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12 January 2024

**NUCLEAR ENERGY AGENCY  
MANAGEMENT BOARD FOR THE DEVELOPMENT, APPLICATION AND VALIDATION OF  
NUCLEAR DATA AND CODES**

**The Joint Evaluated Fission and Fusion (JEFF) Nuclear Data Library Co-ordination  
Group**

**Joint Evaluation Fission and Fusion (JEFF) Co-ordination Group Meeting Title**

**SUMMARY RECORD**

E125357

28 April 2023  
Hybrid Meeting  
NEA Headquarters, Boulogne-Billancourt and Zoom

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**JT03535675**

## ▪ Opening and introduction of the participants

1. The Chair of the Co-ordination Group (CG), **Mr Arjan PLOMPEN**, opened the meeting and welcomed the participants. The list of participants is provided in **Appendix 1**.

## ▪ Adoption of the Agenda

2. The proposed agenda (**Appendix 2**) was approved without modifications.

## ▪ SANDA follow-up

3. **Mr Arjan PLOMPEN** summarized the discussion held on the 27<sup>th</sup> of April on the nuclear data project in the domain of nuclear safety. The call has been published on the 8<sup>th</sup> of April 2023, and the deadline is on the 8<sup>th</sup> of November 2023. CIEMAT has accepted the responsibility of leading this project.
4. **Mr Arjan PLOMPEN** suggested revising the SANDA+ARIEL logic to accommodate a reduced budget of 4 million euros, down from the original 7 million euros. The reduction is somewhat mitigated by the fact that UK and Swiss participants will not receive funding in the new call as they are not party to EURATOM, anymore. The main objective of the project is to develop and sustain expertise in the field of nuclear data, with a specific emphasis on addressing the needs of applications. The NEA high priority request list is one important guide for new proposals. Additionally, this proposal presents an opportunity to support the advancement of the JEFF library. **Mr Alexey STANKOVSKIY** questioned whether the project should also prioritize the training of new evaluators, as there is a shortage of such professionals in Europe. **Mr Arjan PLOMPEN** agreed to incorporate a competence development component into the project, noting that the call for proposals highlights the importance of Europe's autonomy in the field of nuclear data.
5. **Mr Arjan PLOMPEN** informed the CG that, during the discussion held on the 27<sup>th</sup>, a proposal had been put forward to reorganize the work packages based on main themes, such as spent fuel, burnup issues, advanced reactor concepts, criticality safety, and non-energy applications, rather than the type of work (experiments, evaluation, benchmarking, validation). **Mr Oscar CABELLOS** expressed concerns about this proposed change, suggesting that it might complicate the organization. **Mr José Ignacio MARQUEZ DAMIAN** supported this viewpoint, explaining that a PhD/Postdoc student working on any topic would be involved in multiple work packages. He also clarified that the type of funding determines the project's definition and expressed ESS's willingness to contribute to various aspects of the project, including technical and software-related aspects. **Mr Robert MILLS** welcomed this innovative approach, stating that involving individuals in different aspects of the project would be beneficial for educating young scientists. He concluded by mentioning that funding could be resolved. **Mr Cyrille DE SAINT JEAN** proposed maintaining both applications and isotopes, displaying them in a grid format to facilitate work package management. **Mr Oscar CABELLOS** emphasized the importance of promoting collaboration among individuals from different groups from a management perspective. He suggested taking INDEN as an example, which divided work packages into topics (light elements, structural materials, and actinides) and provided descriptions of applications in each work package. **Mr Dimitri ROCHMAN** summarized the discussion by stating that the CG members agreed on the project's content but needed to decide on the presentation format. **Mr Arjan PLOMPEN** suggested the new project define evaluated files among its deliverables and the JEFF-4.1 library release in 2028 at the end of project as the recipient of such evaluations. Similarly, benchmarking and validation methods should target the JEFF-4.1 development and testing.

6. **Mr Arjan PLOMPEN** encouraged the members of the CG to collaborate in creating a prioritized list of target isotopes and/or reactions that should be clearly outlined in the proposal. Taking into account this priority list, the following aspects need to be defined:

- *Measurements*: e.g.  $^{238}\text{U}(n,\text{inl})$ , FY, TSL
- *Models and codes*: e.g. TALYS, REFIT, DRAGON
- *Processing needs* (scripts, inputs): e.g. NJOY, PREPRO, GAIA
- *Validation needs* (benchmarks, coded, inputs): e.g. ICSBEP, IRPhe, PIE, depletion

Action 1 (DB): Send a Doodle for a meeting next week (done)

Action 2 (CG): Send proposals by the end of next week on the NEA SharePoint

#### ▪ **Timeline for JEFF**

7. Mr Gilles NOGUERE confirmed that an updated evaluation of the resolved resonance region of **U-235, Pu-239, and Pu-241** is available. The depletion validation must be performed before the next meeting
8. Mr Olivier SEROT confirmed that a new evaluation of **FY for the thermal fission of Pu-239** will be available at the beginning of September 2023. He will organize a TDS on the validation of these new proposals, and the final version will be available in November 2023
9. Mr Stefan KOPECKY and Mr Mathieu HURSIN will keep working on the **resonance region of U-238**, but nothing can be expected before summer
10. Mr Dimitri ROCHMAN, Mr Gilles NOGUERE, and Mr David BERNARD committed in working on the list of **fission products** responsible for the bias in the depletion calculations. David will identify the isotopes and Dimitri will lead the TENDL work to improve the files
11. Mr Tim WARE, Ms Raphaelle ICHOU, Mr Steven VAN DER MARCK, and Oscar CABELLOS will identify which **criticality and shielding benchmarks** are problematic, and which non-actinides isotopes are responsible. Mr Dimitri ROCHMAN asked to specify the reactions giving issues in the benchmark. Oscar and Raphaelle will lead this activity, and will organize a TDS on the issue
12. Mr Cyrille DE SAINT JEAN committed in delivering the **U-235 fast range** before summer, to be integrated with Gilles' resolved resonance region. Oscar volunteered to check the full evaluation with his mapping tool
13. Mr Pascal ROMAIN promised to deliver the **U-238 fast range** in September/October. The community would have one month to test it before the next JEFF release
14. Mr Tim WARE pointed out that some of the **delayed neutrons groups** went back to six groups. He volunteered to identify the concerned isotopes. If they are from TENDL, Dimitri will fix them, otherwise, Pierre LECONTE might do it
15. Mr Oscar CABELLOS committed in identifying **missing JEFF data** (missing MFs) using his mapping tool
16. Mr Mark KELLET promised updates on **decay data evaluations** at the beginning of 2024
17. Mr Mark GILBERT volunteered to perform **decay heat fusion benchmarks**
18. Ms Daniela FOLIGNO pointed out the need to define the **standardization choices for the JEFF documentation**. Authors will have to provide, in addition to the plots generated with gnuplot, the

tabulated data and the scripts used to generate the plots. She will organize a TDS on the topic, and will create a SharePoint page to store the choices made (colour coding, fonts, etc)

19. Mr Oscar CABELLOS asked the NEA to include his **mapping tool** into the NEA tools before the November meeting
20. Ms Daniela FOLIGNO agreed to **implement FUDGE into the processing pipeline**, with the help of Mr Jean Christophe SUBLET
21. Ms Daniela FOLIGNO agreed to **categorize processing errors** and create associated GitLab issues
22. Mr Cedric JOUANNE agreed to **standardize the mass database**, stressing that the reference database for the project should be the latest AME

#### ▪ **Quality assurance of JEFF, (test-)library release policy**

23. The CG reached a consensus that crucial files should be promptly made accessible and thoroughly tested prior to the release of a test version.
24. Anticipating substantial modifications, a JEFF-4T3 release is justified. The planned release date for JEFF-4T3 is December 15th, and consequently, the deadline for submitting new evaluations is set for October 15, 2023.

#### ▪ **Transfer of validation activities**

25. The CG members agreed to nominate **Ms Raphaele ICHOU** as leader of the Validation activities within the JEFF project.

#### ▪ **Next Technical Dedicated Sessions (TDS)**

26. During the discussion, the following potential Technical Dedicated Sessions (TDS) were identified:
  - Depletion validation of the new U-235, Pu-239, and Pu-241 evaluations (Gilles)
  - Validation of new FY for the thermal fission of Pu-239 (Olivier)
  - Criticality and shielding benchmarks (Oscar)
  - Standardization of JEFF-4 document
  - Radioprotection benchmarks

#### ▪ **Stakeholder meeting**

27. **Ms Daniela FOLIGNO** informed the CG members that the Stakeholder meeting would take place in the fall 2023, and requested their availabilities to be provided by the end of the day. She assured that she would finalize a date and send out invitations to the stakeholders (done).

#### ▪ **Acknowledgement to Luiz Leal for his work**

28. **Mr Arjan PLOMPEN** agreed to write an email to Luiz to acknowledge his work for JEFF (done).

## ▪ Appendix 1: List of participants

Name	SURNAME	COUNTRY
Maurizio	ANGELONE	ITALY
Alejandro	ALGORA	SPAIN
Oscar	CABELLOS	SPAIN
Cyrille	DE SAINT JEAN	FRANCE
Michael	FLEMING	NEA
Daniela	FOLIGNO	NEA
Mark	GILBERT	UNITED KINGDOM
Andrew	HOLCOMB	FRANCE
Mark A.	KELLETT	NEA
Ivan Alexander	KODELI	SLOVENIA
Helmut	LEEB	AUSTRIA
Dieter	LEICHTLE	GERMANY
Jose Ignacio	MARQUEZ DAMIAN	ARGENTINA
Robert W.	MILLS	UNITED KINGDOM
Gilles	NOGUERE	FRANCE
Arjan	PLOMPEN	EC
Dimitri	ROCHMAN	SWITZERLAND
Olivier	SEROT	FRANCE
Alexey	STANKOVSKIY	BELGIUM
Tim	WARE	UNITED KINGDOM
Gaspar	ZEROVNIK	SLOVENIA

▪ **Appendix 2: Agenda**

1. SANDA follow-up
2. Timeline for JEFF
3. Validation activities
4. JEFF documentation on Overleaf
5. Next Technical Dedicated Sessions:
6. Stakeholder meeting date
7. Acknowledgment to Luiz Leal for his work