

NRC INTERNATIONAL TRAVEL TRIP REPORT

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Dates of Travel and Countries/Organizations Visited

May 20-26, 2017
Vienna, Austria; International Atomic Energy Agency (IAEA)

Subject

First Plenary Meeting of the International Project on Demonstration of the Operational and Long-Term Safety of Geological Disposal Facilities for Radioactive Waste (GEOSAF III)

Desire Outcome

The purpose of participating in this meeting is to ensure that NRC's positions and interests are well represented in the final products of the GEOSAF III project. Through the plenary, IAEA was intended to obtain consensus from Member States on the Terms of Reference (ToR) for the project (GEOSAF III) and to develop an integrated work plan for the duration of the project. GEOSAF III plans to clarify the GEOSAF II concepts of As Built state (ABS), Design Target (DT) and Safety Envelope (SE) through examples found in actual safety cases of the Member States. In addition, GEOSAF III will also validate the gap analysis performed in GEOSAF II concerning IAEA guidance for geological repository operational safety. The goal is to draft a technical document that will become a basis for recommendation to the IAEA to develop guidance on operational safety.

Results Achieved

The plenary reviewed the draft and agreed on the final Terms of Reference for GEOSAF III, which laid out the draft working topics, plans and schedules as well as key questions to be answered in these topics. Working groups of the plenary further refined the work plans, schedules and assignments for the working topics. Member States with existing safety cases agreed to provide inputs to a final product of the project in a three-year time frame. Working sessions between plenary meetings were planned to facilitate the extraction of the ABS, DT, and SE concepts out of individual safety cases. The plenary plans to complete the product in 2020. The operation safety working group also agreed on further works on gap analysis and, during the plenary, drafted an outline for an independent report to IAEA.

Summary of Trip

The plenary meeting of GEOSAF III was held in Vienna, Austria, on May 22 – 26, 2017, to (1) discuss a draft and agree on a final Terms of Reference for the GEOSAF III project and to (2) receive Member State recommendations and refine working topics and work plans and schedules to finalize two technical documents for the project. The meeting consisted of

presentations, working group breakouts, and working group reports with discussions in plenary sessions.

On the first day of the meeting, three presentations provided 1) an overview of general IAEA activities and the hierarchy, categories and structure of IAEA Safety Standards, 2) backgrounds and motivations of GEOSAF I and II, focusing on the operational safety group and the TECDOC generated during GEOSAF II, and 3) practical implementation of the SE, DT, ABS concepts in an actual safety case. At the end of the day, the plenary was divided into three working groups: 1) operational safety (Working Group 1 or WG1), 2) consistency between requirements, DT and SE (WG2), and 3) managing non-conformance and updating the safety case (WG3). The groups discussed their respective areas as identified in the ToR and came to preliminary consensus on working scopes of the individual groups. The traveler participated in WG2, which has the highest level of relevance to regulations and regulatory requirements in the areas of geological disposal of radioactive wastes.

On the second day of the meeting, the plenary was presented with five existing or practical safety cases from Sweden, Finland, France, Belgium and the United Kingdom. The safety cases of Sweden and Finland rely heavily on the long-term containment by copper canisters, and on radionuclide retardation by other engineered and natural barriers. The France presentation outlined the ongoing regulatory review of the Cigeo safety case by the supporting organization IRSN (Institut de Radioprotection et de Sûreté Nucléaire). The repository implementer, Andra (Agence nationale pour la gestion des déchets radioactifs) is expected to submit a license application of the Cigeo repository by 2018. At this moment, Andra is committed to 66 open topics, and is asked by IRSN to address four specific safety issues. Belgium and the United Kingdom (UK) have not selected a site for disposal. Currently, implementer and regulatory body interaction has concentrated on assessment and review of the repository design concept in Belgium. In UK, the implementer has set up a technological program that includes research, disposal systems assessments and engineering issues. The siting process for a disposal facility is under consideration as well.

On the remainder of the second day and the third and fourth days of the meeting, the plenary was divided into the three working groups. The working groups reviewed the proposed questions and issues associated with the working topics they were assigned. They also determined working plans and schedules, identify products and potential interactions among the three working groups. The plenary, at the end of the days, reconvened to discuss the refined working topics, their draft work plans and schedules, and their expected products and potential working sessions (may not be held at IAEA) between plenary meetings at IAEA for the subsequent three years.

Finally, on the morning of Friday May 26th, the plenary reconvened to review and summarize the outcomes of the working groups and to discuss their potential collaborations. Group leaders were elected and charged with planning for the working sessions and assembling materials for their proposed products. The plenary then charged a three-member team to finalize the GEOSAF II TECDOC by the summer of 2017. The second technical plenary meeting of GEOSAF III was proposed to be held from June 4th to June 8th in 2018.

Pending Actions/Planned Next Steps for NRC

The U.S., in particular, DOE WIPP, was identified as a safety case that will be used to illustrate the concepts of safety envelope, design target, as-built state and operational safety. The

traveler will gather WIPP information and provide an illustrative narrative as an input to the second working group of the plenary.

Points for Commission Consideration/Interest

The content of this report may be of interest to the Commission. There are no actions that the Commission needs to take as a result of this meeting.