

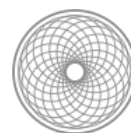


THE EUROPEAN ALARA NETWORK

European ALARA Network

Review of the Implementation and Dissemination of Recommendation and Conclusion of EAN Workshops

Draft as 1st November 2020



Nom de l'entreprise



European ALARA Network

Introduction

European ALARA Network objectives

1. Promote the implementation of the ALARA principle for the management of worker, public and patient exposures in all situations.
2. Engage stakeholders in ALARA and provide a focus and a mechanism for the exchange and dissemination of information, knowledge and practical experience.
3. Identify and investigate topical issues of common interest to further improve the implementation of ALARA.

Foreword

Feed back experience shows that there is in Europe a need for Workshops which are neither a big congress nor a collection of working groups with lots of different meetings, but which over a few days provide a forum for a few dozen experts to exchange feedback experience and to identify problems that need further research or development. Therefore the Network has organised and will continue to organise such type of Workshop once a year.

The subject is selected in order to cover domains where the Network Steering Committee Group estimates that many improvements in terms of ALARA implementation may be found.

Already 19 workshops are organised. To identify the need in specific fields for future workshops, the impact of these workshops, as shown in the following list, shall be evaluated.

1. "ALARA and Decommissioning", Saclay, France, December 1997
2. "Good Radiation Practices in Industry and Research", Chilton, UK, November 1998
3. "Managing Internal Exposure", Neuherberg, Germany, November 1999
4. "Management of Occupational Radiological and Non-radiological Risks: Lessons to be Learned", Antwerp, Belgium, November 2000
5. "Industrial Radiography: Improvements in Radiation Protection", Rome, Italy, October 2001
6. "Occupational Exposure Optimisation in the Medical and the Radiopharmaceutical Sectors", Madrid, Spain, October 2002
7. "Decommissioning of Installations and Site Remediation", Arnhem, The Netherlands, October 2003
8. "Occupational Radiological Protection Control through Inspection and Self-assessment", Uppsala, Sweden, September 2004
9. "Occupational Exposure to Natural Radiation", Augsburg, Germany, October 2005
10. "Experience and new Developments in Implementing ALARA in Occupational, Patient and Public Exposures", Prague, Czech Republic, 12-15 September 2006

11. "ALARA in Radioactive Waste Management", Athens, Greece, 9-11 April 2008
12. "ALARA issues arising for Safety and Security of Radiation Sources and Security Screening Devices", Vienna, Austria, 21-23 October 2009
13. "ALARA and the Medical Sector", Oskarborg Fortress, Norway, 7-10 June 2011
14. "ALARA in existing exposure situations", Dublin Castle, Ireland, 4-6 September 2012
15. "Improving ALARA Culture through Education and Training", Rovinj, Croatia, 7-9 May 2014
16. "ALARA in Industrial Radiography", Bern, Switzerland, 14-16 March 2016
17. "ALARA in Emergency Exposure Situations", Lisbon, Portugal, 15-17 May 2017
18. "ALARA for Decommissioning and Site Remediation", Marcoule, France, 11-13 March 2019
19. "Innovative ALARA Tools", Athens, Greece, 27-29 November 2019

Document overview

First the visibility of the EAN shall be evaluated. As the internet is probably the first and most used source for information, first a research about the presence of the EAN workshops and their impact is done.

The impact of the workshops is evaluated with sheets, where questions different questions are asked. These evaluation sheets are distributed among the members of EAN and participants of the workshops. For every workshop the answered sheets are analysed and the results shown in an own chapter.

Finally in the conclusion the findings are summarized.

The workshop evaluation is a living document, and activities can be amended or added during the years.

Chapter 1 – Visibility analysis

Seaching EAN in google

- LinkedIn:
 - EAN - European ALARA Network
 - Non-profit association (funded by CEPN (France) and PHE (United Kingdom))
 - 2233 autres personnes nommées EAN - European ALARA Network sont sur LinkedIn

Searching EAN on researchgate

- Project “EUROPEAN ALARA NETWORK”
 - 2 Followers, 4 Reads
- Book “OPTIMIZATION OF RADIATION PROTECTION (ALARA): A Practical Guidebook”
 - “This item's Research Interest is higher than 44% of research items on ResearchGate.”
 - 34 reads
- Article “Synthesis of the European ALARA Network 18th Workshop”
 - 7 reads
- Article “17th European ALARA Network Workshop on ALARA in Emergency Exposure Situations Scene”
 - 8 reads
- Article “Conclusions and recommendations from the 17th Workshop of the European ALARA Network 'ALARA in emergency exposure situations'”
 - 17 reads
 - 3 citations
- Article “ALARA in radioactive waste management” Summary and recommendations of the 11th European ALARA Network Workshop”
 - 50 reads
- Article “LARA in Existing Exposure Situations: 14th European ALARA Network Workshop, 4–6 September 2012, Dublin”
 - 12 reads
 - 6 citations
- Article “Meeting report: ALARA and the medical sector - 13th European ALARA Network Workshop Norway, 7–10 June 2011”
 - 1 read
- Article “Experience and new developments in implementing ALARA in occupational, public and patient exposures” Summary and recommendations of the 10th european ALARA network workshop”
 - 24 reads
 - 1 citation
- Article “ALARA issues arising for safety and security of radiation sources and security screening devices” – Summary and recommendations of the 12th European ALARA network workshop
 - 20 reads

Links of other Organisations to EAN

- Orpnet
 - Link at “EAN at Regional networks” section
 - <https://nucleus.iaea.org/sites/orpnet/regional/ean/SitePages/Home.aspx>
 - Link to EAN Newsletter at “news” section
 - <https://nucleus.iaea.org/sites/orpnet/home/SitePages/Home.aspx>
- ENA – Network
 - Link at “useful-links” sections
 - <https://ena-norm.eu/useful-links/>
- Euterp
 - Link at “Related organizations and networks”
 - <http://euterp.eu/staticPage.asp?pageID=42&subpageID=164>
- CSN – Spanish Nuclear Safety Council
 - Link at “Radioation Protection of workers”
 - <https://www.csn.es/en/proteccion-radiologica/trabajadores/red-alara>
- SURO - Czech Republic National Radiation Protection Institute
 - Home / Internet links / ALARA
 - <https://www.suro.cz/en/odkazy/alara>
- CEPN
 - Publications, Articles
 - <https://cepn.asso.fr/publications/articles/221-conclusions-and-recommendations-from-the-17th-workshop-of-the-european-alara-network-alara-in-emergency-exposure-situations.html>

Chapter 2 – Workshop Evaluation

To evaluate the impact and the actuality of the topics concerning future workshops, an evaluation sheet was distributed. In the following table the amount of feedback of the different workshops is shown. On the following pages, the feedback of a workshop is summarised. The comments are collected and where indicators on a scale were asked, the amount of the answers is given.

Nr.	Title	year	replies
1	ALARA and Decommissioning	1997	
2	Good Radiation Practices in Industry and Research	1998	1
3	Managing Internal Exposure	1999	
4	Management of Occupational Radiological and Non-radiological Risks: Lessons to be Learned	2000	
5	Industrial Radiography: Improvements in Radiation Protection	2001	1
6	Occupational Exposure Optimisation in the Medical and the Radiopharmaceutical Sectors	2002	
7	Decommissioning of Installations and Site Remediation	2003	1
8	Occupational Radiological Protection Control through Inspection and Self-assessment	2004	
9	Occupational Exposure to Natural Radiation	2005	1
10	Experience and new Developments in Implementing ALARA in Occupational, Patient and Public Exposures	2006	1
11	ALARA in Radioactive Waste Management	2008	
12	ALARA issues arising for Safety and Security of Radiation Sources and Security Screening Devices	2009	1
13	ALARA and the Medical Sector	2011	
14	ALARA in existing exposure situations	2012	
15	Improving ALARA Culture through Education and Training	2014	
16	ALARA in Industrial Radiography	2016	
17	ALARA in Emergency Exposure Situations	2017	2
18	ALARA for Decommissioning and Site Remediation	2019	1
19	Innovative ALARA Tools	2019	1

2 - Good Radiation Practices in Industry and Research - 1998

Who are the stakeholders/ is the target audience:

Regulators and qualified experts from industry, research, and teaching.

Had the workshop a specific impact:

Yes, prompting advancements in the acquisition and use of OPEX (operation experience and lessons learned) and communicating radiological risk.

Has much changed since the workshop:

NO ☐ ☐ ☐ ☒ ☐ Yes

Have there been specific incidents, which change the baseline:

Is the topic actually relevant:

NO ☐ ☐ ☐ ☐ ☒ Yes

It was a general topic on ALARA and there are always lessons to learn, as well as practical and communication improvements that can be made.

Would you say the topic delivers enough content for a following workshop:

NO ☐ ☐ ☐ ☒ ☐ Yes

5 - - Industrial Radiography: Improvements in Radiation Protection - 2001

Who are the stakeholders/ is the target audience:

Experts, industrial radiography companies, regulators.

Had the workshop a specific impact:

Difficult to say – gamma radiography equipment in use now differs from the equipment in 2001 but IAEA still report accidents involving radiography sources hence further improvements still desirable.

Has much changed since the workshop:

NO ☐ ☐ ☒ ☐ ☐ Yes

Have there been specific incidents, which change the baseline:

Not really – only a continued reporting of overexposure events involving site radiography sources.
In addition, poor use of enclosure facilities leading to overexposures, eg overriding of door interlocks to use wind out gamma equipment in X-ray enclosures and similar.

Is the topic actually relevant:

NO ☐ ☐ ☐ ☐ ☒ Yes

Worth a follow up but this may have been covered in a recent EAN workshop which I did not attend

Would you say the topic delivers enough content for a following workshop:

NO ☐ ☐ ☐ ☐ ☒ Yes

Suggestions for new topics:

- Developments in NDT equipment and techniques
- Examination of why SCAR techniques appear not to be popular
- Review of any new techniques replacing IR sources
- Review of recent accident events – lessons learnt

7 - Decommissioning of Installations and Site Remediation - 2003

Who are the stakeholders/ is the target audience:

I would have thought most organisations would find at least some of the discussions useful, but regulators and industrial practitioners would benefit the most

Had the workshop a specific impact:

The topic of optimisation has been discussed for many years (there have been several IAEA and NEA workshops this year on the general theme of ALARA and decommissioning) so change, if any has been made, comes very slowly. What needs to come out of such discussions are more practical ways of doing what everyone agrees is a good idea rather than people showing what they managed to do in specific situations. Whilst I am sure some good ideas did come out of the discussions at this workshop, I think all of them have been said previously and most have been said many times since, so it is hard to say how much specific impact this workshop had except perhaps raising the same points to a slightly different audience.

Has much changed since the workshop:

NO ☐ ☐ ☒ ☐ ☐ Yes

Have there been specific incidents, which change the baseline:

Workshops like the one in 2003 were useful in highlighting that problems exist with regards to what ALARA may mean and how to implement it in practice but as a lot of the same discussions are still being had (see above about IAEA / NEA workshops in 2020!) it is hard to say what has changed in relation to that specific workshop. In general I think people are more aware of ALARA than 20 years ago but there is still a lot of confusion about what it is and especially how it can be implemented in regulations / by regulators.

Is the topic actually relevant:

NO ☐ ☐ ☐ ☐ ☒ Yes

Discussions on ALARA and the practical way of applying it in different situations are always useful but at some point more practical, generally applicable steps need to be taken. Sharing experiences is also useful but this needs to be done on a larger scale than individual workshops as often the same points are raised just in different industries (NORM, nuclear, hospitals, laboratory etc).

Would you say the topic delivers enough content for a following workshop:

NO ☐ ☐ ☒ ☐ ☐ Yes

It depends. Having the same or similar discussions every few years does not feel like progress has been made. Sharing experiences is always useful though.

Suggestions for new topics:

Regulator thoughts on what ALARA actually means and how they would like to see it done in the real world;

How to demonstrate ALARA where activity concentrations are below measurable levels (is there a case for a De minimus level or an alternative way to view what clean may mean ie clean to when you can't measure activity regardless of dose?)

9 – Occupational exposure to natural radiation - year

Who are the stakeholders/ is the target audience:

Regulators and qualified experts from NORM industries.

Had the workshop a specific impact:

Yes, significant prompting advancements in knowledge and communicating radiological NORM risks.

Has much changed since the workshop:

NO ☐ ☐ ☐ ☒ ☐ Yes

Have there been specific incidents, which change the baseline:

Is the topic actually relevant:

NO ☐ ☐ ☐ ☒ ☐ Yes

Would you say the topic delivers enough content for a following workshop:

NO ☐ ☐ ☐ ☐ ☐ Yes

10 – Experience and new developments in implementing ALARA in occupational, public and patient exposures - year

Who are the stakeholders/ is the target audience:

Regulators and qualified experts from all radiological sectors.

Had the workshop a specific impact:

Yes, helped attendees consolidate up to date understanding of developments and make suggestions for (mostly) generic future improvements in RP.

Has much changed since the workshop:

NO ☐ ☐ ☐ ☒ ☐ Yes

Have there been specific incidents, which change the baseline:

Changes that have ensued I believe were to the common understanding and establishing the common ground that result from a large group of experts from across Europe discussing and agreeing concepts, risks, and opportunities for future improvements. These developed understandings, beliefs and values continue to contribute to societal RP through those that were present.

Is the topic actually relevant:

NO ☐ ☐ ☐ ☒ ☐ Yes

Would you say the topic delivers enough content for a following workshop:

NO ☐ ☐ ☒ ☐ ☐ Yes

There is scope for a following workshop, but I would say after ICRP have developed and presented their thoughts on the future RP system in the coming couple of years.

12 - ALARA issues arising for safety and security of radiation sources and security screening devices - year

Who are the stakeholders/ is the target audience:

Security sector, dosimetry, experts

Had the workshop a specific impact:

It appears that the findings were eventually crystallised in ICRP publication 125

Has much changed since the workshop:

NO ☐ ☐ ☐ ☐ ☒ Yes

Have there been specific incidents, which change the baseline:

Increase in the use of non medical imaging at penal establishments and introduction of the new generation of X-ray baggage security equipment which incorporate CT sources

Is the topic actually relevant:

NO ☐ ☐ ☐ ☐ ☒ Yes

Yes and could do with an update

Would you say the topic delivers enough content for a following workshop:

NO ☐ ☐ ☐ ☐ ☒ Yes

I believe that the interest in source security has increased since the initial workshop and use of X-ray equipment for security purposes continues to evolve. Interesting to note the replacement of some ionizing sources with non-ionising equipment, eg new generation of body scanners at airports and use of explosive trace detection equipment which now don't incorporate a nickel-63 source

Suggestions for new topics:

Challenges in X-ray security equipment design to restrict exposure – considers new generation of CT X-ray units – with or without curtains

Update – vehicle/ ISO screening equipment

Updates – X-ray body scanners (non medical imaging)

17 - ALARA in Emergency Exposure Situations - year

Who are the stakeholders/ is the target audience:

Experts, i.e. those planning for and responding to emergencies and those setting criteria/frameworks for planning response and developing tools and guidance.

experts, authorities, radiation protection institute and research, utilities (NPP, other installation)

This was organized in collaboration with NERIS.

Had the workshop a specific impact:

None that I can identify. However, workshops have value mostly for those who attend in broadening perspectives and challenging silo thinking. They play an important role when real events are few and exercises can become ritualised and non-challenging.

- publication in the EAN Newsletter

- Journal of Radiological Protection. 38 (2018) 434–439

- Maybe NERIS has advertise the results of the workshop? or integrated the results in its work?

Has much changed since the workshop:

NO 1 ☐ ☐ ☐ ☐ Yes

Have there been specific incidents, which change the baseline:

COVID pandemic

In terms of planning/responding to emergency exposure situations not much has changed. However, the COVID pandemic is a huge dataset of how populations respond to emergency communication and imposition of controls etc which will take years to unravel and there will be lessons learnt for emergency exposure situations particularly long lasting situations and the recovery phase, e.g. non-radiological detriments (like mental health) when a population is subject to controls for a long period.

Is the topic actually relevant:

NO ☐ ☐ ☐ ☐ 1 Yes

Would you say the topic delivers enough content for a following workshop:

NO ☐ 1 ☐ 1 ☐ Yes

Yes, particularly in the light of COVID, but also because also for the benefit of new practitioners coming into the field.

the workshop was very comprehensive and informative. It brought a large variety of views: utilities, authorities, Fukushima and Chernobyl experience.

Suggestions for new topics:

It was difficult to delineate clearly between “emergency” and “post-accident” condition, but I am not sure this is ground for a EAN workshop. In addition, the variety of participants and speakers at the workshop was elevated: making the presentation sometimes too diverse and covering too much aspects. As feedback, I recommend to define clearly what is expected at workshop.

- Emergency relies heavily on modelization: ALARA in modelization and how to avoid conservatism?

- Emergency is also about the difficulties to take a decision: ALARA in decision-making?

18 - ALARA in Decommissioning and Site Remediation - year

Who are the stakeholders/ is the target audience:

Decommission, authorities, nuclear utilities (NPP ...) NORM utilities, Organized in collaboration with the ISOE network and CEA-Marcoule

Had the workshop a specific impact:

- publication in the EAN newsletter and Journal of Radiological Protection 40(4), 2019 (DOI: 10.1088/1361-6498/ab9508)
- An electronic survey was send to the participants. The data indicators + individuals answers are available here <https://www.surveymonkey.com/results/SM-X5VVCLHK9//>

Has much changed since the workshop:

NO ☒ ☐ ☐ ☐ ☐ Yes

Have there been specific incidents, which change the baseline:

Is the topic actually relevant:

NO ☐ ☐ ☒ ☐ ☐ Yes

Decommissioning is a very long-term process. This is the 3rd EAN workshop on this theme since the foundation of EAN. So there will be maybe the opportunity to continue this list in several years

Would you say the topic delivers enough content for a following workshop:

NO ☐ ☐ ☐ ☐ ☒ Yes

Participants praised the level of information. Lots of experience and views were collected, especially practical feedbacks. The quality of these materials was high. Meaningful conclusions were written and published.

The 'setting the scene' session provided recommendations from institutions, description of reports, working group achievements etc. are also relevant but far more difficult to present and to grasp. Maybe the public at EAN workshop is not the prime target audience ?

Suggestions for new topics:

- The JoRP article reminded the former 1st and 7th workshops recommendations and pointed out that some were still true. This is maybe worthwhile to follow these items (in particular)
- The holistic approach (multi-risks, environment) was often mentioned and a draft was initiated but not continued. It can be relevant to dig more concretely on what an holistic approach is.
- The issue of wastes: management, option etc. will become critical in the next years; for example, with the decommissioning of NPP

- contact with IAEA was promising. IAEA can be a driving force in disseminating the results of next workshops.

19 - innovative ALARA Tools - year

Who are the stakeholders/ is the target audience:

Medical, decommission, dosimetry, experts

Workshop organized in collaboration with PODIUM

Had the workshop a specific impact:

- The attendance of the workshop was limited compared to other workshops. In the end, the working groups were merged in 1 working group
- No conclusion and recommendation were drafted
- Nonetheless, participants made some advertisement because I was contacted twice (direct email) by people willing to know more about the innovative techniques. This is un-official impact which is difficult to measure.
- Maybe PODIUM project has published or advertise the results of the workshop?
- An electronic survey was sent to the participants. The results indicators + individuals answers are available here <https://www.surveymonkey.com/results/SM-7N7LDLHK9/>

Has much changed since the workshop:

NO ☐ ☐ ☐ ☒ ☐ Yes

Have there been specific incidents, which change the baseline:

No ; this workshop was organized because PODIUM project was looking for a network to disseminate its results. The organisation of this workshop is a matter of opportunity.

Is the topic actually relevant:

NO ☐ ☐ ☐ ☒ ☐ Yes

Maybe in a few years, to give time to new innovative techniques to emerge and the other to have some feedback.

Would you say the topic delivers enough content for a following workshop:

NO ☐ ☐ ☒ ☐ ☐ Yes

It is very difficult to define "innovation". Innovation can apply in many sectors with various modalities. The topics is sooo large, people might feel frustrated. In addition, it is sometimes difficult to follow experts because their presentation can turn to be very technical (more 'innovation' than 'radiation protection')

Suggestions for new topics:

maybe focus on some selected promising innovative technique, where the need to apply ALARA will become even more important in practice such as artificial intelligence?

Chapter 3 – Conclusion



<http://www.eu-alara.net>