Clearance measurements as a tool for waste minimization during decommissioning

Patrik Konnéus, Veronica Andersson and Maria Lindberg
Studsvik Nuclear AB, SE-611 82 Nyköping, Sweden

Clearance, exemption or free release of material from regulatory control are three ways of expressing the same thing, minimizing the amount of waste that needs disposal as radioactive waste and therefore preserving a repository as a national asset.

Studsvik Nuclear has utilized the former whole body measurement cell as a shielded compartment used for gamma spectroscopy measurements of materials that may be subject to clearance. The cell was moved from its original position by heavy lifting and transport, as it was transported in one piece weighing 53 tonnes.

Complete background spectrum for 60 000 s

Spectrum from daily QA background

Peak analysis report from background spectrum

Cell entrance showing the rotating table
- To the left: scale measuring the object’s weight.
- The detector distance is 150 cm from table centre, placed for minimizing background.
- During measurement the table is able to rotate.
- Background shielding of 160 mm steel and 3 mm lead lining.

Standard waste containers used for routine counting
- 1200 or 600 L box (Berglöfs box) 200 L or 100 L steel drum.
- Maximum dimensions: 1140 x 1450 x 1140 mm.
- Maximum weight: 3500 kg.