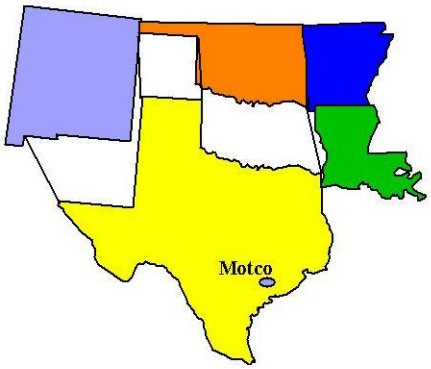
MOTCO, INC. SUPERFUND SITE
Galveston County, Texas



EPA Region 6
EPA ID: TXD980629851
Site ID: 0602673

Contact: Gary Miller 214-665-8318
State Congressional District: 09
Updated: No scheduled updates

Background

The site is located 2 miles southeast of the City of La Marque in Galveston County near the intersection of I-45 and State Highway 3. The site originally consisted of an 11.3 acre tract of land, which expanded somewhat during the remediation to address additional contaminated areas. The site is bounded on the east and south by State Highway 3/146, on the north-northwest by vacant land, and on the west-southwest by the right-of-way for Houston Lighting and Power (HL&P) transmission lines. The Gulf Freeway is located approximately 1000 feet to the west-southwest, beyond the HL&P right-of-way. The Omega Bay Subdivision is about 1500 feet to the west-southwest and the Bayou Vista Subdivision is approximately 1500 to 2000 feet south-southwest, west of the Gulf Freeway. Galveston Bay is 2 miles south of the site. Portions of the site are at an elevation of +5 feet above mean sea level, which puts the site within the 100-year tidal flood plain.

The MOTCO site was purchased in 1959 for the purpose of recycling styrene tars generated by local industry. The recycling business ceased in 1961 due to hurricane damage. The pits on the site were then used for disposal of industrial petro-chemical wastes. In 1964 the site was permitted as an industrial disposal facility by the State of Texas for the operation of "salvage ponds", and it continued to operate until 1968. In 1968, due to numerous odor complaints, the City of La Marque passed an ordinance prohibiting disposal of liquid wastes in surface impoundments which effectively forced the site out of business.

The site was divided into two operable units (OUs) for remediation. The Source Control OU addressed the surface contamination and pits, and the Management of Migration (MOM) OU addressed the ground water and “offsite” soils. The 1985 Source Control Record of Decision (ROD) selected remedies including incineration of liquid organic pit contents at an offsite facility, offsite treatment of contaminated pit water, and offsite land filling of tars, sludges and soils. The ROD also provided for onsite incineration of all waste materials to be considered during the remedial design phase. In 1987, EPA entered into a partial consent decree with a number of Potentially Responsible Parties (PRPs), who agreed to perform the Source Control remediation using onsite

incineration. In January 1993, after initial onsite incineration work and based on new information developed for the site, an Explanation of Significant Differences (ESD) revising the ROD-specified remedy was issued by EPA. The modified remedy for the Source Control OU included onsite containment (cap and slurry wall) rather than offsite disposal in a landfill, and offsite incinerated for the tars and sludges.

The 1989 MOM ROD selected remedies including excavation of shallow offsite soils and ditch sediments, placement of excavated materials onsite beneath a cap, extraction and treatment of contaminated shallow and deep ground water by the Best Available Technology, removal and incineration of Dense Non-Aqueous Phase Liquids (DNAPL) to the extent feasible, long-term compliance monitoring, installation of deed restrictions to prohibit land development, and installation of additional security fencing around the site.

Current Status

The MOTCO Trust Group is currently performing an investigation of the UC-2 Zone to characterize the ground water contaminate plume.

The MOTCO Trust Group is continuing operation and maintenance activities at the site, which normally include long-term pumping and treatment of the contaminated groundwater, recovery of a separate liquid phase of organic compounds (DNAPL), and maintenance of the source control cap. As of October 2007, a total of 84.2 million gallons of groundwater has been recovered. In addition, a total of 50,332 gallons of DNAPL has been recovered.

The MOTCO Trust Group is currently evaluating and developing additional institutional controls to ensure the long-term effectiveness and protectiveness of the site remedy.

A 5-year review of the site, completed on September 24, 2007, found that the site remedy is operating as intended and is protective in the short term. However, the 5-year review determined that additional actions are required for the remedy to remain protective in the long term. These actions include increased monitoring in the UC-1 Zone, additional response actions in the UC-2 Zone, checking for any impacts from the planned public water supply well in the area, placement of institutional controls as mentioned above, and continuing site operation and maintenance activities. The next 5-year review of the site is due by September 24, 2012.

Benefits

In addition to the contaminated ground water and DNAPL recovered, the following has been cleaned up at the MOTCO Superfund site: 7,568 tons of oil; 8,000 tons of tar sludge; 4,699 tons of contaminated soil; and over 3.5 million gallons of contaminated pit water.

National Priorities Listing (NPL) History

Proposal Date:	July 23, 1982
Final Listing Date:	September 8, 1983

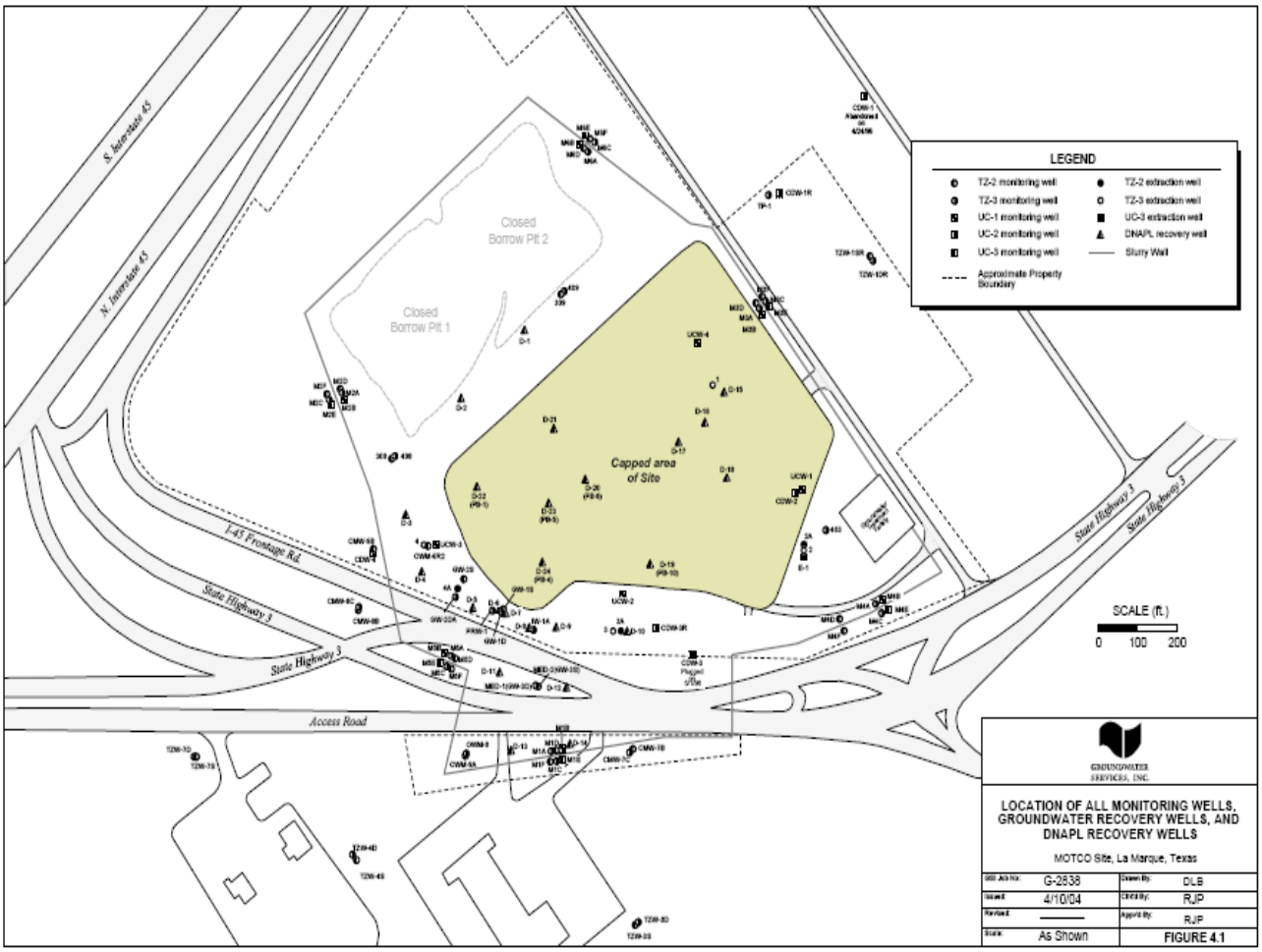
Population: Approximately 3,000 people live within one mile of the site. The Omega Bay subdivision is located 1,500-feet to the west-southwest, and the Bayou Vista subdivision is located 1,500 to 2,000-feet to the south-southwest. Land use in the area includes industrial, business, agricultural, fishing, recreational, and transportation.

Setting: The site originally occupied 11.3 acres, which expanded somewhat to address off-site contamination. The site is bounded on the east and south by State Highway 3/146, on the north-northwest by vacant land, and on the west-southwest by right-of-way for Houston Lighting and Power transmission lines. The site is on the edge of a coastal marsh system, and slopes gently toward the Gulf of Mexico. The site elevation ranges from 5 to 12-feet above sea level. The site is within the 100-year floodplain, and is covered with planted grasses.

Hydrology: The Transmissive Zone (TZ) and the Upper Chicot (UC) Aquifer underlie the site. The TZ consists of the TZ-1; TZ-2; and TZ-3 zones, with TZ-3 being the most homogenous and extensive across the site. TZ-2 is the most permeable layer. All three TZ zones are interconnected. The top of the TZ varies between 0 to 5-feet below sea level. Ground water flow in the TZ Zone was to the south-southeast at a velocity of 0.2 to 10-feet per year. There is also some TZ ground water flow in a northwesterly direction.

Below the TZ Zone is the Upper Chicot clay (UC-1 clay), which varies in thickness from 20 to 48-feet across the site. Below the clay is the Upper Chicot, which is divided into units UC-1; UC-2; and UC-3. The top of the UC is 90 to 100-feet below sea level. The top of the UC-3 is about 230-feet below sea level.

Site Map



Wastes and Volumes

The site was developed in 1958 to recycle styrene tars. Originally the site contained seven waste pits surrounded by an exterior dike to contain precipitation. These former unlined pits, ranging in depth from 15 to 25 ft comprising an approximate total surface area of 4.6 acres, contained polymeric tars, chlorinated hydrocarbons, spent catalysts, and other chemicals. Recycling was discontinued in 1961 following hurricane damage, and the pits at the site were used to dispose of industrial petro-chemical wastes. Operations ceased in 1968 except for a styrene tar recycling operation conducted by MOTCO in 1974.

Dense non-aqueous phase liquids (DNAPLs) have been detected to a depth of 50-feet. The estimated volume of DNAPL is 3 to 4 million gallons. MOTCO site DNAPLs are typically a dark brown to black, viscous substance that consist of chlorinated-aliphatic hydrocarbons, polycyclic aromatic hydrocarbons, aromatics and ether organic constituents. One DNAPL sample collected in 1988 contained 38% bis (2-chloroethyl) ether, 2.5% 1,2-Dichloroethane, 2.4% Naphthalene, 2.0% Bis (2-chlorisopropyl) ether, <1% various other organic compounds, and about 50% unidentified compounds at concentrations of 380,000 ppm for bis- (2-chloroethyl) ether. The volume of contaminated ground water is approximately 30 to 40 millions gallons.

Health Considerations

Before remediation, site contaminants posed threats to public health including contamination of ground water supplies, transport of waste materials to populated areas by surface runoff, and hazardous air emissions from the pit wastes. The nearest drinking water well is 2,200-feet from the site. Contamination has migrated 300-feet off the property and is present to a depth of 100-feet. If left unremediated, DNAPLs and contaminated ground water would have continued to migrate vertically and laterally.

The site's Environmental Indicator status is human exposure under control and ground water migration under control.

Record of Decision

The source control ROD (Operable Unit 1, or OU1) was signed on March 15, 1985. The selected remedy included offsite incineration. However, following new information developed for the site, EPA issued an Explanation of Significant Differences (ESD) for OU1 on January 13, 1993. The ESD changed the remedy for OU1 to onsite capping of soil and offsite incineration of the tar and sludge.

The Management of Migration (MOM) ROD for ground water, or OU2, was signed on September 27, 1989. The selected remedy included pump-and-treat, monitoring, and institutional controls. The OU1 remedy (as modified by the ESD) and the OU2 remedy were combined by EPA in a Consent Decree entered on July 22, 1993. The selected final remedy included the following:

- Onsite capping of contaminated soil and construction of a slurry wall.
- Incineration offsite of oils, sludge, and tar.
- Pump-and-treat contaminated ground water to restore the TZ and UC-3 Aquifers.
- Pump to prevent lateral migration and to maintain an upward hydraulic gradient from the UC-1 Aquifer into the TZ Aquifer.
- Recover DNAPL from the TZ to the extent feasible.
- Perform long-term monitoring.
- Institutional controls.

Construction completion was achieved on September 30, 1997. The monitoring and recovery wells, and the treatment system, were installed in 1995 with DNAPL recovery beginning in August 1995.

Construction of the slurry wall, and excavation of offsite contaminated materials and consolidation onsite occurred between 1995 and 1997. Site construction activities were completed by September 1997.

Community Involvement

Community Involvement Plan:	Revised March 1989
Open Houses:	November 1990; October 1993
Proposed Plan:	July 1989 (OU2)
Public Meeting:	November 27, 1984 (OU1); August 23, 1989 (OU2)
Technical Assistance Grant:	Availability Notice – September 1988 and January 1990 No Final Applications received
Information Repository:	At the Brio Superfund site, located at: 11810 South Hill Drive Houston, TX 77089 Attn: John Danna (281) 922-1054

Site Contacts

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