questions regarding the remedy changes. A Consent Decree Amendment was filed in October 2007, to provide for the implementation of the modified remedy in the ESD. The other components of the remedy remained unchanged.

The 100% Design was submitted to the DEP in November 2008, and comments were submitted to EPA in December 2008. The DEP completed a review of the March 2009 Remedial Action Work Plan and Revisions, and the November 2009 appendices to the Work Plan.

O'Brien & Gere was selected by the Stauffer Management Company to oversee remedy implementation. Envirocon was selected by O'Brien & Gere as the general contractor to complete the remedial action construction for OU1. The remedial action construction was completed in February 2011, and the construction completion report prepared by O'Brien & Gere was received in June 2011.

The City of Tarpon Springs is working with the DEP Southwest District on the Tarpon Springs Alternative Water Supply Project. The location selected by the City of Tarpon Springs is adjacent to the Stauffer Tarpon Springs site. The DEP Southwest District Drinking Water Program issued a permit to the City of Tarpon Springs for the construction of a 6.4 million gallon per day Reverse Osmosis Membrane Treatment facility.

Schedule

Operation and maintenance of the site includes inspection of the low permeability cap and surface water runoff facilities and gas monitoring. The proposed frequency and duration of operation and maintenance for the low permeability cap and surface water runoff facilities is monthly for one year. The proposed frequency and duration of gas monitoring is monthly for six months.