Abstract of Jeroen Welbergen (COVRA)/Rob Wiegers (IBR) /Jan Kops (van Gansewinkel):

Title: Radiological Safety Analysis of NORM storage in the Netherlands.

At the Central Organization for Radioactive Waste (COVRA) in the Netherlands besides low level waste (LLW) intermediate level waste (ILW) and high level waste (HLW) also very low level waste (VLLW) e.g. (TE)NORM is stored in above ground storage facilities.

The basis of a license application for a nuclear radioactive waste facility in the Netherlands is a Safety Analysis (Safety Assessment) .
Since the introduction of the NORM ordinance in 2004 also a Safety Analysis for storage of NORM waste in a landfill is needed.

For performing a Safety Analysis one needs to develop scenarios and calculate the radiological impact of storage of radioactive waste including NORM. These scenarios concern operational practises, basis design accidents (BDA) and beyond basis design accidents (BBDA).

In case of storing (TE)NORM the BDA are mainly falling down of containers and rupture of containers. This DBA will results in dispersion of the radioactivity into the building and the radiological impact (inhalation, ingestion and external radiation) is calculated. In case of BBDA flooding of the storage building, explosion near and in the storage building and plane crashes into the storage building are used as scenarios to calculate the radiological impact.
In case of storing NORM in a landfill the DBA are beside external radiation also inhalation of radioactivity

The main parameters used in storage scenario are the radioactivity of the (TE)NORM, the dimension of the storage container, the weight of the container, the type of material of the container and the height of storing the containers.
The parameters used for storing NORM in a landfill are bulk or Big bags.

The radiological impact of incidents and accidents are compared with limits issued by the regulator. In the case of storing (TE)NORM at COVRA the Decree of Nuclear installations, fissile material and ore applies in case of a landfill the limits in the NORM ordinance have to be used.

In my presentation an example of a the safety analysis of storing of depleted uraniumoxide (TENORM) and of storing calcinate (NORM) in dedicated storage buildings will be dealt with.
The safety analysis of a landfill for storing NORM in bulk and in Big Bags will also be presented.