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D. Rochman

Notes for the SG12 meeting, June 28th

WPNCS SG12 Meeting, June 28th, 2023, OECD NEA Paris, France

Summary

- Review of actions
- Letter of support for KKG
- ICNC conference
- Updates from EURAD, EURAD-2, EPRI, SKB
- SG12 report and publication
- Afternoon: ad-hoc meeting on DH benchmark

Review of actions

	Action	Responsible	Due date
1	Letter of support for KKG;	NEA	ASAP
2	Interested participants for EPRI report review (revision of measurements) to make themselves known to coordinator & secretariat for liaising with EPRI [Preliminary list: P. Schillebeeckxs, V. Léger]	All	31st December 2022
3	Schedule for next meeting, presentation by A. Shama on approach to assessing target uncertainties	Coord, secretariat & A. Shama	Next meeting
4	[Report] Provide further input to the group's report	All	ASAP and no later than 1st March 2023
5	[Report] Share template for copyright & authorization to reproduce forms on WPNCS SG12 MyNEA	Secretariat	15th December 2022
6	[Report] Scientific journal paper preparation: Coordinator to seek advice with various potential editors	Coordinator	By next meeting
~~7~~	~~[Report] Add contribution relying on Teo's code and calculation in report~~	~~D. Rochman, G. Ilas, T. Simeonov~~	~~March 2023~~

Review of actions

	Action	Responsible	Due date
8	[Report] Coordinator to define assembly case (a simple toy case for illustration) on which interested participants are invited to assess the resulting decay heat based on standards. Participants welcome to contribute; for inclusion in the report. [Preliminary list includes V. Léger, G. Ilas, D. Rochman, T. Simeonov, V. Vallet];	D. Rochman, G. Ilas, others	1st March 2023
9	[Benchmark exercise] The specifications will be uploaded on MyNEA in word format. All invited to comment/raise questions by editing the file directly. The coordinator to complete missing information. J. Kierkegaard offers to provide additional information as requested and in as much as possible. **After this review period (1 month?), organise short ad-hoc meeting.** Question on purpose and aims to be clarified before submitting to WPNCS. Technical details and specifications can be finalized after/in parallel to submitting proposal to WPNCS.		Before next meeting (before June 2023)
10	[International calorimeter] Hold ad-hoc remote meeting for a dedicated discussion on opportunities for shared calorimetry facilities.	NEA Secretariat	Before next meeting (before June 2023)
11	Dedicate discussion on BU topic in cooperation with SFCOMPOTRG and other relevant groups (and WPRS if applicable).	NEA Secretariat	Schedule during WPNCS week, June 2023 – with enough time! (tentatively ½ day)
12	Speakers to upload presentation	Speakers	15th December 2022

Letter of support for KKG

- Sent in May 2023

OECD
BETTER POLICIES FOR BETTER LIVES

NEA
NUCLEAR ENERGY AGENCY

Ref.: TI-AV/10052023/TI-AV-lp

Boulogne-Billancourt, 10 May 2023

To whom it may concern

Dear Sir / Madame,

The Working Party on Nuclear Criticality Safety (WPNCS) of the OECD Nuclear Energy Agency is very pleased to express its support for the project of designing, building and running a decay heat calorimeter at the Goesgen power plant (KKG) in Switzerland. This letter is intended for the KKG management, the decay heat calorimeter development group and reviewing experts.

Decay heat is a key metric for the safe and economical handling, including storage and transport, of irradiated nuclear fuel. Currently, decay heat calculation tools are being validated with a limited set of publicly available measured decay heat values. It has been emphasised by the nuclear international community that the current situation of having a unique working calorimeter worldwide, namely at Swedish Nuclear Fuel and Waste Management Company (SKB), is not a satisfying situation. Such measured values, nonetheless of very high quality, do not systematically overlay with the current characteristics of spent nuclear fuel (SNF), regarding higher peak and average burnup, higher initial enrichment value, various cooling periods, and mixed oxide fuel to name a few. Additionally, the current expectations for limited uncertainties and biases are not systematically covered by the existing measured decay heat values.

There is therefore an essential international need for new and independent measurements of SNF decay heat and we wish to express our strong support for the new KKG calorimeter project. It will be of tremendous value for safety analyses and optimisation efforts, help in covering existing technological gaps and contribute to the code validation, to fulfil obligations from national and international guidance.

We are therefore highly thankful to the Goesgen power plant for their efforts and development of such new calorimeter. We express our entire support of this new project, which will serve not only the needs of Switzerland, but also be an outstanding example for the international community.

Yours sincerely,

Tatiana Ivanova
Head of the Division of Nuclear Science and Education

Alexander Vasiliev,
Chair of the Working Party on Nuclear Criticality Safety

On behalf of the Working Party on Nuclear Criticality Safety (WPNCS)
OECD Nuclear Energy Agency

Nuclear Energy Agency (NEA), 46, Quai Alphonse Le Gallo, 92100 Boulogne-Billancourt, France
Tel.: +33 (0)1 45 24 28 96, E-mail: wpncs@oecd-nea.org

ICNC-2023 contribution

- Draft paper sent to the conference organizers

ICNC 2023 - The 12th International Conference on Nuclear Criticality Safety
October 1st – 6th, 2023 in Sendai, Japan

DECAY HEAT OF IRRADIATED NUCLEAR FUELS – A STATUS REPORT FROM THE NEA WPNCS

D. Rochman [1] *, A. Algora[2], Ø. Bremnes[3], O. Cabellos [4], S. Caruso[5], L. Fiorito[6], L. Giot[7], K. Govers[8], S. Häkkinen[9], V. Hannstein[10], T.D. Huynh[11], R. Ichou[12], G. Ilas[13], M. Kromar[14], S. Lahaye[11], V. Léger[15], F. Malouch[11], J.F. Martin[16], P.V. Petkov[17], A. Shama[18], T. Simeonov[19], A. Sjöland[20,21], S. Tittelbach[22], A. Tsilanizara[11] and V. Vallet[23]

[1] Paul Scherrer Institute, Villigen, Switzerland
[2]IFIC, University of Valencia, Paterna, Spain
[3]EDF DIPNN-DT, Lyon, France
[4] Universidad Politecnica de Madrid, Spain
[5]Kernkraftwerk Goesgen-Däniken AG, Däniken, Switzerland
[6]SCK CEN, Belgian Nuclear Research Center, Mol, Belgium
[7] Subatech (CNRS/IN2P3, IMT Atlantique, Université de Nantes), Nantes, France
[8]Federal Agency for Nuclear Control, Brussels, Belgium
[9]VTT Technical Research Center of Finland, Espoo, Finland
[10]GRS gGmbH, Garching Germany
[11]Université de Paris-Saclay, CEA SERMA, Service d'Études des Réacteurs et de Mathématiques Appliquées, Gif-sur-Yvette, France
[12]Institut de Radioprotection et de Sûreté Nucléaire, Fontenay-aux-Roses, France
[13]Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA
[14]Jožef Stefan Institute, Ljubljana, Slovenia
[15]Orano NPS, Montigny-le-Bretonneux, France
[16]Division of Nuclear Science and Education, OECD Nuclear Energy Agency, Paris, France
[17]Sofia University, St. Klment Oridski, Sofia, Bulgaria
[18]Nagra, Nationale Genossenschaft für die Lagerung radioaktiver Abfälle, Wettingen, Switzerland
[19]Studsvik Scandpower, Inc., Newton, Massachusetts, USA
[20]Swedish Nuclear Fuel and Waste Management Co. (SKB), Sweden
[21]Dept. of Nuclear Physics, Lund University, Sweden
[22]WTI GmbH, Jülich, Germany
[23]Commissariat à l'énergie atomique et aux énergies alternatives, Cadarache, France
** Dimitri-alexandre.rochman@psi.ch*

Updates from EURAD, EURAD-2, EPRI, SKB

- Remarks from A. Sjöland, H. Akkurt, and/or F. Johansson

SG12 report and publication

- Latest version on Overleaf (pdf, tex files)
- pdf files on mynea, and
  https://tendl.web.psi.ch/tendl_2021/tar_files/WPNCS_SG12-sota.pdf

- Questions:
  - Is the current version “good enough” ?
  - Do we have all co-authors ?
  - How shall we publish it ?
    - Option 1: NEA report
    - Option 2: journal paper, and NEA “summary”

Afternoon: ad-hoc meeting on DH benchmark

- Presentation of the DH benchmark definition
- Possible changes
- Alternatives

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Wir schaffen Wissen – heute für morgen