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**NUCLEAR ENERGY AGENCY
NUCLEAR SCIENCE COMMITTEE**

Working Party on International Nuclear Data Evaluation Co-operation

**Meeting of the WPEC Expert Group on the High-Priority Request List for
Nuclear Data (EG-HPRL)**

SUMMARY RECORD

13 May 2020

WebEx remote meeting

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JT03464296

OECD/NEA Nuclear Science Committee

**Working Party on International Nuclear Data Evaluation Co-operation (WPEC)
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(EG-HPRL)**

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SUMMARY RECORD

1. Welcome

The Chair, **E. Dupont**, welcomed the participants (see *Appendix 1*) and the WPEC Secretariat, **M. Fleming**. The formal membership was reviewed. **K. Yokoyama** has taken a new appointment and will no longer serve as a member of the EG-HPRL. **A. Trkov** has retired from the IAEA and will no longer represent the organisation at the EG-HPRL.

2. Adoption of the agenda

The agenda as described in *Appendix 2* was adopted without modification.

3. Status of the HPRL

E. Dupont reviewed the status of the HPRL. Since the last meeting in June 2019, the entry for $^{235}\text{U}(n,\gamma)$ was archived as ‘complete’, justifications for the completion of all ‘complete’ entries were expanded and 16 new references to HPRL entries were added. With the ongoing development of the new NEA website, the HPRL will ultimately be migrated to a new Java-based Content Management System (JCMS) and improvements have been made to the initial prototype that was first demonstrated at the June 2019 meeting, including sorting functions. This is not yet a full proof-of-concept and **M. Fleming** confirmed that the NEA will not migrate the HPRL to the new system until after the NEA website migration, which is planned for Q3 2020. The EG members will be informed of the development status of the JCMS-based HPRL prototype in order to provide guidance on the required features.

Action on M. Fleming to provide updates on the status of the JCMS-based HPRL prototype and on the schedule for the migration.

The participants discussed the continued role of EG-HPRL with respect to the WPEC Subgroup 46 Target Accuracy Requirements (TAR) project. This aims to update the work performed in WPEC Subgroup 26, which was responsible for some 20 entries in the HPRL. Participants agreed that close co-ordination should be maintained.

Action on E. Dupont to continue liaising with NEA and WPEC Subgroup 46.

In October 2019 the HPRL status report, based on an updated version of the ND2019 paper and complemented with comprehensive appendices extracted from the current online version of the HPRL, was completed. This will form the basis of an upcoming official NEA publication that will be prepared by the Secretariat on behalf of the EG-HPRL members.

Action on M. Fleming to prepare a draft report for review by the EG-HPRL membership.

4. Summary of identified nuclear reaction data needs for medical applications of radionuclides

R. Capote reviewed the research on nuclear reaction data needs for medical applications co-ordinated by the IAEA, which are summarised in several IAEA reports including:

- [IAEA-TECDOC-1211](#), May 2011
- [IAEA Technical Reports Series No. 473](#), December 2011
- [INDC\(NDS\)-0535](#), December 2008
- [INDC\(NDS\)-0596](#), September 2011
- [INDC\(NDS\)-0776](#), May 2019

The last of these was the subject of a recent technical meeting held at the IAEA in December 2018, which summarised the status of nuclear data needs for medical applications. The high-priority and lower-priority reaction data was reviewed for:

- 20-85 MeV proton-induced gamma production;
- 20-250 MeV proton-induced positron-emitter production;
- up to 100 MeV SPECT radionuclide production;
- therapeutic alpha-emitter production;
- up to 100 MeV PET radionuclide production; and
- Auger/Coster-Kronig electron-emitter production.

While this represents a relatively long list of several dozen reactions, it was agreed that a subset of the highest-priority needs should be identified and proposed for inclusion within the HPRL.

Action on R. Capote to submit the following requests to the HPRL:

- Proton-induced gamma production (p,x γ) on ^{12}C , ^{14}N and ^{16}O
- Proton-induced production of positron-emitters $^{10,11}\text{C}$, $^{12,13}\text{N}$ and ^{15}O from reactions on C, N and O

5. EG-HPRL mandate extension

The Expert Group mandate expires in 2020 and the members agreed to propose an extension of the mandate to WPEC, including the following objectives:

- Finalisation of the NEA high-level publication
- Finalisation of the new JCMS HPRL system

- Continue dialogue with users for new and updated entries
- Maintain the standing point of reference for nuclear data users and producers

The revised mandate is provided in *Appendix 3*.

6. Next meeting and any other business

The next meeting will be held during the week of 10-14 May 2021 at the NEA Headquarters in Boulogne-Billancourt, France.

Appendix 1

List of Registered Participants of the Meeting of the Expert Group on the High Priority Request List (EG-HPRL) for Nuclear Data

#	Name	Surname	Representing	Notes
1	John	BESS	UNITED STATES	
2	Doug	BOWEN	UNITED STATES	
3	Jesse	BROWN	UNITED STATES	
4	Roberto	CAPOTE	IAEA	Member
5	Theresa	CUTLER	UNITED STATES	
6	Yaron	DANON	UNITED STATES	Member
7	Isabelle	DUHAMEL	FRANCE	
8	Emmeric	DUPONT	FRANCE	Chair
9	Michael	FLEMING	NEA	Secretariat
10	Daniela	FOLIGNO	NEA	
11	Zhigang	GE	CHINA	Member
12	Mark	GILBERT	UNITED KINGDOM	
13	David	HAYES	UNITED STATES	
14	Jesson	HUTCHINSON	UNITED STATES	
15	Evgeny	IVANOV	FRANCE	
16	Nobuyuki	IWAMOTO	JAPAN	Member
17	Osamu	IWAMOTO	JAPAN	Member
18	Robert	JACQMIN	FRANCE	
19	Atsushi	KIMURA	JAPAN	Member
20	Luiz Carlos	LEAL	FRANCE	
21	Nicolas	LECLAIRE	FRANCE	
22	Amanda	LEWIS	UNITED STATES	
23	Jordan	MCDONNELL	UNITED STATES	
24	George	MCKENZIE	UNITED STATES	
25	Alexandru	NEGRET	ROMANIA	Member
26	Denise	NEUDECKER	UNITED STATES	
27	Naohiko	OTSUKA	IAEA	
28	Boris	PRITYCHENKO	UNITED STATES	
29	Gerald	RIMPAULT	FRANCE	Member
30	Stanislav	SIMAKOV	GERMANY	
31	Alejandro	SONZOGNI	UNITED STATES	
32	Nicholas	THOMPSON	UNITED STATES	
33	Haicheng	WU	CHINA	Member

Appendix 2

OECD/NEA Nuclear Science Committee

Working Party on International Nuclear Data Evaluation Co-operation (WPEC) Meeting of the Expert Group on the High Priority Request List (EG-HPRL) for Nuclear Data

WebEx Meeting

13 May 2020

AGENDA

Start time 12:00 CEST (Paris)

1. Administrative items
2. Report on activities since last meeting
3. Priority requests for medical applications
4. Role of SG-C/HPRL with respect to SG-46 TAR initiative
5. Status of deliverables
6. Mandate extension

End of first session at 13:00 CEST (Paris)

7. Status of publications
8. Status of the CMS-based HPRL and website upgrade
9. AOB

Adjourn meeting at 13:30

Appendix 3

Revised Mandate

WPEC EXPERT GROUP ON THE HIGH PRIORITY REQUEST LIST FOR NUCLEAR DATA (EGHPRL)

Members:	All NEA member countries
Full Participant:	European Commission
	<i>Under the NEA Statute</i>
Observer (International Organisation):	International Atomic Energy Agency (IAEA)
	<i>By agreement</i>
Date of creation:	30 May 1991
Start of current mandate:	30 June 2018
Duration:	30 June 2022

Mandate

- Agreed at the 16th meeting of the Working Party on International Nuclear Data Evaluation Co-operation [[NEA/SEN/NSC/WPEC\(2004\)2](#)]
- Extended as a part of WPEC activities at the 23rd meeting of the Nuclear Science Committee in June 2012 [[NEA/SEN/NSC\(2012\)3](#)]
- Revised and extended at the meeting of the NEA Nuclear Science Committee in June 2013 [[NEA/NSC/DOC\(2013\)2](#)]
- Revised and extended at the 26th meeting of the Working Party on International Nuclear Data Evaluation Co-operation [[NEA/SEN/NSC/WPEC\(2014\)2](#)] and endorsed by the NEA Nuclear Science Committee in June 2014 [[NEA/SEN/NSC\(2014\)2](#)]
- Revised and extended at the 28th meeting of the Working Party on International Nuclear Data Evaluation Co-operation [[NEA/SEN/NSC/WPEC\(2016\)2](#)] and endorsed by the 27th NEA Nuclear Science Committee in June 2016 [[NEA/SEN/NSC\(2016\)2](#)]
- Revised and extended at the 30th meeting of the Working Party on International Nuclear Data Evaluation Co-operation [[NEA/SEN/NSC/WPEC\(2018\)2](#)] and endorsed by the 29th NEA Nuclear Science Committee in June 2018 [[NEA/SEN/NSC\(2018\)6](#)]

Background and scope

The concept of a nuclear data request list has a long history in applied nuclear science. The concept is that if requests from applied users of data are collected in a convenient location, it should provide a stimulus to measurers, modellers, and evaluators to undertake work that could lead to certain requests being satisfied.

A High Priority Request List (HPRL) for nuclear data needed for applications has been in existence under the auspices of the OECD Nuclear Energy Agency (NEA) for many years. This list provides a point of reference for nuclear data stakeholders and developers and has led to many new initiatives in nuclear data measurement, evaluation and validation. Its effectiveness in stimulating new measurements, evaluations and verification actions required to meet the expressed needs is well established in the nuclear data community. The results of completed requests are successfully used to increase the accuracy and reduce the uncertainty of different applications.

Therefore, the Expert Group on the High Priority Request List for Nuclear Data (EGHPRL) was established to maintain the HPRL as a point of reference in nuclear data research and development. The HPRL will reflect the actions undertaken by the Working Party on International Nuclear Data Evaluation Co-operation (WPEC) in this field, and will help guiding future activities. The EGHPRL reports on its activities to the WPEC.

Objectives

The EGHPRL is responsible for managing the activities related to the HPRL, in particular for guaranteeing that the entries are up-to-date and well-motivated by current interests in the field of nuclear energy and other nuclear applications. The Expert Group is also responsible for stimulating follow-up to the entries and collecting the feedback provided by any of the related activities that may further the resolution of a request.

In order to achieve the EGHPRL objectives, representatives from co-operating nuclear data evaluation projects of NEA member countries (such as the Evaluated Nuclear Data File [ENDF], Joint Evaluated Fission and Fusion Nuclear Data Library [JEFF], Japanese Evaluated Nuclear Data Library [JENDL] and Russian Library of Evaluated Neutron Data Files [ROSFOND/BROND]) will be invited to attend the EGHPRL meetings, including:

- a nuclear data user from the nuclear applications community;
- an evaluation and validation expert; and
- an expert in experimental measurements.

The EGHPRL will also be co-operating with the IAEA (specifically, the IAEA Nuclear Data Section), which participates as an Observer.

Working methods

The EGHPRL will work mainly by electronic mail exchanges. Physical meetings will be held typically once a year.

The HPRL is organised as follows:

1. The list consists of one list with truly high priority requests, a list with general requests and a list with special purpose quantities divided in categories.
2. Stringent criteria are applied for entries on the lists. These will be evaluated by the EGHPRL that will take the final decision for adopting a request.
3. A “high priority request” is justified by quantitative sensitivity studies (or the equivalent) and sufficiently documented.
4. A “general request” is well-motivated for a specific quantity on a specific nucleus and is documented, but lacks a detailed backing by a sensitivity analysis or an impact study.
5. A “special purpose request” in a well-defined category is of interest to a recognised important subfield of applied nuclear science, for which it is essential to stimulate new activity. Such a request may not satisfy the criteria as in the case of points 3 and 4 above.

The request lists will be subjected to periodic review to monitor progress and determine whether each individual request should continue to be included in these lists.

Deliverables

The deliverables of the EGHPRL are the following:

- an up-to-date publication on the status of all requests describing completed activities and outlook; and
- an up-to-date online version of the “High Priority Request List for Nuclear Data”, including new requirements for fission reactors and other relevant applications.