

TWG 1 – Safety Case: Handling of uncertainties

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Outcomes and recommendations from PAMINA and MeSA

Performance Assessment Methodologies in Application to Guide the Development of the Safety Case (PAMINA, EC 2011)

- Uncertainty analysis
 - Procedures to derive PDFs and protocol to treat model uncertainties should be applied and further developed in an international framework
- Sensitivity analysis (SA)
 - More research work is needed to establish a reliable procedure for SA
 - An international frame would be needed for an efficient treatment of this task

Methods for Safety Assessment of Geological Disposal Facilities for Radioactive Waste (MeSA, OECD/NEA 2012)

- “A review of approaches to guide expert judgement was made in the frame of the PAMINA project (Bolado *et al.* 2008). However, it could be interesting to examine such guidelines further to determine whether and when more formal approaches to expert judgement are warranted for safety assessment and in particular for system description and scenario derivation.”

History of TSWG preparation

June 2012: IGD-TP Deployment Plan

- Definition of JA8:
 - „Benchmarking“ for confidence in Long Term Safety in Safety Cases: TSWG
 - Topic 1.3: Increase confidence and further refinement of methods to make sensitivity and uncertainty analyses

May and September 2013: Meeting of interested organizations

- Foundation of a TSWG
 - GRS, Galson, NDA, Nagra, ANDRA, Enresa, NIRAS-ONDRAF, SKB, SANDIA, UJC, RAWRA, NRG, Posiva, TUC
- Planning and definition of activities
- Elaboration of a working structure
- New title of activity: “Handling of Uncertainties in the Safety Case for Deep Geological Repositories”

Topics of current interest in TSWG

Topic 1: Management of uncertainties

Task 1.1: Strategies for managing uncertainty

Task 1.2: Management of uncertainties in different time frames of disposal system evolution

Task 1.3: Regulatory decision-making under uncertainty

Task 1.4: Communication of uncertainty

Topic 2: Uncertainty identification and quantification

Task 2.1: Expert judgement

Task 2.2: PDF derivation

Task 2.3: Identification and quantification of correlations

Topic 3: Sensitivity analysis

Task 3.1: Survey and assessment of methods in view of PA

Task 3.2: Comparison of methods by numerical experiments

Task 3.3: R&D triggering