NORM-ALARA (EAN_{NORM}) — a new module of the European ALARA Network (EAN)

Hartmut Schulz [a], Rainer Gellermann[b], Lars Geldner [c], Stefan Mundigl[d]

[a] IAF — Radioökologie GmbH, Dresden, Germany (IAF)
[b] HGN Hydrogeologie GmbH, Braunschweig, Germany (HGN)
[c] Robotron Datenbank-Software GmbH Dresden, Germany (RDS)
[d] European Commission, Luxembourg (EC)

Abstract: In 1996, the European Commission (EC) initiated the creation of a European ALARA Network (EAN) to specify European research on topics dealing with optimization of all types of occupational exposure, as well as to facilitate the dissemination of good ALARA practices within all sectors of the European nuclear industry and research. Up to now the NORM sector was not explicitly included in this network. Therefore, in the next two years it is planned to develop an ALARA Network for NORM which will interconnect groups of experts and provide experience for implementation of the ALARA principle in non-nuclear industries. This network shall maintain Codes of Practice for NORM industry managers and promote good radiation protection practice. It intends to improve and support appropriate radiation protection training, to identify problems to be solved and to propose solutions. Furthermore, proposals to the EC on harmonization issues and areas of further work will be formulated. As a basis for the work to be done the actual situation regarding optimization of radiological protection in the NORM industry of the European Community will be reviewed within a first step. As a consequence, an internet communication system will be created that includes interactive websites, a document management system (DMS), discussion rooms and contact databases. With these facilities the EAN for NORM will be able to provide, via an internet portal, online support, recommendations and guidelines, decision support and scientific information concerning NORM related topics. In the paper, the concept and the milestones of the EAN for NORM are presented and the possibilities of external experts to contribute to its further development will be shown.

1 Introduction

For an appropriate radiation protection system, not only the dose limits for workers and members of the public have to be observed, in addition the exposures should be kept as low as reasonably achievable (optimization principle, acronym ALARA principle). This principle recommended by the ICRP is one of the (basic) principles of the European Basic Safety Standards, and the International Basic Safety Standards. Throughout the 1980s and early 1990s the ALARA principle was incorporated into the radiation protection practice, particularly in the nuclear research and industry and also in such practices using the radioactive, fissile or fertile properties of natural radionuclides. In the Directive 96/29 EURATOM [1] this principle was re-emphasised as one of the cornerstones of the radiological protection system. However, a generally applicable approach to optimize the radiation protection in the numerous cases of concern cannot be given, since in the optimization process all aspects of interest have to be taken into account, not only the health detriment of the exposure and the cost for protective measures but also economic and social factors and the circumstances of the individual case. Therefore, in 1996, the European Commission (EC) initiated the creation of a European ALARA Network (EAN) to specify European research on topics dealing with optimization of all types of occupational radiation exposure, as well as to facilitate the dissemination of good ALARA practices within all sectors of the European nuclear industry and research. However the Directive 96/29 also requires that such work activities should be included in the institutional control which are not covered by the definition of practice (e.g. using the radioactivity of natural materials), but which involves the presence of natural radiation sources and lead to a significant increase in the exposure of workers and members of the public which cannot be disregarded from the radiation protection point of view. Such work activities are found in the non-nuclear industry, particularly in the industry processing raw materials containing increased concentrations of naturally occurring radioactive materials (NORM industry).

Requirements for a proper radiation protection in case of practices are specified in numerous articles of the Directive 96/29. However, concerning radiation protection in the NORM-industry and other work activities only general requirements (e.g. implementation of appropriate corrective measures and the application of protection and monitoring measures specified in the Directive for practices or parts of them) are enclosed in the Directive. Therefore the optimisation is of central importance in order to

get a proper radiation protection in the NORM industry. In the last years numerous investigations found that there is still much to be done in the NORM industry. However, up to now the NORM sector was not explicitly included in the existing EAN. Therefore, the European Commission decided to integrate the optimization of radiation protection in the NORM-industry into the existing network. For this purpose the project entitled European ALARA Network for Naturally Occurring Radioactive Material (NORM) was launched. This project — acronym EAN_{NORM} — will be executed in 2007 and 2008. EAN_{NORM} will make possible the exchange of information and experience in applying the ALARA principle in non-nuclear industries and the direct distribution of recommendations and guidance. In this way, a significant step forward will be taken in providing a more coherent approach to the application of the optimisation principle in the NORM sector.

2 Conception of the European ALARA Network (EAN)

2.1 Management of EAN

EAN is coordinated by a Steering Group comprising one nominated institute-member per country. Currently, 19 countries are represented in this group. The Steering Group members may be any type of stakeholder concerned with radiation protection and the group decides on the work programme and the network activities. The Centre d'études pour l'Evaluation de la Protection dans le domaine Nucléaire (CEPN, France) and the Health Protection Agency, Radiation Protection division (HPA-RP Division, UK) act as coordinator and assistant coordinator of the Steering Group.

2.2 Activities of EAN

Twice a year the EAN produces a regular ALARA Newsletter to provide a link between all those persons and groups concerned with matters of radiation protection in Europe. In order to get widespread distribution of the information contained in these Newsletters they are open for publication and translation in other languages.

EAN has organized annual workshops devoted to such fields of practical radiation protection for which significant improvements were desirable. As a result of each workshop a set of recommendations is presented to the European Commission, to the national regulatory bodies and to other stakeholders in order to facilitate the practical implementation of the ALARA principle.

In 1997, the EAN opened a Website (http://www.eu-alara.net). This site provides access to electronic versions of the Newsletters and the Workshop papers, a collection of case studies concerning incidents ("Lessons Learned"), PowerPoint presentations, conclusions and recommendations. A forum, the archive and the links to co-operation partners and international organisations are further useful modules of the EAN-Website.

The latest type of product introduced by EAN is the sub-network. Several sub-networks have been set up on topics that needed more than a Workshop for reaching either in depth recommendations or developing some end products such as guidance, good practices book. In 2005, for example, the European Radioprotection Authorities Network (ERPAN) was set up in order to promote the communication between national regulatory authorities on regulations and control activities such as specific inspections and the transcription of EC Directives and recommendations into national regulations.

An other important suggestion from the EAN has now been installed: The Commission has concluded a contract to set up an ALARA NORM Network — acronym EAN_{NORM}. This project is implemented by the three companies IAF, HGN and RDS represented by the authors of this paper and steered by the European Commission. The running time of this contract amounts to two years (Jan 2007 to Dec 2008).

3 Conception of the ALARA NORM Network (EAN_{NORM})

3.1 Purpose of installing EAN_{NORM}

The objective of this project is the establishment of a network and a regular office for promoting rational and coherent management of radiation protection optimisation in non-nuclear industry. EAN_{NORM} is to be designed as a component of EAN in such a way to facilitate the direct exchange of information between national competent radiation protection bodies, the industry and the industry trade associations on regulatory initiatives and administrative procedures as well as on operational radiation protection measures. EAN_{NORM} will form the basic structure for assimilation of experience gained in each step of the operation of NORM industry. Thus EAN_{NORM} will provide via an internet portal online support, recommendations and directives, decision support and scientific information concerning NORM related topics. Furthermore, the portal EAN_{NORM} should be a useful tool to interconnect groups of radiation protection experts working in the non-nuclear industry but also the health and safety managers, the radiation protection organisations, the research bodies, the regulatory bodies, and the trade union representatives.

3.2 Collaborating Organizations of EAN_{NORM}

One of the first tasks of this project is to identify a maximum number of contact points willing to participate actively in the network. These are national radiation protection authorities, institutes or organizations which performed assessments and surveys of Member States competent authorities and established the respective studies for the European Commission, international and national associations or bodies representing specific industry sectors as well as national and international radiation protection associations. It is striven for the EAN_{NORM} that at least one contact point will be established in the national radiation protection authorities in each country, which are involved in the EAN. The CEPN and the IAEA should also be included in the network structure.

3.3 Methodology of EAN_{NORM}

EAN_{NORM} will maintain codes of practice for NORM industry managers and promote good radiation protection practice. It intends to improve and support appropriate radiation protection training, to identify problems to be solved and to propose solutions. Furthermore, proposals to the EC on harmonization issues and areas of further work will be formulated. As a basis for the work to be done the actual situation regarding optimization of radiological protection in the NORM industry of the European Community will be reviewed.

One of the first steps at the time of execution is the description of the scope of the network, the predefined aims of the project and the practical arrangement for the operation. Regulatory and operational emphasis has to be specified for it. Legal and administrative aspects of other European radiation protection regulations and the impact of other EU legislation on occupational health and safety have to be taken into account. The operational aspects are oriented towards initiatives to be taken aimed at optimizing radiation doses and keeping them at optimised levels.

3.4 Activities of EAN_{NORM}

The contracting parties will arrange for setting up the network by interconnecting the identified participants (contact points in the national authorities, NORM industries and industry trade organizations, international and national radiation protection organizations) with a direct online computer based information exchange system. This system will provide the formulation of guidance and recommendations on operational and practical measures aimed at giving effect to the reduction of doses to workers and the general public during industrial applications involving natural occurring radioactivity.

An internet communication system will be created that includes interactive websites, a document management system, discussion rooms and contact databases. With these facilities the EAN for NORM will be able to provide online support, recommendations and directives, decision support and scientific information concerning NORM related topics via an internet portal.

3.5 Next steps, external contributions, milestones

A first Workshop on EAN_{NORM} including all partners interested in ALARA NORM will be held in order to update and complete information on approaches, views and positions of the different groups. This meeting is planned in November 2007 in Dresden (Germany).

Up to the end of August a preliminary draft of content and functions of the ALARA NORM Network shell be prepared. One element of this network will be a collection of

- Reference levels used for decisions on protective measures and the classification of work places in the NORM industries,
- Scenarios, pathways and parameters used for dose calculations at workplaces,
- Methods for monitoring exposures of workers,
- Experience regarding minimizing the exposure of workers in the NORM industries and at disposal of radioactive residues at landfills.

In order to put national experience from European countries in an adequate way into this project, our work needs the support of partners from as many European countries as possible. All such partners interested in the issues described here are therefore asked to contact the authors in order to arrange the cooperation.

4 Summary

This paper gives a first overview on the intentions and the next steps at the development of the European ALARA Network NORM (EAN_{NORM}). We understand ourselves as a service provider in this project. The success of this network needs the cooperation of all interested parties (e.g. authorities, industry, associations, …). The more information that can be included in the EAN the more the network module serves the purpose of the EAN. Therefore, we invite all interested stakeholders to provide us their needs, their wishes, their ideas and to contribute their own opinions, their own experience, and their own point of views.

REFERENCE

[1] EC Directive 96/29 EURATOM of 13 May 1996 laying down basic safety standards for the protection of health of workers and the general public against the dangers arising from ionising radiation