



STEERING GROUP MEETING
December 6, 2022

Meeting Minutes
(CRR/EAN/SG/52)

[status = Final version]

Participants:

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ANDRESZ Sylvain	CEPN	France, Scientific Secretary
CROÜAIL Pascal	CEPN	France, Vice-chairman
FIJULJANIN Selma	SRPA	Slovenia
KABRT Franz	AGES	Austria
MORGAN Julie	UKHSA	United Kingdom, Secretary
MULAS-PEREZ Arturo	CSN	Spain
NUCCETELLI Cristina	ISS	Italy
STRITT Nicolas	SFOPH	Switzerland, Treasurer
VERMEERSCH Fernand	SCK CEN	Belgium, Chairman

Apologies for absence:

ECONOMIDES Sotirios	EEAE	Greece
FOLKERT Draaisma	NRG	The Netherlands
HANSSON Petra	SSM	Sweden
KULKA Ulrike	BfS	Germany
LIVOLSI Paul	CEA/INSTN	France
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Distribution:

- Members of the EAN Steering Group,
- IAEA and observers,
- EFOMP and EUTERP contact persons.

The [Documents XX] discussed during the meeting are available in the private area of the EAN website < www.eu-alara.net >: Activities / EAN Documents and Publication / Steering Group meeting. Member shall use the following information to log-on:

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Agenda

The Agenda [[Document 0](#)] was sent to the Members before the meeting.

Discussion on financial aspects

The minutes of the Administrative Board meeting (CRR/EAN/AB/37) and the PowerPoint slideshow prepared by Nicolas Stritt [[Document 1](#)] present the information about the 2022 budget and the provisional 2023 budget as they were presented.

New representative

Mrs. Selma Fijuljanin is the representative from Slovenia Radiation Protection Administration and she attended the EAN meeting 'in person' for the first time. She has 5 years of experience in the Administration mainly working in the licencing of dentistry and veterinary installations using ionizing radiation and actively participates in tasks related to the National Radon Program implementation. Her future activities will soon also include the regulation of radon in public places. Selma was warmly welcomed by the Members.

Radiation protection at the design of ITER

Mr. Y. Le Tonqueze, Group Leader of the Nuclear Safety Division at ITER Organization was invited to participate to the EAN meeting to present the methodology implemented to integrate ALARA and radiation protection in the design of the ITER fusion reactor [[Document 2](#)]. ITER is a huge and very complex facility whose construction and supporting systems involved more than 30 countries. The source terms will arise from activation by the very high neutron flux ($> 1.10^{12} \text{ n.cm}^{-2}\text{s}^{-1}$) of the reactor components, the corrosion products

circulating in the cooling water and dust in the air. The Project has set a dose constraint of 10 mSv/y and the objective to maintain the collective dose below 0.5 man.Sv/y¹.

The presentation from Mr. Le Tonqueze gave a focus on the application of the ALARA principle for the radiation protection of the workforce involved in light maintenance works ("mode 1"). For each representative area, the exposure assessment is achieved with a multi-dimensional approach to evaluate: the radiation exposure of the workforce (based on dose rate modelling and estimated occupation factor of the areas), the risk of contamination and also the human & organizational aspects and the potential for work standardization. To achieve this assessment, the contribution of Orano who have capitalized a long-standing experience in maintenance works has been deemed essential.

From the results of the exposure assessment, Dose Reduction Measures (DRM) have been developed based on the ERIC-PD risk management hierarchy (Eliminate, Reduce, Isolate, Control, PPE and Discipline), discussed and adapted through a series of 32 workshops in 3 main iterations (from 2019 to 2022). This resulted in the formalization of around 100 DRM forms. ITER has contracted the consulting firm Jacobs Engineering for this task.

Nonetheless, the DRM are an "*engineering exercise*" and the implementation in practice has not been accepted by the Project yet. Mr. Le Tonqueze indicated that the decision-makers are not familiar with radiation protection challenges and might not see it as a priority in front of e.g. running scientific experiments (which is also a political topic for the countries involved in ITER) or the budget. Furthermore, Mr. Le Tonqueze has highlighted that the predicted exposure after the application of dose reduction measure is still elevated and cannot be regarded as 'optimized' as such and therefore, the ALARA effort needs to be continued but the Project is currently missing the organization/process to do so.

He concluded that the three highlights of his presentation are (1) the multi-dimensional analysis (radiation protection in a broad context for each maintenance work), (2) the inclusion of real experience in the design phase and (3) the uses of specific practices like as ERIC-PD methodology.

One question from EAN was about the numerical evaluation of the individual dose evaluation and it was answered that there are not enough confirmed data to perform the evaluation. Another question was about the use of decision-aiding tools like cost-benefit analysis to help put radiation protection forward and Mr. Le Tonqueze said that most numbers are difficult to calculate (e.g. the contribution of the countries are 'in-kind'). He added that, even with decision aiding tool, the decision makers are not aware of radiation protection and other dimensions (especially the politics, also seismic, ...) might supersede radiation protection dimensions.

The Members thanked Mr Le Tonqueze and suggested that he can draft an article about the integration of radiation protection at the design of ITER for the EAN Newsletter (**Sylvain Andresz** will follow this action). The Members also discussed the fact that a "graded approach" (broadly: the higher the risk, the higher the effort to manage the risk) can also be of use to help in the implementation of the ALARA principle at ITER.

¹ By comparison, the collective dose constraint of the European Pressurized Reactor in Flamanville, France is 0.35 H.Sv/y

EAN Webinar

The topic of the webinar is “Challenges in applying the radiation protection system for the management of NORM and radon” and it will be held 8 December from 09h30 to 12h00. The scientific programme is presented in [Document 3]. This initiative was proposed after the presentation of the ICRP Committee 4 activities in January 2022 (CRR/EAN/SG/50) to provide feedback from the field to ICRP and elements about the implementation and understanding of the radiological protection system.

The Austrian Ministry of Public Health (AGES, Austria) represented by Franz Kabrt has already provided a very welcome in-kind support by proposing to host the webinar on Zoom, taking care of the registration of the participants and will provide a technical support during the meeting.

The webinar has been announced in the EAN Newsletter 48, the EAN website and through the Members. At the date of the meeting, 164 participants have registered. The webinar will be recorded and the replay will be posted on YouTube. The slideshows will be uploaded on the EAN website along with a link to the replay.

EAN Workshop

The Programme Committee met from 09h00-10h00 on the very same day. The programme of the workshop on “ALARA in interventional radiology and in the use of novel radiopharmaceuticals” is advancing well and several speakers have already said there are interested to participate. The workshop will be held in AGES premises, Vienna, from 2-4 October 2023 under the traditional EAN format with face-to-face plenaries and workshops sessions. A technical visit to MedAustron (ion beam therapy) located in Vienna Neustadt will be proposed to the participants and a bus shuttle will be arranged. The Programme Committee intends to meet in March 2023 (hybrid meeting) and in June at the occasion of the EAN meetings.

Relation with other ALARA Networks

Fernand Vermeersch presented updated information about the other regional ALARA networks.

- ARAN (Asia and Pacific) invited Fernand Vermeersch to give a lesson about ALARA and the EAN. However, no action has followed after his presentation.
- RECAN (East and Central Europe) is not active anymore and most of the former members are not interested in ALARA networking².
- AFAN (Africa) is quite active and according to their website³ has initiated a series of webinar on different RP topics. Sotirios Economides has been the contact person with AFAN and can reiterate the proposal to publish an article in the EAN Newsletter (Action: **Sotirios Economides**).

Relation with ICRP

² “At the Regional Workshop on Workplace Monitoring Techniques co-organised by IAEA and EAN at Cyprus, 6-10 June 2022, The representatives from Slovakia and Baltic States were interested by the EAN and it was proposed Fernand Vermeersch will continue to be in contact with these representatives and support them if they want to join the EAN” (CRR/SG/51, June 2022).

³ <https://african-alara.net>

Pascal Croüail attended the European Radiation Protection Week (ERPW) in October 2022 at Estoril, Portugal where two meetings were organized by the International Commission on Radiological Protection (ICRP): one with "Senior Representatives of the Organizations in formal relationship with ICRP" and one workshop with various RP organizations to collect views on the priority topics identified by ICRP Main Commission. According to Mr. Croüail, the discussion held in the two meetings were quite comparable.

A document 'Comments of the European ALARA Network in preparation of the ICRP meeting' [Document 4] has been prepared by the EAN Bureau to list the topics of interest for the EAN and how the network can contribute to and collaborate with ICRP in the future.

Fernand Vermeersch is currently member of ICRP Task Group (TG) 106 on mobile activity sources and indicated that the TG has become lively. The participation to ICRP TG is now open to experts from outside ICRP who can apply through a formal process. There is currently no TG open for application. Sylvain Andresz has applied for TG 127 on exposure situations and categories of exposure (but not on behalf of the EAN) and the application closed 2 December.

In the future, the Members agreed to provide comments on behalf of the EAN to ICRP draft open for public consultation when it is topic-wise (ex. draft from TG106, TG114 on Reasonableness and Tolerability, TG 124 on the application of the principle of justification, TG 127, ...).

EAN as a "stakeholder" in PIANOFORTE

In September 2022, the CEPN received an invitation to become a registered member of the European partnership PIANOFORTE [Document 5]. The registered members will become member of the stakeholder network, be informed about partnership and research activities and be engaged in the related activities. In November, the CEPN decided to register the EAN as a stakeholder with the label "international organisation and association – radiation protection expert".

The first action proposed by PIANOFORTE is to contribute to a survey to identify the needs for research in radiation protection. **Sylvain Andresz** will answer to the survey on the basis of the document produced for ICRP SLO (considering that the needs for research have already been identified by EAN) and will contact the **Bureau** if necessary.

Other potential collaborations

Pascal Croüail informed the members that the Institute for Safety Problems of Nuclear Power Plants in Ukraine (ISP, which is Members of NERIS) and the Chernobyl Radiation-Ecological Biosphere Reserve (CREBR) are looking for collaboration with European organisations. In particular, these organizations are facing challenges in radiation protection education and training of the on-site civil and military servants and would like to exchange with EAN on these issues.

In addition, **Pascal Croüail** has established contact with Chernobyl NPP RP staff and will invite the representatives to attend the next SG meeting to present their present RP concerns at the Chernobyl site.

It has been proposed to establish contact with the IAEA Network of Environmental Management and Remediation (ENVIRO-NET). Action: **Cristina Nuccetelli**.

Results of ALARA for Radon At Work (A-RAW) working group

During the summer, the working group submit for publication to *Journal of Radiological Protection* an article presenting the work and the results. After a few twists and turns, the article has been published in October 2022⁴. All the documents produced by the working group and the link to the article have been uploaded on the EAN website: Activities/Sub-networks and working groups/A-RAW⁵.

EAN at ROOMS European Radon Association Conference

An abstract presenting the results of the A-RAW working group has been produced in the summer for the European Radon Association Conference ROOMS [Document 6]. The abstract has been accepted and Pascal Croüail and Julie Morgan represented the EAN at Bergen, Norway. The slides from A-RAW have been uploaded on the EAN website.

Julie Morgan presented a slideshow⁶ focused on the field trip in Kinsarvik, a coastal village where very high radon concentrations are found. The bed rock is quite peculiar and composed with stones with high uranium content (5-40 g/t) coming from cliff and many fractures assist the transport of radon to the surface which then enters and accumulates in dwellings. Even outdoor radon exposure is elevated and it is quite common that outdoor radon concentration is higher than the national reference level (200 Bq/m³) normally motivating remediation actions.

The seasonal variations of radon concentration are counterintuitive (concentration could be higher in the summer and this might be because the temperature is a driving force for radon exhalation). The exposure to radon of the 573 inhabitants is elevated (average: 72 mSv/y, max. 900 mSv/y) and the remediation rate remains low despite several incentives (e.g. numerous visits of scientists, funding available for remediation systems).

The presentation raised discussion about the difficulties in remediation in such place and what is 'reasonable' at Kinsarvik. Discussion about communication of radon risk, risk perception and how lay people can be fed up with radiation risk also took place.

Newsletters

The EAN newsletter 48 was published in November 2022 and has been accessed 1,000 times since. The EAN Members have highly contributed to this issue: Fernand Vermeersch (Optimisation of Radiation Protection - The Cornerstone of Radiation Protection), Stefan Roesler Occupational Radiation Protection in the Operation of Accelerators at CERN), Sylvain Andresz (Inventory of Territorial Approaches for the Management of Radon in Frances Homes) and the programme committee of EAN Workshop n° 20.

The publication of the next issue is planned in Spring 2023. A paper presenting SHAMISEN-SINGS by Pascal Croüail is already available for publication. The proposed articles are:

⁴ Application of the ALARA Principle for radon at work: feedback from the European ALARA Network, S. Andresz, J. Morgan, C. Nuccetelli, M. Palacios, C. Schieber, M. Sneve, N. Stritt, H. Synnott and F. Vermeersch, *Journal of Radiological Protection* **42**(4). <https://doi.org/10.1088/1361-6498/ac9b46>

⁵ <https://www.eu-alara.net/index.php/activities/sub-networks-and-working-groups/a-raw.html>

⁶ Julie Morgan will check with Mrs. A L Rudjord, DSA, the main author of the slideshow if it can be share to the EAN members [Document 7].

- The radiation protection challenges in veterinary practices in the UK ("pet and vet") (from a colleague of **Julie Morgan**);
- Setting of Diagnostic Reference Levels in the UK (**Julie Morgan**);
- Radon at Kinsarvik (A L Rudjord, DSA, to be contacted by **Julie Morgan**);
- Theranostics practices (this article will be in line with the context of the EAN W20), (**Arturo Pérez Mulas**);
- ALARA in the licencing of RECUMO facility (Recovery of Uranium from Mo-99 Production) (**Fernand Vermeersch** for EAN Newsletter 50);
- Result of dose exposure assessment to NORM for the workers and the public in Italy (**Cristina Nuccetelli**);
- Announcements of the EAN workshop (**Sylvain Andresz**);
- Presentation of the results of the EAN webinar (**Sylvain Andresz**);

Older proposals⁷:

- Tritium management in Belgium (which could be also presented at the next EAN meeting) (**Fernand Vermeersch**);
- The new radon map in Ireland (**Allison Dowdall**);
- Offer to AFAN to publish (**Sotirios Economides**);
- Offer to EUTERP to publish (ex. about ETRAP workshops) (**Fernand Vermeersch** will ask Michèle Coeck).

Opportunities for networking

The Members have not identified topic for survey.

Julie Morgan was invited by Fernand Vermeersch to present the RP challenges in veterinary practices ("pet and vet") at the Belgian RP society meeting and will draft an article for the society's Gazette. At the same meeting, Fernand Vermeersch has presented: Optimisation – The cornerstone of radiation protection, later translated in an article for the Gazette [Document 8]. This latter article has been recognized as a very good vehicle of the EAN reflexions and achievements and Fernand Vermeersch has encouraged the other Members to re-use the article e.g. in national RP congresses.

Any other business

Before the meeting, Arturo Pérez Mulas has informed that he would like to present the challenges of the INVEAT project aiming to replace all 'old' medical devices including those producing ionizing radiation (LINAC, PET, ...) with new ones in the whole Spain (with EU funding). This project involves the (re)licencing of 845 devices in roughly 320 medical centre/hospitals. A graded approach has been implemented to ensure that the deadline of the project (31 August 2023) will be met (the time constraint is a contractual requisite of the EU). Due to the challenges and the workload, the CSN has contracted an external company to support it for the licencing process – nonetheless, the workload is intense for the 6 CSN inspectors in charge of INVEAT. Today 50% of the objective has already been met [Document 9].

⁷ Cf. minutes of the EAN SG meeting 51, June 2022.

Next meetings: date and place

The next Administrative Board and Steering Group meetings are planned somewhere in the 2 first weeks of June 2023 at CEPN. A doodle will help to select the date of the meeting.
