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SADRWMS - International Project on Safety Assessment Driving Radioactive Waste Management Solutions

Preamble - Work within the IAEA has been underway for a number of years to develop safety standards addressing safety assessment for facilities and activities associated with the management of radioactive waste prior to disposal. This process has led to the realisation that the approach to such safety assessment is very similar in nature. As such the Safety Guide developed (DS284, Safety Guide for the Safety Case and Safety Assessment for Predisposal Management of Radioactive Waste.) has been structured to cover all these facilities. Whilst there are many similarities, there are also significant differences and the guide emphasises the importance of ensuring that the extent and complexity of the assessment is commensurate with the nature of the activity or facility and its attendant risk.

The SADRWMS Project was designed to examine the application of safety assessment methodology to predisposal waste management practices and facilities including waste storage. SADRWMS complements the experience gained with the IAEA's projects "Improvement of Long-term Safety Assessment Methodologies for Near Surface Disposal Facilities" (ISAM) completed in 2000, and "Application of Safety Assessment Methodologies for Near Surface Disposal Facilities" (ASAM) completed in 2007.

Objectives

In comparing international approaches to safety assessment in the predisposal management of radioactive waste, the objective of the SADRWMS Project is to improve and harmonise such approaches and methodologies. It is anticipated that a body of safety assessment methodology will be developed which will be acknowledged as international best practice in these areas. The meetings of the project are also intended to provide the opportunity for the exchange of information and experience related to assessing the safety of decommissioning.

Scope

The SADRWMS project will encompass all types of radioactive waste including disused sources, small volumes, operational waste and spent fuel, legacy and decommissioning waste, and large volume NORM residues.

Participation

The SADRWMS Project is open to experts and organizations from Member States who are or will be responsible for safety assessment of predisposal radioactive waste management facilities and activities, managers and facility operators and their technical experts who are involved in such safety assessment; as well as persons from regulatory authorities evaluating such safety assessments for the purposes of licensing and regulatory control.

Project Activities

The original work programme of the SADRWMS Project envisaged common approaches to the following aspects:

Resources

Meeting summaries
Final 2010 plenary
Project results
SAFRAN tool

Related projects

GEOSAF
PRISM

- Improved mechanisms for application of safety assessment methodologies for predisposal management of radioactive materials
- Illustration and practical advice on application of safety assessment methodologies using the master flowchart and case studies taken forward through three application working groups
- Development of an integrated and graded approach to addressing a large variety of radioactive materials management challenges
- Enhancement of confidence and public acceptability of the pre-disposal management practices by scientific safety assessment approach
- Coordinated approaches to regulatory and peer review and justification of safety assessment and development of associated procedures, reflecting state-of-the-art international practice for predisposal management of various types of radioactive waste

Work Completed

The project commenced in 2004, at an opening meeting at which the original project activities were discussed and agreed. The initial outcome of the SADRWMS Project was achieved through the development of a series of flowcharts which were intended to improve the mechanisms for application of safety assessment methodologies for predisposal management of radioactive materials. These flowcharts have since been incorporated into DS284; in 2005 an initial specification was developed for a computer code to apply the SADRWMS flowcharts, called the Safety Assessment Framework (SAFRAN) Tool.

Between 2004 and 2010, the SAFRAN tool underwent continuous development. A number of test cases were conducted to test the SAFRAN tool and its implementation of the SADRWMS methodology. During the fifth plenary meeting of the SADRWMS project in 2008, it was decided to limit the number of new test cases to one or two facilities which include a comprehensive set of predisposal waste management activities and facilities. This was intended to allow for more in-depth application of the software tool.

The Thailand Institute of Nuclear Technology (TINT) Radioactive Waste Management Centre (referred to as the TINT Facility), which acts as the centralized radioactive waste management service in the country, was chosen as an appropriate test case. The results and feedback of the application of the methodology described in DS284 and the use of the SAFRAN tool are documented in a report.

Outcomes

- A Safety Report document that describes the methodology for safety assessment of pre-disposal radioactive waste management activities developed under the SADRWMS project and implemented in the SAFRAN tool
- Input to a harmonised version of the safety guide DS284 “Safety Case and Safety Assessment for Predisposal Radioactive Waste Management Facilities and Activities” that includes the framework and flowcharts developed within SADRWMS
- The SAFRAN software tool for applying safety assessment methodology to predisposal radioactive waste management, including user guide and tutorials

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