

International intercomparison and harmonization projects for demonstrating the safety of radioactive waste management, decommissioning and radioactive waste disposal

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Abstract

The Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management and the international safety standards on radioactive waste management, decommissioning and radioactive waste disposal call for assessment and demonstration of the safety of facilities and activities; during siting, design and construction prior to operation, periodically during operation and at the end of lifetime or upon closure of a waste disposal facility. In addition, more recent revisions of the international safety standards require the development of a safety case for such facilities and activities, documentation presenting all the arguments supporting the safety of the facilities and activities covering site and engineering features, quantitative safety assessment and management systems. Guidance on meeting these safety requirements also indicates the need for a graded approach to safety assessment, with the extent and complexity of the assessment being proportional to the complexity of the activity or facility, and its propensity for radiation hazard. Safety assessment approaches and methodologies have evolved over several decades and international interest in these developments has been considerable as they can be complex and often subjective, which has led to international projects being established aimed at harmonization. The IAEA has sponsored a number of such initiatives, particularly in the area of disposal facility safety, but more recently in the areas of predisposal waste management and decommissioning, including projects known as ISAM, ASAM, SADRWMS and DeSa. The projects have a number of common aspects including development of standardized methodological approaches, application on test cases and assessment review; they also have activity and facility specific elements. The paper presents an overview of the projects, the outcomes from the projects to date and their future direction aimed very much at practical application of safety assessment methodology for assisting with project development and implementation.

KEYWORDS: Radioactive waste, management, predisposal, disposal, decommissioning, safety demonstration, intercomparison, international.

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