Re-use of NORM in Dutch waterworks

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Abstract

Dutch NORM waste Calcinate from the Phosphorus Industry with an activity concentration 10 times above exemption level has to go to the Dutch radioactive waste facility COVRA (Calcinate above exemption level may also go to a landfill). After decay storage of the NORM in containers at COVRA the NORM can be reused in waterworks such as dikes, roads along dikes and parking lots.

In this presentation the production of Calcinate, collection, filling of containers, transport and storage at COVRA will be shown. The future use of decayed NORM will be explained by an example of NORM (sinters) below exemption level.

An alternative to decay storage is direct immobilization of NORM for reusing purposes. The immobilization process is necessary to prohibit leaching of radio nuclides as well as leaching of heavy metals and other polluting elements. In many cases immobilization is also meant to turn the waste product in an applicable product and, hence, has to fulfill all kinds of application oriented demands like to reduce the emission of hazardous components and to turn the waste into an applicable (and valuable) product. In case immobilization is “only” meant as a pretreatment in order to fulfill the requirements of the depository this involves not only environmental aspects but also health and safety aspects which sometimes complicates the production of the immobilisates. The process of immobilization as well as the considerations of turning a NORM waste into a valuable product will be presented and examples of immobilization products shown.