

Use of Cavitation Scrubbing in the Remediation of an Old Oil Refinery

During the remediation of an old oil refinery site, some areas were discovered to contain high concentrations of hydrocarbon and the site owner decided to trial the effectiveness of cavitation scrubbing as a method of soil washing.

A mobile two-stage cavitation scrubbing system capable of processing 3-5 tonnes per hour of contaminated sand and soil was supplied to the old refinery site for trial and operated in accordance with local environmental legislation. The cavitation scrubbing system was driven by a diesel-powered high pressure water pump, which was fitted with a heat exchanger to recover waste heat from its exhaust to warm the water.

The contaminated sand and soil was loaded into a rotating trommel and discharged over a vibrating screen to



remove stones and other objects above 12mm in size. A water-driven jet pump was used to deliver the sand and soil for treatment from the vibrating screen into the cavitation scrubbing unit.

The results shown in the table below clearly demonstrates that cavitation scrubbing is a very efficient method for remediating hydrocarbon contaminated sand and soil.

Results for Trial to Remove Hydrocarbons from Batches of Contaminated Soil

Pollutant	Average initial conc.	Average final conc.	Reduction
Mineral oil (mg/Kg)	7,400	<100	98.7%
Benzene (mg/Kg)	0.10	<0.05**	>50%
Toluene (mg/Kg)	<0.05**	<0.05**	-
Ethylbenzene (mg/Kg)	0.16	<0.05**	68.8%
Xylenes (mg/Kg)	0.69	<0.06**	91.3%
Total petroleum hydrocarbons (mg/Kg)	6263	5	99.9%

**Less than limits of detection for analytical techniques used



Global Advantech develops and supplies innovative products and technologies for:

- Recovery of hydrocarbons from oil and gas production wastes and sludges.
- Treatment of wastewater and effluent.
- Remediation and decontamination of hydrocarbon contaminated soil, sand and concrete.

For more information on cavitation scrubbing please see Technical Data Sheet TDS805.

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