



European
ALARA
Network

European ALARA Network

EAN WORKING GROUP ON ALARA CULTURE

Participants:

Annemarie SCHMITT-HANNIG – BfS, Germany

Caroline SCHIEBER - CEPN, France

Sotiris ECONOMIDES – GAEC, Greece

Bernd LORENZ – GNS, Germany

Serena RISICA and Cristina NUCCETELLI - ISS, Italy

Fernand VERMEERSCH – SCK.CEN, Belgium

Isabelle WATSON – SEPA, UK



European
ALARA
Network

European ALARA Network

Rationale for developing an ALARA culture – why now?

- Decreasing number of experts in radiation protection, also in the ALARA community
- More and more radiation sources and new applications of radiation in different fields
- Increase of doses for some applications in medicine
- EAN has elaborated recommendations related to ALARA culture during the EAN workshops 2001 in Rome and 2006 in Prague which need to be further developed in view of the implementation of the ICRP publications 101 and 103.
- Request by IRPA to EAN to provide an input on the ALARA approach in radiation protection culture.

Objective of the WG

- The objective of the WG is to maintain and further develop the high level of radiation protection by
 - promoting the ALARA culture in all fields of application,
 - implementing the ALARA principle into practice, and
 - analysing feedback from implementing ALARA in various sectors.
- The EAN position will be developed along the lines of the EAN Workshop recommendations on ALARA Culture and on the basis of the discussions of the WG ALARA Culture, the EAN Steering Committee, the subnetworks (ERPAN and EAN-NORMnet) and the input of the EAN cooperation partners (EFNDT, EFRS, ESR and EFOMP).



EAN – 10 (Prague, 2006)

ALARA culture is a reference framework, a state of mind and attitude:

- allowing an individual and /or an organisation to act in a responsible way in order to manage radiation risks and giving radiation protection the priority it should have,
- characterised by risk awareness, balanced judgement of risks and benefit, and the capability to develop and use required skills and tools for risk assessment and management, balance of resources and economic and societal considerations,
- realized through transdisciplinary education and training tailored at each level
- supported by management commitment, guidance and supervision of competent authorities on European and national level,
- making use of a clear definition of responsibilities.



EAN WG on ALARA Culture Findings from the first meeting (oct. 2009)

- The distinction between ALARA and good radiation protection is often difficult to make, as the optimisation principle is the central concept of radiological protection.
- Thus it may not be relevant to propose a specific definition of ALARA culture beside the definition of RP culture, but to identify the specific contribution of the ALARA approach in the radiation protection culture.
- The ALARA approach is the most important element in the RP culture because of the particularity of the linear dose-effect relationship without thresholds (LNT), new findings of new health effects due to ionising radiation, and the application of the precautionary principle.



European
ALARA
Network

European ALARA Network

EAN WG on ALARA Culture Findings from the first meeting

- Implementation of the ALARA principle in practice is the major contribution to the RP culture.
- The implementation involves elements such as:
 - ALARA training,
 - commitment at all levels,
 - task planning: prediction of doses likely to be received during specific tasks or specific exposure situations,
 - dose evaluation and risk estimation (potential exposure situations),
 - analysis whether or not to further reduce doses, remediation actions and feedback,
 - relationship justification-optimisation, etc.



European
ALARA
Network

European ALARA Network

EAN WG on ALARA Culture Findings from the first meeting

- Demonstration of optimisation:
 - Tools,
 - Procedures,
 - Training,
 - Management commitment,
 - ALARA programmes and reviews,
 - Distribution of responsibilities,
 - What are the different parties involved in ALARA, etc.

EAN WG on ALARA Culture - Time table

- Contribution to the development of an ALARA culture:
 - A short and simple definition of the ALARA approach to radiation protection culture should be on the EAN homepage by end of 2009
 - Elaboration of an updated and shorter version of the book “ALARA from theory to practice” (2010 – 2011)
 - Collection of good examples of practical implementation of ALARA in different fields, NORM-Net, collaborating partners (EFNDT, EFRS, ESR, EFOMP) and colleagues from NPPs.



Comments on the definition proposed by the IRPA WG

- *WG proposal : The term “RP culture” describes the way in which RP is regulated, managed, performed, preserved, and perceived in the workplace, in medicine, and every day’s life and reflects the attitudes, beliefs, perceptions, goals, and values that employees, practitioners, regulators, and society share in relation to RP.*
- EAN proposal: The term “RP culture” **means** ~~describes~~ the way in which RP is regulated, managed, performed, preserved, and perceived in the workplace, in medicine, and every day’s life and reflects the attitudes, beliefs, perceptions, goals, and values **that various parties involved** ~~employees, practitioners, regulators, and society~~ share in relation to RP.



Proposal for a definition of the ALARA approach to radiation protection culture (1)

- ALARA approach to radiation protection culture:

Based on **scientific knowledge** and characterised by **risk awareness**, optimisation of radiation protection is an ongoing and iterative process, to keep

- ▶ the magnitude of individual doses,
- ▶ the number of people exposed and
- ▶ the likelihood of potential exposure ALARA,

taking into account **technical, economic and societal developments**, requiring **qualitative and quantitative judgements** and involving **all parties** having an interest in or concern about an exposure situation.



Proposal for a definition of the ALARA approach to radiation protection culture (2)

The implementation of the ALARA approach in practice is the most important element of radiation protection culture because of the particularity of the **linear dose-effect relationship without thresholds** (LNT) compared to protection methods for chemical and toxic agents, new findings of **new health effects** due to ionising radiation, and the application of the **precautionary principle**.

The implementation requires an adequate number of well trained and experienced radiation protection specialists familiar with the ALARA principle and associated procedures and ready to spread the ALARA culture within their field of activities.