NORM residues and aspects of a circular economy – an overview from European HERCA perspective

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Most NORM produced as residues from industries may need to be disposed of as waste or undergo reuse, recycling and recovery to avoid the loss of valuable resources. The treatment will depend on their radionuclide activity concentration, the provisions given in the EU Directive 2013/59/Euratom (EU BSSD) and/or the applicable national legislations, but also overall existing conditions (e.g., existing country waste strategy, infrastructure).

The EU BSSD introduced requirements for the control of practices involving NORM, with a certain level of flexibility given to Member States regarding the extent of regulatory control and its practical implementation. The concepts of exemption and clearance (general and specific or conditional) play a main role in the application of the graded approach, necessary for ensuring radiation protection, but at the same time, avoiding unnecessary burdens to industries and regulators.

The application of the clearance concepts is particularly important in ensuring that NORM waste management is done in an optimized way, commensurate to radiation risk and taking into account all relevant circumstances. Reprocessing, recycling and recovery solutions should be promoted while ensuring radiation safety. The establishment of a developed strategy for NORM residues/waste including the perspectives on sustainability, appropriate industrial and technological possibilities for further material reuse and availability of the supporting infrastructure also play an important role in NORM residues management and circular economy development.

In the light of the intensified international developments and tendencies to make global eco-effectiveness with a transition from a linear towards a circular economy, an analysis of HERCA (Heads of the European Radiological Protection Competent Authorities) member countries' regulatory practice on NORM residues will be presented. This analysis is based on the conclusions of the recently published HERCA NORM Guidance on the application of exemption and clearance concepts to NORM. Considerations of NORM waste/residue classification, management options, occupational and public exposure assessments and examples of both NORM reuse/recycle and disposal options will be discussed with regard to the identified challenges, but also opportunities for the future.

While a circular economy is strongly supported by European Union policies, only a limited number of national examples on the reuse, recycle or recovery of NORM residues, in compliance with the EU BSSD provisions, were identified in the HERCA member countries, showing that greater common efforts are still needed in this area.