Workshop on Radiological Characterisation for Decommissioning
Studsvik, Nyköping, Sweden 17 – 19 April 2012

Absract

Radiological Characterisation Experience with Magnox Reactors
B L Tawton and W A Westall, Magnox Limited, Berkeley, Gloucestershire. UK

At the end of generation, power reactors will be decommissioned. Whether decommissioning is prompt or deferred, knowledge of the radioactive inventory of plant and structures is needed to develop and underpin the decommissioning strategy. As decommissioning progresses the level of detail required for the radioactive inventory increases as more specific and detailed questions need answering. Failure to adequately characterise will result in increased costs and project overruns due to missing optimal solutions, over pessimistic assumptions or unforeseen problems and regulatory issues.

Radiological characterisation for decommissioning of Magnox power stations in the UK has been in progress for over a quarter of a century. Firstly measurements and calculations were carried out to develop a strategy. These have been followed by measurements to determine radioactive inventories of waste streams and packages or to allow decontamination of structures and most recently for partial delicensing of sites.

Some examples of the work carried out for the Magnox stations will be given, ranging from the neutron activation calculations to estimate the radioactive inventory within a bioshield and measurements to validate them. Various plant and structures where the radioactive inventory is due to contamination have been characterised by measurements and examples for boilers and cooling ponds will be discussed. Various routine and ad-hoc measurements and shielding assessments have been performed on waste forms to help satisfy conditions for acceptance for disposal or exemption, which will be reviewed. Finally the measurements for delicensing and the successful application of Data Quality Objectives will be addressed.