

## Combined aerobic/anaerobic in-Situ remediation of CHC-contaminated ground water at former barrel warehouse

Enhanced Natural Attenuation | qPCR | Bioaugmentation

### Project description

An illegal storage of barrels containing CHC was the cause of water contamination in a nearby pond. In order to remediate the site, the pump and treat technology was initially applied with satisfying results. Upon reaching the tailing phase in the pump and treat procedure, further operation, based on microbiological remediation was applied. Within this tailing phase, organic carbon sources were added to the groundwater for 5 months. This was done to stimulate the anaerobic dechlorination of CHC to cDCE by special Dehalococcoides bacteria. After complete conversion of all CHC to cDCE, the microorganisms in the ground water were replenished, by adding low concentrations of hydrogen peroxide and methanol. These compounds were added as co-substrates to further encourage, anaerobic CHC dechlorination. Remediation was completed in 2008, after 16 months of treatment. The final concentration of CHC observed in the ground water was less than 20 µg/l.

### Customer

Kreis Segeberg

### Project cost

Approx. 20, 000 Euro

### Time frame

April 2007 – August 2008

### Project areas

Laboratory processing, biological ground water treatment, environmental sensor technology



**Gas release from water after injection of hydrogen peroxide into the pond**

### Project summary

- Type of pollutant: CHC (PCE, TCE, cDCE, VC), max. concentration of 3000 µg/l
- Polluted area size: 100 m<sup>2</sup>, 5 m in depth

### Services rendered

- Participation in the evaluation of the remediation concept
- Conducting feasibility studies to investigate combined anaerobic/aerobic remediation
- Co-substrate optimisation for the stimulation of biodegradation
- Installation and general operation of remediation hardware
- Technical documentation

### Customer expectations

- Unlimited access to the pond during remediation project
- Minimizing waste disposal costs
- Substantial reduction of remediation cost compared with conventional technology cost

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