

Radiological characterisation by means of 3D-laser modelling and positioning of measurements

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Abstract

AB SVAFO is a nuclear waste technology and decommissioning company based in Sweden in the scenic surroundings of Studsvik on the Baltic coast. SVAFO is owned by the Swedish nuclear power industry.

MultiInfo 3D Laser Scan Solution AB is a technical consult company focusing on the development and solution of 3D laser scanning techniques and its applications in different fields.

For better viewing we are using a 3D-laser modelling of a building, national coordinates and using radiological measurements from a database. It is then possible to visualize the contamination situation in the whole building using a CAD-program. The results will be used for the upcoming R2-reactor decommissioning and for visualisation of dose rates and contamination levels in other nuclear buildings.

For better documentation of radioactivity distribution of a decommissioned facility any object in a building can be accurately measured in 3D and visualized in 3D-laser image in a CAD program (e.g. AutoCAD), and then link to a database (e.g. SVALA), which have stored the measurements of radioactivity by other tools (e.g. RFID-tags). The position of any measured object can also be identified in 3D model and laser image, so the situation of contamination levels and distribution can be monitored and visualized in 3D. The results will be used for visualisation of dose rates and contamination levels in other nuclear buildings.

AB SVAFO's main business is to take care of formerly state-owned spent nuclear waste at the site, including small amounts of nuclear fuel. Buildings are also included, mainly nuclear waste storage buildings and a research reactor. Some buildings have already been decommissioned with results of contamination shown in long and not very clear tables. With 3D-modelling the results are shown more clear.