Remediation of the pesticide-contaminated site “Groyne 42”

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Abstract:
A heavily pesticid-contaminated site is situated in the dunes close to the North Sea in the western part of Denmark. App. 260 tons of mainly organophosphorous pesticides and daughter-products are found in the subsurface, app. 160 tons are identified as the insecticide parathion. More than 100 compounds are identified.

In 2006, the deposit was enclosed by a steel sheet piling and a covering membrane. Inside the sheet piling, the water table is controlled to below lowest sea water level, in order to prevent any leakage to the sea.

Parallel to the enclosure of the site, literature studies and laboratory tests were performed to evaluate 6 different remediation technologies. Based on these studies and tests, a combination of in situ alkaline hydrolysis and enhanced bioremediation was chosen for initial pilot testing in 2007/2008.

The pilot test shoved, that alkaline hydrolysis did perform a degradation of the pesticides, but documentation for the effectiveness of the method was not sufficient. A new series of large-scale pilot test with in situ alkaline hydrolysis are planed for 2010-2013.

The remediation technology “in situ alkaline hydrolysis” is a low-energy remediation-technology, since it is an in-situ method with relative low energy-costs.

On the poster we will present the site and the remediation method “alkaline hydrolysis”.