



Versuchseinrichtung zur Grundwasser- und Altlastensanierung · VEGAS
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**Institute for Modelling Hydraulic
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Thesis Topic
for B.Sc., M.Sc.
BAU,UMW, WASTE, WAREM

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Model remediation of a DNAPL groundwater contamination using surfactant-supported in-situ chemical oxidation based on a real-scale 2D experiment

Description

As part of an international EU research project, the application possibilities of surfactant-supported in-situ oxidation processes in the field and on a large scale in the laboratory are to be investigated. The method is based on making contaminants available by solubilization with surfactants in order to increase the efficiency of chemical oxidation.

The subject of this bachelor's or master's thesis is the planning, execution and evaluation of a large-scale 2D experiment based on already existing results and findings for the transfer of the concerned groundwater remediation method to field conditions. The experiment is to take place in one of VEGAS' large-scale tanks (8 m x 3 m x 1 m), which can be used to simulate a contaminated aquifer on real-scale under defined boundary conditions.

The tasks of the thesis consist of the determination of hydrogeological parameters of the groundwater model, the dimensioning of remediation related parameters as well as the monitoring and evaluation of the fluid mechanical, hydraulic and chemical processes. This also involves the development of a sampling plan, including the performance of regular sampling and the associated preparation of the samples in the laboratory for chemical analysis. Finally, the results of the experiment will be interpreted and placed in a broader context.

The capacity and experience of the VEGAS analytical laboratory as well as the support of student assistants are available for the processing of the thesis.

Supervisors

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