



Case History[©]

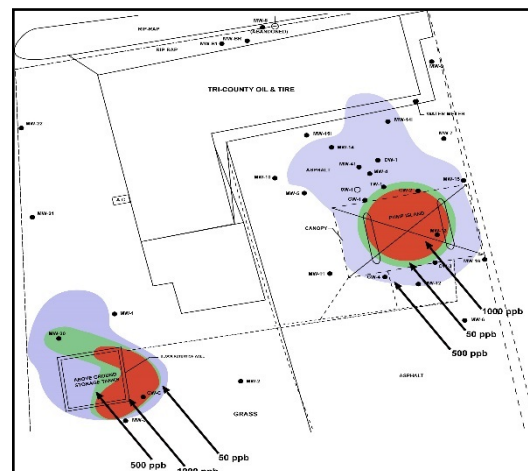
Work Summary (Site History)

CHS-0015 (DRO/GRO/Lube Oil) – Free Product Destruction

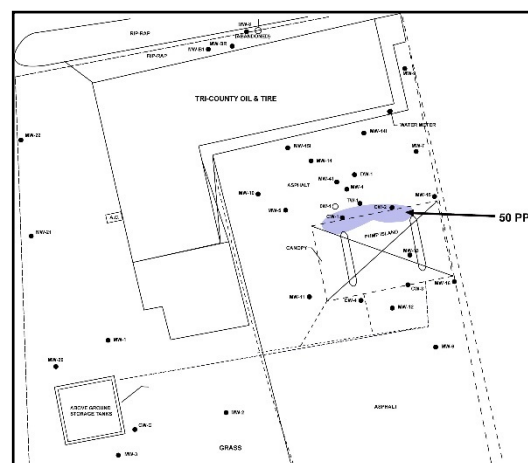
Several Releases reported from active ASTs and USTs (abandoned in place) required remediation under Florida’s DEP remedial program. A shallow water table, tight clay soil and the USTs obviated the installation of systems. Thus, employment of DTIs’ innovative *Cool-Ox®* Process was implemented August, 2003 as the Technology with the greatest probability of successful remediation. Injections were performed surrounding the ASTs, distribution piping, USTs and dispensers. Free product (including lube oil) was eliminated with soil and groundwater contaminant concentrations rapidly reduced. Subsequent enhanced biologic mechanisms have resulted in significant sustained reductions of BTEX, PAHs and MTBE. The Phase 2 application, designed to address remaining groundwater contaminants, has yet to be scheduled.

Project at a Glance

Site 0015 - Site Information	
Type of site	Active Gasoline Service Station
Location	Jackson County, Florida
Contaminants	Free Product GRO/DRO (BTEX / MTBE & TRPH)
Work Scope	Inject <i>Cool-Ox®</i> Reagent
Media Treated	Soil & Groundwater
Soil Type	Clayey sand dense clay, Limestone @ 52' to 60'
Groundwater Depth	6 fbg
Remedial Objectives	1. Eliminate Free Product 2. Initiate GW remediation
Site 0015 - Application Information	
Technology Selected	<i>Cool-Ox®</i> Process
Application Method	DPT Probe Rig
Area Treated	2,826 square Feet
Vertical Interval	2 to 12 feet bgs
Injection Point (IP) Spacing	5 to 7 feet
Media Volume Treated	1,047 cubic yards
Number of Injection Points	133
Oxidizer Volume	5,233 gal
Oxidizer per IP	42 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 *Cool-Ox®* injections. Groundwater samples after the initial injection revealed that the contaminant plume had shrunk to a small area surrounding Compliance Well CW-1 (see Map 2). Sentinel wells designed to monitor contaminant migration away from the injection area revealed no increases in contaminant concentrations indicating contaminant destruction rather than migration out of the treatment zone.



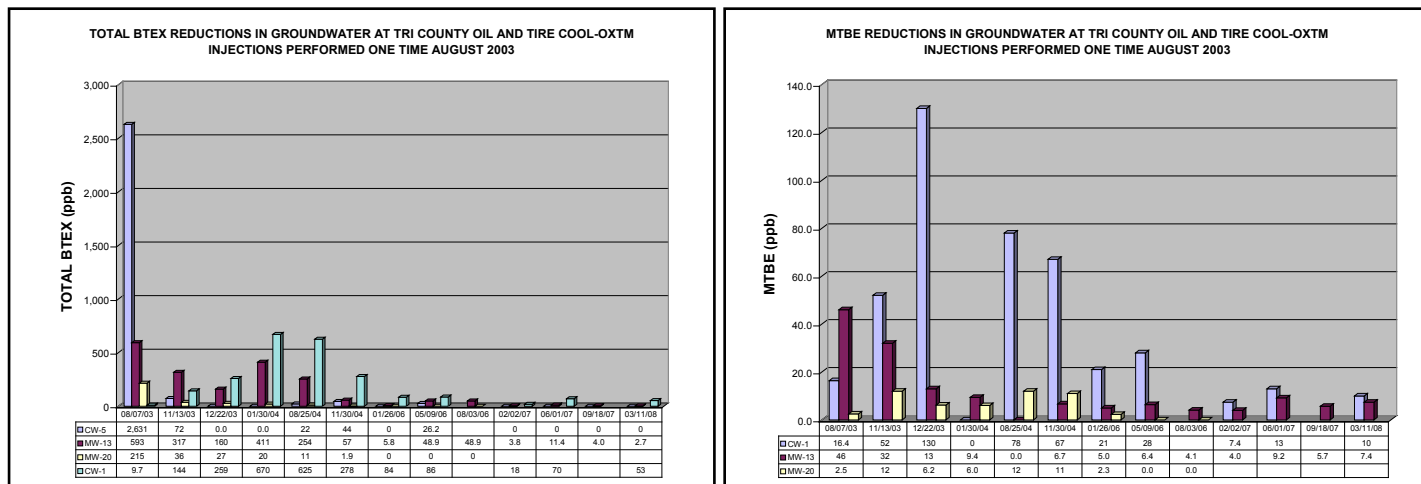
Case History[®]

CHS-0015 (DRO/GRO/Lube Oil) – Free Product Destruction (cont'd)

Site Status

Because of the significant reductions in contaminant concentrations, the site was placed in Post Remedial Action Monitoring Status to assess the long-term effects of the treatment.

Results



Site 0015 – Contaminant Data - Soil

Sample		Soil Laboratory Analyses (data presented in mg/kg - ppm)						
Location	Date	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	Total BTEX	MTBE	FL-PRO
CW5 @ 6'bls	8/8/03	0.113	1.186	0.196	0.83	2.325	0.0033	<1.0
CW5 @ 6'bls	1/27/04	0.054	0.0091	0.046	0.19	0.299	0.0018	1.5
MW6 @ 6'bls	8/8/03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1.0
MW6 @ 6'bls	1/27/04	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.5
MW13 @ 6'bls	8/8/03	0.09	0.043	1.344	0.353	1.830	0.011	<1.0
MW13 @ 6'bls	1/27/04	0.0048	<0.001	0.0053	0.0084	0.019	<0.001	<1.0
MW4I @ 6'bls	8/8/03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1.0
MW4I @ 6'bls	1/27/04	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1.0
SUM OF PRE TREATMENT	8/3/03	0.20	1.23	1.54	1.18	4.16	0.01	0.00
SUM OF POST TREATMENT	1/27/04	0.05	0.01	0.05	0.19	0.30	0.00	1.50
% REDUCTION		71%	99%	97%	83%	92%	87%	NA

The data above demonstrates that Cool-Ox® effectively reduced the mass of petroleum contaminants in the soil as well as the groundwater. Total BTEX and MTBE concentrations in the ground water were reduced by >99%. Soil data collected approximately one year following the treatment confirmed that free product (lube oil) was eliminated and petroleum contaminants were reduced by >80%. Thus, natural attenuation monitoring was implemented.

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