

**Concept development for remediation of a pit for mine drainage water in Germany
by an artificial cover**

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Abstract

Drainage waters from mining activities often show elevated concentrations of natural radionuclides. Pumping into a pit for storage usually includes the precipitation of radioactivity and a subsequent deposition in form of sediments. These sediments are referred to as NORM and have to be handled adequately. In the present study, a relatively small pit for coal mine drainage water with elevated levels of natural radioactivity has to be remediated. The usual way for such a remediation is the excavation of the NORM material and the subsequent landfilling. However, in the present case the radiological and geological conditions as well as complicated administrative procedure of landfilling with respect to acceptance criteria for the NORM material in Germany encouraged the development of a concept for the remediation in form of a suitable artificial cover. In the presentation, the following points are covered:

- discussion of the legal requirements according to the respective present radiological and conventional legislation,
- presentation of the radiological measurements,
- presentation of the geological conditions,
- presentation of the circumstances concerning environmental pollutants,
- illustration of the concept for the remediation in form of the artificial cover (material, dimensions, etc.) as well as
- discussion of the requirements for reuse of the covered area.

Additionally, an outlook with respect to (possible) changes of the legal requirements due to the upcoming modifications according to the 2013/59/EURATOM NORM will be given.