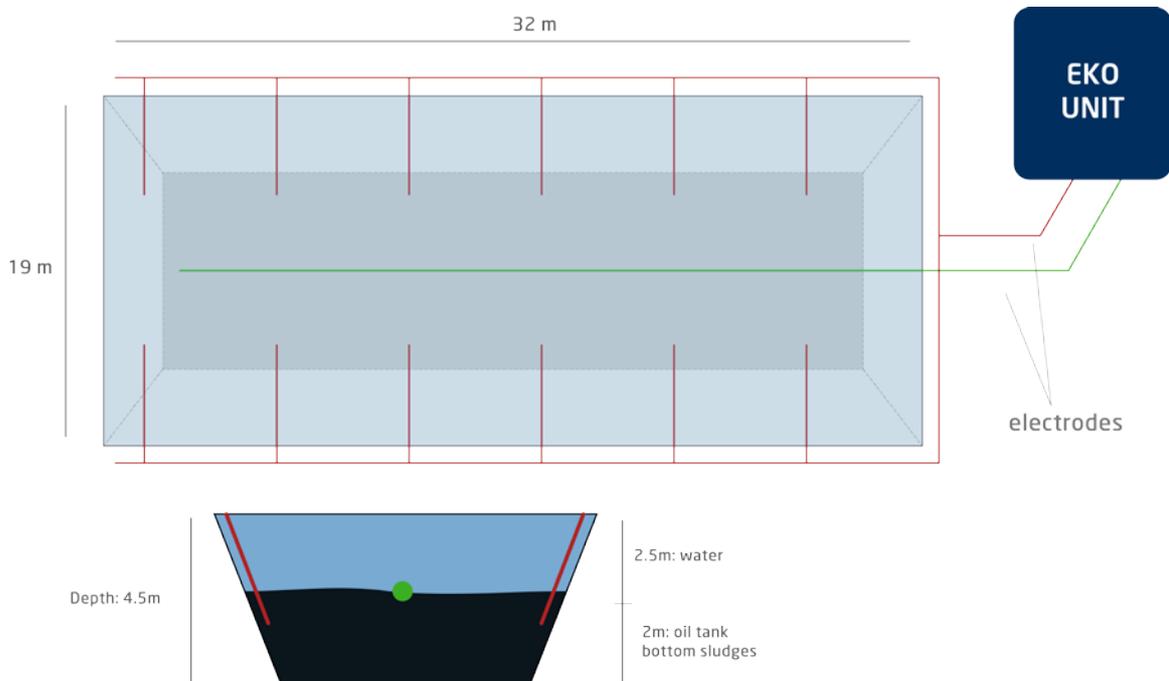


CASE STUDY: Ecuador, sludge treatment

Background

Lamor Corporation Ab carried out a remediation project of API pit waste in Ecuador in 2013 – 2014. The total volume of the waste was 800 m³ and the waste had been stored in a lined pit for several years before being transported to the treatment center. Typically API pit waste includes different types of waste related to the exploration & production activities. It may include drill cuttings, drilling fluid residues, lube oil, base oil, oily sludge, tank bottom sludge etc. to name a few. The actual composition of the waste was unknown, but there was a baseline analysis performed to determine the total amount of petroleum hydrocarbons. Our assumption is that the API pit waste consisted mostly of very heavy and viscose sludge.

Based on the information we had received, the grid plan was decided. Please see the Picture 1. below for the configuration of the EKO/GRID system.



Picture 1. Configuration of the EKO/GRID system

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Baseline characterization

According to the gravimetric analysis conducted before beginning the treatment, the waste had 24 % of petroleum hydrocarbons. Petroleum hydrocarbon content of 24 % transforms into 240 000 ppm or mg/kg.

There had been several earlier attempts to treat the waste. Local environmental services providing company had used different types of bioremediation methods for the treatment as well as some less well-known methods without any success. In addition, the waste had been in a lined pit for several years in the same conditions, therefore we made the assumption that the natural remediation had already occurred to its maximum amount.

Results

Picture 2 shows the resulted change in the visual appearance of the treated sludge compared to the baseline sample. As seen in the picture the color of the sample is much lighter. The texture was also significantly firmer and the smell of the sample had decreased significantly.



Picture 2. *Change in visual appearance*

According to the gravimetric analysis the amount of total hydrocarbons had decreased significantly. With the EKO/GRID technology it is possible to reach the target levels for petroleum hydrocarbons reliably in a short period of time.

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