**Integration Group for the Safety Case (IGSC) Symposium 2024**  
*MOVING TOWARDS THE CONSTRUCTION OF A SAFE DGR – GETTING REAL*

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| **Abstract Title:**  **IGSC MeSA-2 results: Information flow when producing a safety case and design requirements** | |
| **Abstract (300-500 words):**  Post-closure safety assessment stands at the core of each safety case: it helps demonstrate repository safety and informs safety-related programme decisions. While the details of assessment methods may vary, depending on regulations, programme context, and the specific safety concept under consideration, the general methodology for demonstrating post-closure safety is established and well-understood (see e.g., Methods for Safety Assessment of Geological Disposal Facilities for Radioactive Waste. Outcomes of the NEA MeSA Initiative, 2012).  However, in advanced programmes, implementation aspects become increasingly important: the safety case must *demonstrate* safety, but the site together with the appropriate design and its implementation must *achieve* it. At the interface between the safety case, the design, and its implementation, sit the derivation and management of requirements. This interface would benefit from clear methodological consideration and documentation, as has been done in the past for safety assessment and safety case methodology. To systematically address this, the IGSC has established an initiative endeavouring to develop a holistic view on these aspects and embed the existing MeSA framework within this wider context.  The MeSA-2 initiative aims at extending the description of the interaction between the safety case and the development of the design basis in the MeSA framework, taking into account the aforementioned interface between safety assessments and requirements management. A key aspect of MeSA-2 will be how to apply requirements management in the face of the significant uncertainty found in a DGR. The presented outcomes particularly include updated activities and information flowcharts in which the interplay of technical requirements with assessment activities is being described. Issues considered are technical feasibility, long-term safety and operational safety and compliance with the regulatory framework.  On the poster, we will present two newly developed flowcharts resulting from the initiative on (i) the role of post-closure safety assessment in the wider context of the safety case and repository development and (ii) the post-closure safety assessment methodology itself.  The MeSA flowcharts have been updated, providing more details on activities involved in implementing a repository programme and preparing the associated safety case. They also take into account inputs from the Expert Group on a Data and Information Management Strategy for the Safety Case (EGSSC) of the NEA Working Party on Information, Data and Knowledge Management (WP-IDKM), and hereby reflect the state of the art on information and data management as well as on safety case ontology development.  Core message of the flowcharts is the connection and information flow between safety assessments and their assessment basis on the one hand, and feedbacks to/from design and implementation processes on the other hand. Central elements are safety assessments, design requirements and design specifications (including their verification), as well as fundamental safety and radiation protection principles.  The results are a contribution to the update of the MeSA report (2012) carried out as part of the overarching initiative. Special consideration has been given to the relationship with the IGSC’s GeneSiS project addressing the evolution from generic to site-specific safety cases as well as with the ongoing EURAD and GEOSAF works on requirements management.  === end of abstract ===  Ideally, an overview presentation of the MeSA-2 initiative should be given orally (see abstract by Klaus-Jürgen Röhlig et al.), with two supporting poster presentations: One based on this abstract and another on a process-oriented flowchart by L. Bailey, L. Gray, Th. U. Kaempfer, and S. Voinis.  The list of initiative members and, thus, co-authors is too long to fit into this form, but their work and contributions are herewith highly appreciated and acknowledged.  The themes covered in the initiative are rather broad-ranging. Thus, despite of having chosen symposium topic 5 for this abstract, the authors believe that it might also fit into topics 1 or 6. | |