

## **REDUCING EXTERNAL EXPOSURE RISK WITH THE VISIPLAN 3D ALARA PLANNING TOOL**

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The optimisation of the radiological protection is an important part of the safety culture. The concept of ALARA (As Low As Reasonably Achievable) has become an integral part of the safety approach. In order to perform a good ALARA-study for a work involving radionuclides, information has to be gathered concerning the geometry, the distribution of the sources, the work planning and the shielding options. All these aspects have to be considered to arrive at an adequate ALARA-approach. In order to streamline this information we developed the VISIPLAN 3D ALARA planning tool. The software allows the assessment of the dose, in a variety of environments, down to the level of the dose uptake by the individual worker. The dose is assessed taking into account worker position, work duration and subsequent geometry and source distribution changes.

The geometry of the work area and the dose distribution can be represented in wireframe or in a Virtual Reality format (VRML) and can be viewed on a standard PC. The latter gives a more realistic view of the work environment with a clear indication of the expected dose uptake at the different work positions.

Different analysis tools are provided such as the scenario comparison tool enabling the evaluation of different work scenario's on the basis of collective dose, maximum individual dose, intervention time and collective time.

The VISIPLAN 3D ALARA planning tool has shown to be a convivial tool enabling a fast dose assessment in environments going from decommissioning sites, research reactors, accelerators, to large scale and small scale experiment design. The tool could provide a dose prognoses for the dose uptake of the medical staff during treatments with radionuclides.