DeepEarth Technologies, Inc.

Cool-Ox®

Case History©

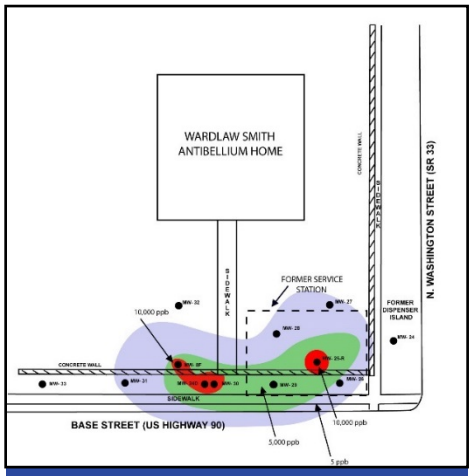
Work Summary (Site History)

CHS-0017 (GRO/DRO) – Free Product Destruction

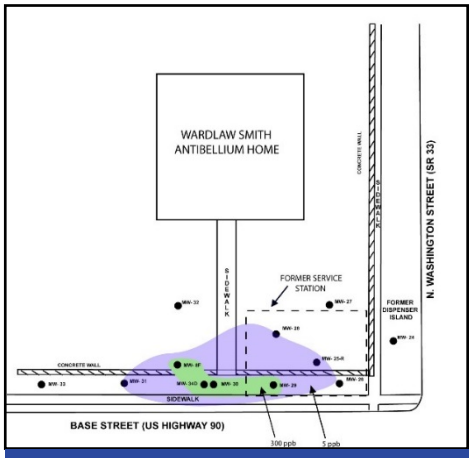
Several circumstances converged to elevate this site to the special category status. A magnificent Antebellum Home dominated the landscape just a few yards from the site of a former 1920s era service station. The beautiful shrubbery and wall belied the environmental nightmare lurking below. Fuel releases from the stations inception until it was removed in 1979, had accumulated as free product impacting both soil and groundwater. Conventional remedial options (systems, excavation, etc.) were judged inappropriate because of the fear of damage to this National Historical Landmark. A search of proven technologies found that the *Cool-Ox*® Process offered the highest probability of remediation with the lowest risk of damage to the site.

Project at a Glance

Site 0017 - Site Information	
Type of site	Former Retail Gasoline Station
Location	Madison County, Florida
Contaminants	Free Product - BTEX/PAHs
Work Scope	Inject *Cool-Ox*® Reagent
Media Treated	Soil & Groundwater
Soil Type	Sandy Clay to Hard Clay
Groundwater Depth	40 fbgs
Remedial Objectives (Phase 1)	1. Eliminate Free Product 2. Initiate GW remediation
Site 0017 - Application Information	
Technology Selected	*Cool-Ox*® Process
Application Method	DPT Probe Rig
Area Treated	5,000 square Feet
Vertical Interval	25 to 50 feet bgs
Injection Point (IP) Spacing	Irregular
Media Volume Treated	1,186 cubic yards
Number of Injection Points	39
Oxidizer Volume	6,944 gal
Oxidizer per IP	~178 gal



Map 1 – Pre-Injection



Map 2 - Post Injection

The blue area on Map 1 depicts the extent of the groundwater contaminant plume prior to the first *Cool-Ox*® injection. Samples collected after the Phase 1 injection, revealed that the free product had been eliminated (see red area – Map 1) and that the groundwater plume had enjoyed a significant reduction in both size and contaminant concentrations (see blue and green areas – Map 2).

Prior to treatment, free product and high levels of petroleum contaminants in the GW were located below the shrubbery on site and along US Highway 90. Following the *Cool-Ox*® injections, BTEX concentrations in groundwater were reduced by more than ~95%.

Current Status: *Phase 1 was successfully completed with the elimination of free product and "zero" damage to the Home or grounds. The property was put into the Florida monitored natural attenuation (MNA) program because of the spectacular results after the first application. Three years after our application, the site met all closure standards and thus, received closure documentation. No additional applications were necessary.*

Case History©

Results

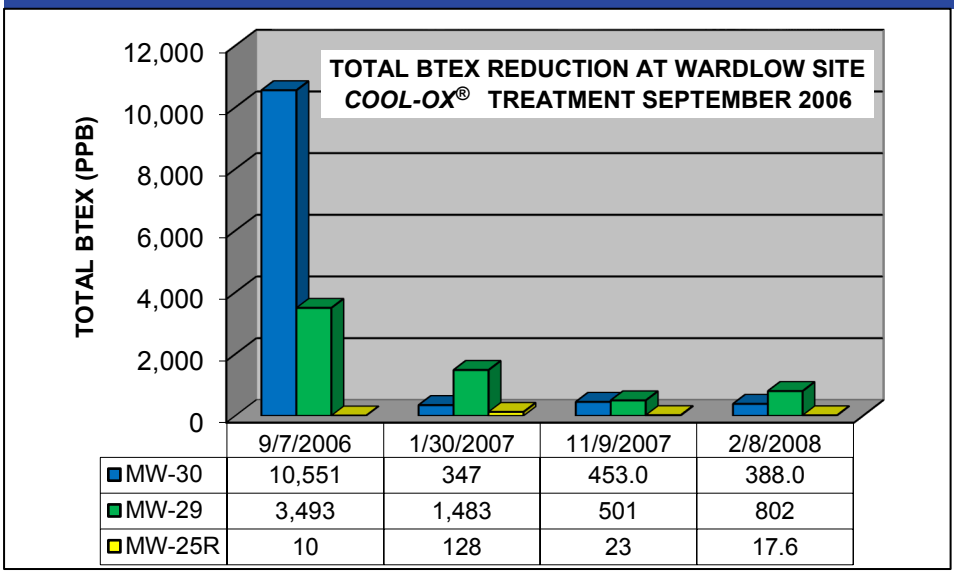
CHS-0017 (GRO/DRO) – Free Product Destruction (cont'd)

Site 0017 – Contaminant Data - Soil

Sample			OVA (ppm)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	MTBE	FL-PRO (TRPH)
Soil Sample ID #		Date Collected								
FSB-1 (48')	PRE	9/7/2006	>50,000	ND	1.5	27	132	161	ND	890
FSB-3 (16')	PRE	9/7/2006	>50,000	ND	21	36	178	236	ND	4700
FSB-3 (44')	PRE	9/7/2006	15,829	ND	1.1	11	71	83	ND	260
FSB-4 (48')	POST	1/29/2007	28	ND	0.0013	0.02	0.098	0	ND	14
FSB-6 (16')	POST	1/29/2007	4201	0.18	1.3	1.3	5.8	9	ND	70
FSB-6 (44')	POST	1/29/2007	37052	ND	0.84	9.2	48	58	ND	1300
% REDUCTION				-	91%	86%	86%	86%	-	76%

Results of the Phase 1 *Cool-Ox*® injection revealed that application was cost effective and safe at this historic site. Site limitations allowed a relatively modest volume of reagent to be injected. Soil and groundwater contaminants extended beneath US Highway 90 and free product had been detected where the former gas station had stood. Post application results qualified the site for the Florida Monitored Natural Attenuation (MNA) program. Three years later the site met all qualifications for closure.

Site 0017 -Contaminant Data - Ground Water



The Wardlow-Smith National Historic Site

DTI injecting *Cool-Ox*® Green

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