

Reference

<p>Technical Assistance and Risk Assessment for the former pulp mill in Pirna at the Elbe</p>	
<p>Initial Situation:</p> <p>Within the risk assessments of the long time used industrial site the contaminations, typical for that kind of industry, like PDH, PAH, arsenic, mercurial and materials with increased salt content were determined. From the risk characterisation and risk assessment it forms soil – groundwater and soil – human correlations. The need of interruption of influencing pathways derives from this as a remediation objective. The appropriate measures by using the latest technology are to be checked for their suitability in order to achieve the remediation objective.</p>	
<p>Project Objective:</p> <p>The objective of the current location risk assessment is to evaluate the necessary activities for brownfields revitalisation within the planned conversion of the industrial areas used for 100 years. For this there is to elaborate the influencing pathways with regard to the possible pollutant discharges for the concerned protective goods and to derive the measures for securing of contamination sites within the future use.</p>	
<p>Client: Firma Grafe Beton GmbH</p>	
<p>Project Management: Dr. P. Schneider, Dipl.-Geol. M. Schaffrath, Dipl.-Geol. B. Tunger</p>	
<p>Budget: 30.000 €</p>	<p>Project Duration: 2006 - 2009</p>
<p>Conceptual site model and risk assessment</p> <p>Due to the industrial use of the site, there was a large amount of contamination sources in the unsaturated soil, which caused the contaminant release in the ground water. During the years 1992 and 2001 the contamination sources were partly remediated by clearing of basement rooms and filling them with the earth material of the quality of $\leq Z 1.2$. The site „Alte Chlorfabrik“ should be additionally remediated according to the presented expertise on analysis of the contaminated sites. The remediation methods were already developed. The polluted sites were effectively covered with the temporary protective layer against the rainwater entry. In case of flood of the river Elbe the areas within the polluted sites of „Alten Chlorfabrik“ will be in ground water. In the actual state the rain water can dissolve the substances from the contaminated ground during the operating process and transport them in the underground, wherefrom the transport can be effected in the ground water. Then the dissolved substances are to be transported in the aq-</p>	

uifer taking into account the flow direction which was at that moment approx. 20 m of the northern direction to the receiving water of Elbe. The surface water was diluted here, that no contaminant release was effected in the surface water any more. The contaminant transport was supported by the high hydraulic conductivities of the ground water.

Services provided:

- Groundwater sampling and analytics
- Soil investigation and analytics
- Hydrogeological, hydraulic and hydrological site description
- Evaluation of the provided documents
- Hazard assessment according to the German Federal Protection Act and Ordinance
- Analysis of exposure pathways and determination of hazard facts
- Conception for further investigation/remediation
- Cost-benefit-analysis
- Data management
- Monitoring

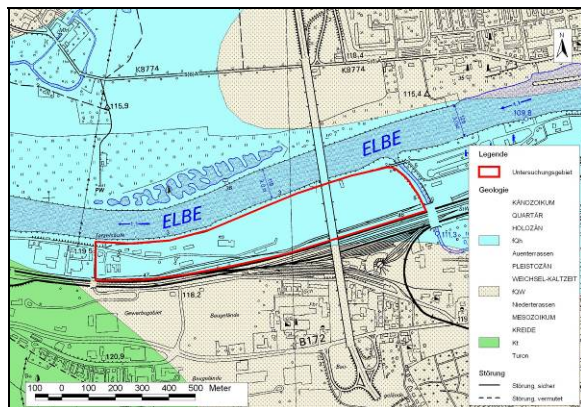
Situation on site:



Location of brownfield directly at the Elbe



Location of brownfield in flooded area



Geological situation



Area investigated