

CASE HISTORY®

Work Summary (Site History)

CHS-0016 (GRO/DRO) – Free Product Destruction

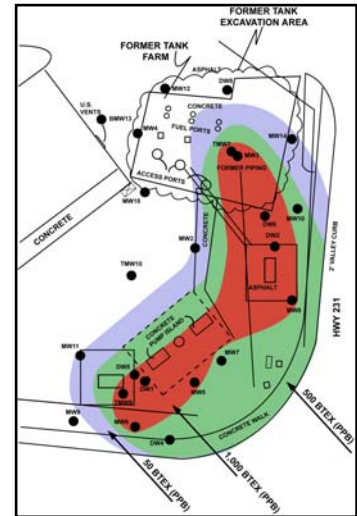
Discovery of contaminated soil adjacent to a gasoline UST and acceptance into the FDEP Petroleum Cleanup Pre-Approval Program provided remedial funding for this active service station. Initial remedial actions included the excavation of fuel impacted soil and the removal of three USTs in 1994. However free phased gasoline components were still present in the clayey soil following these activities. Sparging and vapor extraction were eliminated after pilot tests proved them to be difficult and impractical. ISCO technology employing the *Cool-Ox™* Process was selected based upon its superior performance at similar sites. Post remedial monitoring results revealed that free product was eliminated with the exception of a small area around MW-9. Groundwater sustained reductions of >95% in total BTEX and MTBE.

Project at a Glance

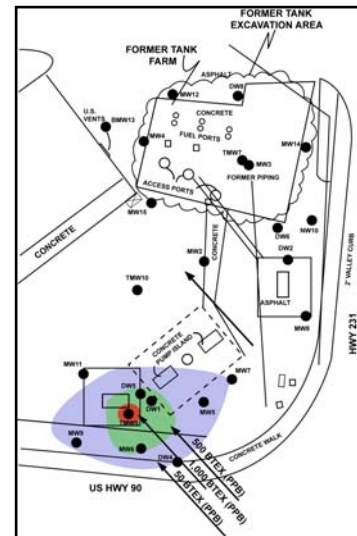
Site 0016 – Site Information

Type of site	Retail Gasoline Station
Location	Jackson County, Florida
Contaminants	Free Product - BTEX/MTBE/PAHS/EDB
Work Scope	Inject <i>Cool-Ox™</i> Reagent
Media Treated	Soil & Groundwater
Soil Type	Sandy Clay to Hard Clay
Groundwater Depth	~21 fbg
Remedial Objectives	1. Eliminate Free Product 2. Initiate GW remediation

Site Map - Pre Injection (1)



Post Injection (2)



Site 0016 –Application Information

Technology Selected	<i>Cool-Ox™</i> Process
Application Method	DPT Probe Rig
Area Treated	9,800 square Feet
Vertical Interval	8 to 55 feet bgs
Injection Point (IP) Spacing	8 feet
Media Volume Treated	17,926 cubic yards
Number of Injection Points	153
Oxidizer Volume	53,520 gal
Oxidizer per IP	350 gal

The colored areas on the site maps depict the extent of the groundwater contaminant plume (blue (BTEX >50 ppb), green (>500 ppb), and red (>1,000 ppb)) prior to and following the first *Cool-Ox™* injections. Samples collected after the initial injection revealed elimination of nearly all free product coupled with a dramatic reduction in the size of the plume as well as GW concentrations.

Current Status

Phase 1 eliminated all but, a small area of free product and reduced the size and concentrations of BTEX and MTBE in the GW plume. Most contaminant concentrations are now below Florida’s Monitored Natural Attenuation Criteria. The site is awaiting the Phase 2 Cool-Ox™ application to eliminate the remaining source area and dissolved phase groundwater contaminants.

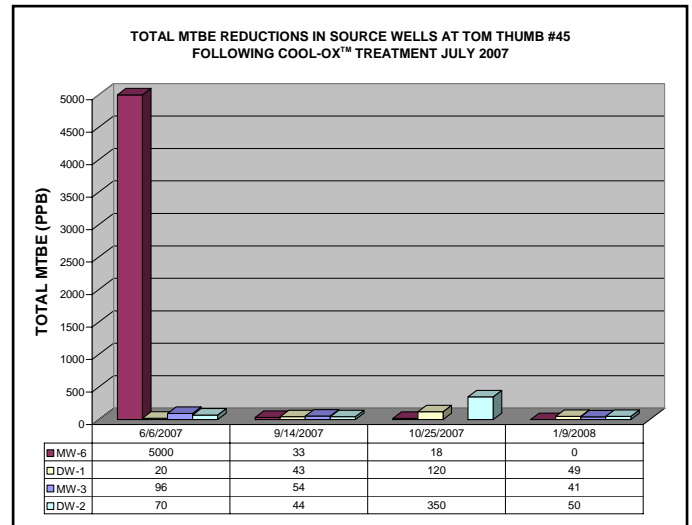
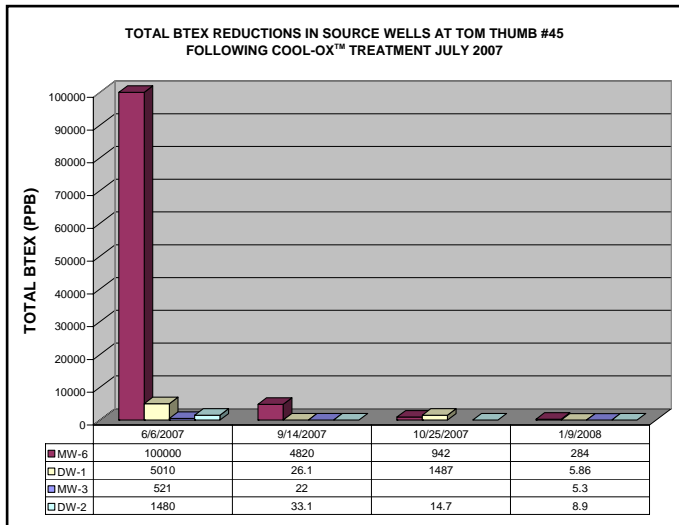
CASE HISTORY

CHS-0016 (BTEX, MTBE) (Cont.)

Results

Site 0016- Contaminant Data

Ground Water Results



Free product was eliminated in source well MW-6. BTEX, MTBE and PAH levels were dramatically reduced following the Phase 1 *Cool-Ox*™ application.

Soil Results

Sample ID	Date	DTW (ft)	Sample	OVA (ppm)	B	T	E	X	Totals
SB-24-07	6/5/2007	18 - 20	PRE	750,000	13.0	130	38	190	371
	6/5/2007	24 - 26	PRE	32,384	7.6	100	40	200	347.6
SB-24-07-02	9/13/2007	18 - 20	POST	3,701	0.41	4.9	3.5	15	23.81
	9/13/2007	24 - 26	POST	216	0.27	<0.041	0.18	0	0.681
SB-26-07	6/5/2007	22 - 24	PRE	32,919	2.80	23	21	120	166.80
	6/5/2007	28 - 30	PRE	3,186	2.50	29	19	110	160.50
SB-26-07-02	9/13/2007	22 - 24	POST	>50,000	5.0	43	14	92	154
	9/13/2007	28 - 30	POST	>50,000	5.2	7.1	0.90	5	18.5
PERCENTAGE REDUCED IN THREE SOIL SAMPLING LOCATIONS					58%	80%	84%	85%	81%

GW contaminant concentrations within the source area have enjoyed dramatic decreases. With the exception of a small area around MW-9, free phased product was eliminated. Petroleum contaminant concentrations continue to decline as a function of the long-term sustained chemical oxidation and biologic mechanisms indicative of the *Cool-Ox*™ remedial Technology.

Client Contacts: Mike Keethler, P.E., EPT, 3210 Barrancas Ave, Pensacola, FL 32507 mkeethler@eptpensacola.com

DeepEarth Technologies, Inc.–12635 Kroll Drive – Alsip, IL 60803 – tech@deepearthtech.com
Toll free 877-COOL-OX1 (877-266-5691)

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