Case Studies of ICT CleanB-Sorbent

Etech Environmental & Safety Solutions, Inc.

Midland, Texas

Case Study #1 – Oil Field Crude Oil Tank Battery

This site involved a crude oil tank battery facility. The release was from an on-site heater treater which had a back pressure valve failure causing lost pressure and allowing crude oil to be released to the surface soils surrounding the heater treater.

The release was approximately eight (8) barrels of crude oil with a recovered volume of three (3) barrels. The initial site inspection revealed a surface soil impacted area of approximately 4,000 square feet and a depth of 6 inches.

To complete the remediation a tractor tiller was used to till the affected area to a depth of 6 inches. Some clean soil collected from the area surrounding the impact site was placed over the impacted soil and tilled again. After the second tilling, 600 pounds of CleanSorb was spread over the impacted area and the tiller was used to incorporate the product into the impacted soil.

A sample of the tilled soil was collected and analyzed for total petroleum hydrocarbons (TPH) immediately after the initial treatment on June 4, 2009. Another sample of the treated area was collected on October 14, 2009, after allowing time for bio-remediation. The results of the analytical data are presented in the following table:

Results of analyses following remediation activities are as follows:

Sample #	Depth	Date	TPH C6-C12	TPH >C12-C28	TPH <C28-C35	Total TPH
Blended	2-6”	06/04/2009	342	17,664	-	**18,006**
Blended	2-6”	10/14/2009	ND	271	326	**597**

* ND = Non-Detect; concentration below mg/kg.

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Case Study #2 – Oil Field Crude Oil Tank Battery

This site involved a crude oil tank battery facility. The release was from flowline inside the tank battery containment. The containment surrounding the tank battery is constructed of soil and is unlined.

The release was approximately ten (10) barrels of crude oil with a recovered volume of five (5) barrels. The initial site inspection revealed a surface soil impacted area of approximately 800 square feet and a depth of 6 inches.

To complete the remediation hand tillers were used to till the affected area to a depth of 6 inches. The smaller hand tillers were used on this site due to the surface flowlines and equipment in the area of the release. After tilling, 200 pounds of CleanSorb was spread over the impacted area and the tillers were used to incorporate the product into the impacted soil.

A sample of the tilled soil was collected and analyzed for total petroleum hydrocarbons (TPH) immediately after the initial treatment on November 4, 2009. Another sample of the treated area was collected on March 10, 2010, after allowing time for bio-remediation. The results of the analytical data are presented in the following table:

Results of analyses following remediation activities are as follows:

Sample #	Depth	Date	TPH C6-C12	TPH >C12-C28	TPH <C28-C35	Total TPH
Blended	2-6”	11/04/2009	ND	15,440	-	**15,440**
Blended	2-6”	03/10/2010	ND	4,590	521	**5,111**

* ND = Non-Detect; concentration below mg/kg.