



INFOTOX (Pty) Ltd

2001/000870/07

Retrieval and scientific interpretation of ecotoxicological information

PostNet Suite 112 Private Bag X25723 Monumentpark 0105 SOUTH AFRICA

Tel: 27(12) 346 4668

Fax: 086 513 5478

Cell: 082 416 5864

e-mail: Info@infotox.co.za

www.infotox.co.za

Technical Note 007 Rev 1.0

Radiological Risk Assessment

Radiological risk assessment is defined as the process of estimating dose and risk to humans associated with exposure to radioactive materials or wastes in the environment. Radionuclides may be released from sources that are either man-made or from natural materials and may be transported through environmental pathways to locations where people could be exposed.

The National Nuclear Regulator controls human exposure to radioactivity in South Africa through the enforcement of specified radiological dose limits and dose constraints. This restricts the public understanding of radiological health risks, because assessments are expressed in terms of radiological dose, while quantification of the potential risk of cancer as a health outcome is not required. In radiological risk assessment it must be considered that members of the public could be exposed not only to radionuclides but also to certain non-radioactive chemicals that may cause cancer. By using cancer risk as an end point in the radiological assessment, the effects of radiological exposure can be placed in context with cancer risks associated with exposure to carcinogenic chemicals that may be present in the environmental scenario. The incremental cancer risk associated with exposure to radionuclides can also be contextualised against the national background cancer risk from all causes in the population.

INFOTOX conducts multi-pathway health risk assessments for human exposure to multiple radionuclides in environmental media. In addition to the calculation of radiological dose for regulatory purposes, the risks of cancer morbidity and mortality are also quantified. The radiological risk assessment is therefore not limited to statements of regulatory compliance, but facilitates public risk communication through the expression of health risk in terms of cancer. This reduces uncertainties and limits the potential for undue concern.



Artist: Maurice van Essche (1941)