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**NUCLEAR ENERGY AGENCY
RADIOACTIVE WASTE MANAGEMENT COMMITTEE**

Integration Group for the Safety Case (IGSC)

Summary Record of the 2nd Meeting of the SALT CLUB

**Berlin, Germany
16 September 2013**

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2nd meeting of Salt Club

Summary record

Berlin, Germany, 16 September 2013

Opening Remarks

0 Welcome Note

Michael Siemann, Head of Radiological Protection and Radioactive Waste Management Division, NEA welcomed the participants and informed them about recent changes regarding the chair (new chair J.-P. Minon, ONDRAF/NIRAS) and the core group (new member G. Ouzounian, ANDRA) of the Radioactive Waste Management Committee.

Jörg Mönig, GRS mbH, Salt Club Chair welcomed and provided some practical information of the meeting.

Klaus Röhlig, Chair of the Integration Group for the Safety Case, informed about the NEA Safety Case Symposium in October 2014 in Paris and the number of registrations.

Formal Aspects

1.1 Objectives of the 2nd Salt Club plenary meeting (SC-2) and approval of proposed agenda

The proposed agenda was accepted without changes.

1.2 Approval of the Summary Record of SC-1

The proposed summary record of the 1st meeting of Salt Club was accepted without changes.

Introduction of salt related activities

2.1 US Overview of Salt Research

Abe van Luik, WIPP, presented the overview of the current status of the WIPP (Waste Isolation Pilot Plant) and the objectives and the current time table for the SDDI heater experiment. Universities will be involved in this research through National Laboratories, which will perform most of the work.

2.2 Microbial Ecology in a Salt Repository

Julie Swanson, LANL, reported on microbial research in the LANL and informed the participants about the microbial activities in the far field and the near field of a geological repositories, respectively, in various geological surroundings

2.3 Relevance of Microbes in a Salt Safety Case

Christi Leigh, SNL, presented how microbial processes were treated in the WIPP

safety case on the basis of the regulatory requirements of the US EPA. Microbial activities must be assumed for all vectors, thus resulting in a large potential carbon dioxide production. As a consequence, the repository will be backfilled MgO to buffer the geochemical environment. SC members discussed the effect of temperature on microbe/bacteria activities phenomena.

2.4 **Rosendorf Research Updates**

Thuro Arnold, Rosendorf, reported on the current status of microbial research in Rosendorf, Germany. It was discussed that microbial aspects could be a future area of work within the Salt Club in line with the mandate of the Salt Club.

Decision: A proposal should be made to the next Salt Club meeting with an outline of the objectives of the planned work and the intended approaches. In general, the respective work should focus on the possible contributions to the safety case. The proposal will be prepared by a group of representatives from various SC member institutions, which will be led by Julie Swanson.

2.5 **Compaction of Crushed Salt**

Frank Hansen, SNL, gave a presentation on the reconsolidation of the salt rock and the status of the summary paper that is prepared by SNL, Respec, BGR, GRS, and IfG. This report shall be published beginning of 2014.

2.6 **NEA Thermochemical Database**

Jane Perrone, NEA, presented the overview of the NEA thermodynamics database project, which is currently in its fourth phase terminating January 2014. The outcomes of the thermodynamics database project are published in a series of NEA reports. The fifth phase of the NEA TDB project covers four years with 15 participating organizations and a budget of 1.5 million Euros.

2.7 **SOAR on Thermodynamic Data for High Ionic Strength Aqueous Solutions**

Marcus Altmaier, KIT, informed the Salt Club about the ongoing activities to prepare a state-of-the-art report (SOAR) on thermodynamic data using the Pitzer approach for high ionic strength aqueous solutions within the NEA TDB project. As a parallel action to the NEA TDB related SOAR focusing entirely on the present situation and data, it was suggested to set up a Working Group (WG) to develop concepts for a future Joint International Pitzer Database as a new activity of the Salt Club. KIT-INE and LANL volunteered to organize such a WG which shall propose possible future activities in the next Salt Club meeting.

2.8 **Thermodynamic Reference Database (THEREDA)**

Ulrich Noseck, GRS, presented the overview of the Thermodynamic Reference Database (THEREDA) activities which focus on aqueous solutions with high ionic strength such as in saturated salt solutions. THEREDA has been developed by 5 organizations that were funded by three German ministries; BMWi, BMBF, and BMU/BfS. This database project has already passed two phases, has been extended to hold surface complexation data and data for high temperature conditions have also been included.

Salt work activities

Decision:

SC members agreed that the collaborated work on web-base thermodynamic / thermochemical database as a new activity on Salt Club, initiated by Marcus Altmaier, KIT. KIT-INE and LANL volunteered to organize a work group which shall propose future activities in the next Salt Club meeting. This work group will provide also the terms of references (ToR) and the list of cooperating-groups.

3.1 **ABC-Salt III**

A short overview on the ABC-Salt Workshop Series was given by Marcus Altmaier, highlighting examples from the last ABC-Salt (III) workshop in Santa Fe, 2013. The ABC-Salt (IV) workshop is tentatively scheduled for May-April 2015 in Heidelberg, Germany, and will be organized in connection to the HiTAC workshop on High Temperature Aqueous Chemistry.

3.2 **FEP catalogue HLW in rock salt**

Jens Wolf, GRS, and Geoff Freeze, SNL, gave a joint presentation regarding the status of the generic FEP catalogue for a HLW repository in salt rock and its collaborated work on FEPs.

SC members discussed the relationship of the NEA FEP database and this US-German collaborated work. It was suggested to link the work within the Salt Club with the ongoing work on the NEA FEP database in IGSC.

3.3 **Salt Knowledge Archive**

Kristopher L. Kuhlman, SNL, reported about the SITED database established at SNL. SC members agreed that the SITED offers a very good starting point for the envisaged knowledge archives regarding salt rock research. The SC concluded that only minor extensions are possibly necessary.

Decision:

SNL will contact NEA databank division in order to explore means to host the Salt Knowledge Archive under NEA. If this turns out not to be feasible, SNL together with GRS will propose other technical means at the next SC meeting.

Other Businesses

Ulrich Noseck, GRS, informed the SC about the status of the Report on the Natural Analogues workshop, which was held in September 2012 in Braunschweig. All contributions have been received and the editorial process should be completed within short time. The report will be published as NEA R-report within this year.

Next Meeting

- *Date: Tuesday, 18 March 2014, start 9am.*
- *Location: NEA, Paris, with videoconference*

2nd meeting of the Salt Club

Held on 16 September 2013 – Berlin, Germany

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