European ALARA Newsletter

on the Internet: ***http://www.cepn.asso.fr/EAN.html***

Editorial

The majority of this, the 4th Issue of the Newsletter, provides a report back on the first Workshop organised by the European ALARA Network. The topic of the workshop was 'ALARA and Decommissioning' and with the support of the European Commission and the host venue it took place 1-3 December 1997, at the Institut National des Sciences et Techniques Nucléaire, Saclay, France.

The first lesson learnt from this Workshop was that the format was successful and that there is scope in Europe for such ALARA 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.

The Workshop was attended by 70 experts from 9 European countries and was described by them as a "very useful exchange meeting characterised by open discussions" and "a new helpful forum".

Contents of Issue #4

The participants covered a wide spectrum of those involved in decommissioning; eg, site management responsible for decommissioning programmes, international and national advisory bodies who recommend standards such as clearance level criteria, regulators who enforce the legislation and site operators and contractors who undertake the decommissioning and have to implement clearance levels.

During the Workshop, 26 invited papers were presented covering both the nuclear fuel cycle (from mining through hot cells to research and power reactors) and non-nuclear situations eg, accelerators and historic uses of radium and thorium. The number of invited papers was considered to be the maximum that could be accommodated in the 3 days and retain sufficient discussion time. The Workshop format provided great flexibility; for example one of the most appreciated items was the late inclusion of the presentation of ALARA software and tools. The participants who were not presenting invited papers were encouraged in the pre-Workshop literature to prepare short papers to contribute to the discussion. About a third produced papers; all were distributed and a few were presented. Undoubtedly a key feature of the Workshop was the 'passionate discussions' both after each presentation and in a final panel session.

The Workshop was able to identify a set of recommendations to the European Commission to facilitate, within Member States, the implementation of ALARA in decommissioning strategies and operations. These recommendations and some elements of the discussions are presented in the main article of this issue. They are illustrated with some inserts covering relevant sections or tables from some of the papers.

In order to provide the international community with the very interesting material presented during the Workshop all invited papers will be in official proceedings to be published by the Commission.

After the success of this first Workshop, next November in the UK, the European ALARA Network will organise a second Workshop devoted to radiological protection in industry and research.

In addition to the planned second Workshop there was a support for:

- a Workshop on the optimisation of internal exposures and potential risk management, and
- a second Workshop on decommissioning within 3 to 5 years to check the progress of concepts, tools and practices.

Christian LEFAURE

Observations and Recommendations from the 1st EAN Workshop to Improve ALARA Implementation During Decommissioning

P. Croüail, C. Lefaure, J. Croft

We have not tried to produce an exhaustive discussion of all papers presented during the Workshop: they will be available in the near future in the official proceedings. We prefer to set out some general observations taken from all the discussions and particularly the panel session. The Workshop was a good opportunity to identify a set of recommendations to the European Commission to facilitate, within Member States, the implementation of ALARA in decommissioning strategies and operations.
These observations and recommendations are presented and illustrated with inserts and tables taken from different lecturer's presentations.

❑ Introduction

Optimisation of radiological protection has been shown to be a routine feature during major decommissioning operations in the nuclear industry sector. ALARA is not only considered as a principle but corresponds also to practices that determine important steps during the planning, the operation and feedback evaluation.

The presentations during the workshop described a wide variety of national approaches which depend on the legal requirements, the availability of funds, the industrial ressources and, last but not least, the waste disposal routes in the different European countries. It was also shown that, as far ALARA implementation is concerned, the reality is still far from being ideal everywhere, and that a lot of problems have still to be solved, as developed in the following paragraphs.

❑ Need to develop tools to estimate dose rates in complex and evolving environments and activity levels of large amounts of wastes

Specific tools (devoted software, feedback experience databases, gamma-cameras…) have been developed in many countries to help engineers and decision makers in the assessment of doses arising from decommissioning operations. Two pieces of software, Visiplan, a Belgian product developed by CEN Mol, and PANTHERE RP a French product developed by Electricité de France, were demonstrated as were BNFL's « ALARP Experience database » and their gamma-camera. But, as it was said by the CEN-Mol representatives, there is still a room for new developments and tools in that area in order to better implement ALARA. At CEN-Mol, « the estimation of dose distributions in complex installations was quickly identified as a challenge, and the assumptions made to simplify the calculation were often too rough to give useful results. Therefore, developments in radiation field modelling and dose uptake estimation were started to help to better evaluate the actual doses of operators working in a complex environment and at different locations. Dose mapping, which is also of the inputs of the dose uptake modelling programme, remains a development area. This is particularly true in low radiation field area, where sources are distributed and where hot spots or main sources are absent or difficult to track » (Massaut et al.). The development and the use of these tools must be adapted, on a case-by-case basis, to the complexity of the plant which has to be dismantled and decommissioned.

Decommissioning produces a large volume of material containing very low levels of radioactivity or only background levels. To process this material, mostly for free release, a variety of approaches are adopted and in number of countries, specialised mobile facilities have been developed (Auler et al.). It was noted that differences could arise in the interpretation of the radioactivity measurements and their sensitivity and that this could lead to problems during transboundary waste transportation or recycling of materials. There was therefore a need for guidance at a European level on the acceptability of metrological procedures and protocols.

❑ Need to develop techniques, models and software to realistically predict and follow-up internal exposures

The assessment of internal exposures is often a crucial point for many decommissioning operations. Several presentations demonstrated that internal exposure is an important contribution to the individual and collective occupational doses (e.g. decommissionings of the SPV Magnox Nuclear Power Station, of the Andujar uranium mill, of the mettalurgy hot cells at CIEMAT, or of the AWE military facilities). The realistic estimation of doses (both internal and external) is the first step of the implementation of ALARA. However the estimation process needs to be soundly based which in turn requires feedback experience from monitor programmes. For internal exposure this poses significant problems. It was concluded there was plenty of scope for the development of techniques, models and software packages to support internal dosimetry and lead to objective advice on the wearing of personnel protective equipment. Indeed this was identified as a potential topic for a future Workshop.

❑ Need to take into account a total risk approach with various trade-offs such as radiological and conventional risks, public and occupational exposure, imposed and voluntary risks, human health and environmental hazards

The total risk approach was a feature of a number of presentations. In the SPV Magnox decommissioning project, « hazard identification, assessment of risk and review of the adequacy of control measures have been ongoing processes. A total risk approach has been taken of which radiological risk has been only one component. Optimisation of risk has required careful consideration of all risks. » (Spooner). It is essential to integrate all non-radiological risks from decommissioning operations, and to take into account the various trade-offs arising from the radioactive wastes alternatives (see Table 1 from Menon, next page).

Table 1.
Summary of health risks from 50,000 t of Radioactive Scrap Metal Management Alternatives

Impact Categories	Recycle/Reuse (risk per year)	Dispose and Replace
Radiological Risks (individual dose < 10µSv/y)	· 10^{-7} to 10^{-6} fatal cancer risk to metal workers and public · 10^{-2} to 10^{-1} population risk per year of practice	· Potential elevated cancer risk to miners
Other Risks • **Accidents (workplace)** • **Accident (transport.)** • **Chemical exposure (smelting)** • **Chemical exposure** (coke)	· ~ 7 fatalities or serious injuries · 10^{-2} fatality risk to workers and public · 10^{-3} fatal cancer risk to workers; 10^{-4} to public · None	· ~ 14 fatalities or serious injuries · 10^{-2} fatality risk to workers and public · 10^{-3} fatal cancer risk to workers; 10^{-4} to public · 1 fatal cancer risk to workers; 10^{-2} to public

❑ **Need to develop tools to introduce transparency and coherence in the decision aiding, particularly in the case of the trade offs identified in 3rd recommendation**

Formal optimisation is not part of the German regulatory system, nevertheless pragmatic decisions have to be made on the effort put into reducing doses. Cornelius et al. described the approach taken with the VVER reactors at Greifswald and Table 2 summarises the categorisation uses for areas and associated protection measures. When it is possible to be more formalized, cost-benefit analyses - using the so-called alpha-values - are widely used for decommissioning operations throughout Europe. However, there was a consensus that these techniques are not sufficient in themselves for a number of cases in complex situations and do not allow to efficiently take care of trade-offs (see above), total risk approach and other criteria such as social and political considerations. The use of multicriteria analyses seems to be a promissing way to deal at the operational level with complex situations (Pauwels et al.), but there would still be problems of how to factor in social and political considerations.

❑ **Need to enlarge the International System on Occupational Exposure (ISOE) to plants being decommissioned in order to have available an international database and feedback experience exchange support**

During the workshop, several participants voiced a need to rapidly exchange the radiological protection data on decommissioning projects and operation undertaken in Europe. Many organisations have developed their own feedback experience databases. However there would be benefit in promoting this kind of initiative at the international level, for example by encouraging utilities to participate the International System of Occupational Exposure (ISOE) which has been already structured to collect specific data on decommissioning operations.

❑ **Need to create an ALARA culture in the non-nuclear sector where there are significant opportunities to improve ALARA**

Presentations devoted to decommissioning experiences in the non nuclear sector, showed numerous opportunities for radiological protection optimisation. For example, the decommissioning of medical, scientific and industrial nuclear accelerators (Eggermont et al.) illustrated the large potential for using ALARA tools in that sector (more than 200 accelerators in Europe). The dose levels, the risks of contamination, the activation characteristics, and the waste volumes justify the development of ALARA procedures adapted to this domain. It was recognized that one key point is the absence of « optimisation culture » in the non-nuclear industry. Consequently, the implementation of ALARA procedures and the use of ALARA tools should be promoted by national authorities and European guidances in that field.

Table 2.
Catalogue of dose reduction measures during the decommissioning of VVER reactors in Greifswald

Ambient Dose Rate µSv/h	**Man-Power man.hours**	**Expected dose reduction factor**	Deconta-mination of systems before dismantling	Shielding	Pre-dismantling of parts with high doserates	Complete dismantling of components and cutting in specific areas	Total or partly remote controlled dismantling	Training of personnel with mock-ups
>100	**> 1000**	**> 100**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
« « «	« « «	**10-100**	**yes**	**yes**	**yes**	**yes**	no	**yes**
« « «	« « «	**2-10**	**yes**	**yes**	**yes**	no	no	no
10-100	**100-1000**	**100**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
« « «	« « «	**10**	**yes**	**yes**	**yes**	**yes**	no	**yes**
« « «	« « «	**2-10**	**yes**	**yes**	**yes**	no	no	no
5-10	**< 100**	**10**	**yes**/no	no	no	**yes**	no	no
« « «	« « «	**< 10**	no	no	no	**yes**	no	no
« « «	« « «	**-**	no	no	no	no	no	no

❑ **Need to adopt an uniform system of control in Europe to demonstrate that an acceptable level of risk has been achieved when materials arising from decommissioning are cleared**

Janssens presented the EC approach to deriving clearance levels. From the EC point of view, there is really no viable option other than to clear a large volume for reuse of the materials generated by decommissioning (see the mass flows of wastes from the Greifswald site decommissioning as an illustration of this challenge in Table 3). The values recommended by EC are based on an « underlying concept of the risk that remains by clearing those items as being trivial » (individual public dose lower than 10 µSv). From the discussions, « there has to be doubt as to whether or not every country will actually accept those levels, and we have to look at what should be the consequences of what that might be in the European free market . This possible disharmonisation would also put the public opinions in trouble ». Another presentation (Menon) advocated for a more probabilistic - and maybe more flexible - approach integrating all types of risks and hasards associated with the decommissioning (see Table 1). The final decision should take into consideration the total health risk, and all the socio-economic impacts. Moreover, « a too much severe regulation could involve inconsistencies between that level of dose and some other human activities that are not yet regulated or that are less drastic from the radiological point of view ».

In conclusion, the discussion identified a crucial need to simplify the regulatory background. One proposed solution was to give up the concept of clearance, and use only exemption levels, with corrective factors depending upon the quantity of material that are being considered. There was a strong support for having an « international acceptable level » within the European Community, to allow coherence in low level waste policies.

It was recognized that public opinion was a dimension to be taken into account, and policies should be comprehensible. Fundamental to this is getting across the message that for this types of activities « zero risk » is not achievable, and that effort needs to be put into educating the public to understand what the actual risks and possible damages are.

❑ **Need for clear criteria to be applied in the radiological aspects of the remediation of contaminated sites and for protocols covering means of demonstrating compliance to the regulator and to the public**

This point can be summarized by two questions taken from Mobbs's paper:

- What level of residual risk to future users of the site is acceptable ?
- How can it be demonstrated that this level of risk has been achieved ?

Robinson et al. suggest that « it would be unreasonable for a regulator to interpret « no danger » in such a way that following de-licensing the levels of radioactivity remaining on the site would be such as to be subject to regulatory control by other radiological legislations. Therefore residual radioactivity should be reduced below appropriate exemption levels defined by relevant UK law. Over and above this requirement it would be prudent to remove all radioactive material where it is simple to do so. As an additional safeguard, when this had not been already achieved, it would seem worthwhile that site remediation continued if necessary to ensure that the annual dose to a member of the public who may use the de-licensed land would not exceed the 20 µSv/year level. »

And a corollary of this question is when to begin the final stage of decommissioning or, in other terms, what can be the strategies for waiting for decay ? There was no consensus to answer to this question. Recent experiences showed that different driving forces than radiological protection (eg. social considerations at Transfynnyd, finances at Berkley, environmental and political considerations at Brennilis) do exist. The answer could be: as soon as possible, just now if the ressources are available because the one who has had the benefits of a practice, have also to bear the cost of its giving up. It should be an ethical position not to transfer these burdens to future generations who will not directly benefit from the rest of a practice inherited from the past. However, one must keep in mind that « it is better to finish safe if late than with loss if on time » (Spooner).

Table 3.
Waste mass flows and paths from the decommissioning of VVER reactors in Greifswald

Path	Specific activity limit (Bq/g)	Surface contam. limit (Bq/cm^2)	Mass (tons)
Class A. **Unrestricted release of metals**	0.1 (all nuclides)	0.5 (e.g. Co^{60})	511100
Unrestricted release of other residuals	0.2 (Co^{60} equiv.)	0.5 (e.g. Co^{60})	
Class B. **Restricted reuse and utilisation of metal scrap**	1 (all nuclides)	0.5 (e.g. Co^{60})	2500
Release of debris for further use	0.2 (Co^{60} equiv.)	-	
Class C. **Disposal as conventional waste**	2 (e.g. Co^{60})	-	3750
Class D. **Decay storage**	Materials which will surely reach class A, B or C, within 10-15 years due to radioactive decay.		28400
Class E. **Controlled reuse in nuclear facilities**	Materials which can be used in other nuclear facilities		4150
Class F. **Disposal as radioactive waste**	All materials which cannot be classified A to E and which will be orderly removed as radwaste		16500

q ***Three Gammagraphy Incidents in Spain (Cases no 5a, 5b, 5c)***

Case 5a. *In 1993 a radiographer was working with a remote exposure device containing 1.6 Tbq Ir-192. After the operation, he retracted the source, but he proved with his survey meter that the source really was not retracted. The analysis of the accident showed that the male connector end of the crank was broken. That piece had been changed some days before the operations by the manufacturer and the new one had a manufacturing defect.*
In summary, the accident happened due to incorrect manufacture and quality control of a very important safety piece of the device. Regulatory authorities inspected the manufacturer and required corrective actions. The radiographer had communicated the accident to his radiation safety officer and they correctly carried out the emergency plan to recover the source. Nobody received significant doses (0.5 mSv whole body dose).

Case 5b. *In 1994 a radiographer was working at night with an exposure device containing 0.8 Tbq Ir-192 and had difficulties when trying to lock it in the safe position. He saw his electronic dosimeter off-scale, but his survey meter was malfunctioning and did not detect radiation. He struck the lock assembly with a hammer to reach the lock position. Then he left the exposure device in the client's facility without any supervision and went to his office to get another survey meter. He returned to the operation site and started to work again, but he had the same problems with the lock assembly. Moreover, his electronic dosimeter was off-scale again and the new survey meter neither worked correctly. He returned to his facility again, took a new survey meter and decided to leave there his TLD and went back to continue the operations.*
In summary, the survey meters did not work correctly and the radiographer did not verify them previously. Although he detected a failure on the device he continued working and did not communicate the problems to his radiation safety officer and did not use his TLD. Anyway the TLD showed a dose of 8.5 mSV.

Case 5c. *In 1995 an individual without qualification was ordered by his company to do radiographs at night with a source of 1.9 Tbq Ir-192. During the operations this person was not able to retract the source into the safe position. Recognising that a problem existed he tried unsuccessfully to contact the radiation safety officer of the facility. Finally, he contacted personnel of the competent authority and the accident was solved without radiological consequences. The analysis of the accident showed that the operator did not know the emergency plan arrangements.*
In summary, although this person was not qualified or well trained, fortunately he did recognise the problem and took appropriate actions and therefore avoided to receive an overexposure (the operator received a whole body dose of 2.11 mSv). The company acted imprudently in having an untrained person perform radiography.

Lessons Learnt
In order to diminish the occurrence of this kind of incidents, the CSN led a campaign with the following features:

- *Review the operational and radiation protection procedures of all gammagraphy companies and require some significant modifications,*
- *Press the radiation protection responsibles for an appropriate control of the procedures performance by operators,*
- *Insist that training is the cornerstone for the excellence in this type of work, as many others,*
- *But, in some cases, the need for sanctions was inevitable.*

q ***Incident with radiography in Sweden (Case no 6)***

At the site of a Swedish nuclear power station, some radiography companies had installed x-ray equipment in a building which was not within the supervised area of the power station. In this incident a weld on a non-radioactive pipe was to be radiographed with an X-ray set to approve the welding method. The radiography equipment and the pipe were installed in a lead-shielded temporary radiography room, 3x3.5 m. The operator put the tube voltage to 155 kV and the exposure time to 5 minutes and checked, from the operators place (a panel outside of the room), that the required values were achieved. He then left the area for a few minutes.

A big warning sign was posted at the entrance to the temporary radiography room. However, this sign was also there when no radiography was effected and the people working in the area had got accustomed to this. The doors to the temporary radiography room were kept closed but not locked when radiography was performed.

Three persons entered the building looking for the operator but cannot find him. They wanted to have a look at the weld on the pipe. They looked at the operator panel and drew the incorrect conclusion that the radiography equipment was not in use. They subsequently open the door to the radiography room and called out for the operator. When no answer was received they entered into the room and inspected the weld on the pipe. The TLDs were worn at the height of their pockets because they also functioned as identity cards. However in the accident this meant that they were not in the useful beam of the X-ray set. The later reconstruction of the radiation field and the position of the three persons, together with the information from their dosimeters, showed that fortunately the incurred doses were in fact quite low; the effective dose equivalents were 0.5 mSv, 0.9 mSv, and 3 mSv respectively.

Lessons Learnt

1. *The incident provides a classical example of warning signs eventually being neglected if they are up all the time, even when no radiation source or radiation field is present.*
2. *A temporary radiography room of this type should always be monitored when radiography work is performed and a flashing lamp or some other clear signal should inform people that the radiography equipment is in use.*

IF YOU KNOW OF AN INTERESTING ACTION, THEN PLEASE LET THE EDITORS KNOW - SO WE CAN ALL LEARN FROM THE EXPERIENCE

The European Commission « Radiation Protection »
NRPB and CEPN,
collaborate to organise the
2nd EUROPEAN ALARA NETWORK WORKSHOP

on

IMPROVING RADIOLOGICAL PROTECTION PRACTICES IN RESEARCH AND INDUSTRY

at NRPB Training Centre, Chilton, Didcot, UNITED KINGDOM
November 23-25, 1998

A conclusion from the 1993 EC Seminar, "Radiation protection optimization: achievements and opportunities", was:

"There needs to be a focussed effort on optimization in certain areas of the non-nuclear industry".

This still appears to be the case that

(i) Most of the radiological accidents occur in this sector, ie, in research and industrial uses of radiation;

(ii) A large fraction of the high individual occupational doses is in this sector; and

(iii) For occupational exposure to enhanced levels of natural radiation, there is relatively little assessment or control.

Overall there appears to be a significant potential for the spread of ALARA culture in these areas.

Therefore the objective of the 2nd Workshop of the European ALARA Network is to focus on possibly ways of practically implementing the optimization principle in research and industrial uses of radiation, thereby reducing routine doses and the potential for radiation accidents.

TheWorkshop will cover

- Reviews of current situations eg, dose distributions, accident data, underlying driving forces and the problems to be solved.
- Good practice and means of providing operational feedback experience.
- Potential improvements in training, awareness of radiological risks and radiological risk management.
- The influence of qualified experts and the regulators.

Target Audience

- Regulators, international bodies
- Qualified experts
- Occupational health doctors
- HP Trainers
- Users, professional bodies and industry groups
- Producers of sources, instruments and equipment.

The programme committee reserves the possibility of limiting the attendance to 70 participants.

For further information, please contact the Organising Committee:

Mr. J. CROFT, NRPB Chilton,
DIDCOT OX11 ORQ
Tel: +44 123 582 2680; Fax: +44 123 582 2650
E-mail: john.croft@nrpb.org.uk

ALARA NEWS

Spanish Society of Radiation Protection Seminar on the Application of the Euratom Directive on the Health Protection for Medical Exposures
Madrid, 27 April 1998

In 1984, the European Union Council adopted a Directive to implement the health protection of individuals who receive medical treatments and examinations (the so-called « Patient Directive », 84/466/Euratom). This Directive obliged all Member States to take regulatory measures in order to improve the daily medical consulting. In the light of the feedback experiences, the constant evolution and progress of medecine using ionizing radiation, and the adoption of the new Basic Safety Standards (1996), the European Commission has decided to revise the Patient Directive. The Directive on Medical Exposures (97/43-Euratom) constitutes the outcome of this decision.
The aim of this seminar is to promote the exchange of views between the competent regulatory bodies of member States, health doctors, radiation protection experts, and other professionals working in the field of the radiological protection in medecine, and also the industrial and EC representatives responsible for the transposition of the new Patient Directive in the Member States legislations.

Contact person:
Mr. H. LELLIG, EC, DGXI.C.1, Centre Wagner C/336, L-2920 LUXEMBOURG, Tel: +352-4301-36383, Fax: +352-4301-34646

French Society of Radiation Protection Seminar on « Occupational Radiological Protection in the Nuclear Field, the Non-nuclear Industry and in Medecine »
La Rochelle, 9-10 June 1998

The French Society of Radiation Protection and CEPN are organising the second French Seminar devoted to the optimisation of radiation protection for occupational exposures in nuclear industry, medical and industrial domains. Four years after the first congress on this topic, these two days will review the most recent progress realised in the implementation of optimisation of radiological protection, especially in the medical field where this principle is given a growing importance. It will also be the occasion to carry on with the reflections on the mean and the application of the ALARA principle, in particular within the context of the future implementation of the European Directive of the 13th of May 1996, which set up this principle as the driving force behind the radiological protection system.

The official language of these two days will be French.

Contact : Mrs C. SCHIEBER, CEPN, BP48, 92263 FONTENAY AUX ROSES CEDEX, FRANCE; Tel: +33-1-46548778,
Fax: +33-1-40849034, E-Mail: schieber@cepn.asso.fr

IAEA ALARA AWARENESS WORKSHOP for nuclear power plants managers and regulatory bodies senior staff
Vienna, 22-23 April 1998

This workshop on the implementation and management of ALARA in Nuclear Power Plant Operation, will be organized by the IAEA, at its Headquarters in Vienna, from 22-23 April 1998. The Workshop will include "peer" presentations (colleagues) by both utility managers and regulators from western countries and central/eastern european countries. Simultaneous interpretation between English and Russian will be provided.

Contact Persons:
Mrs. M. GUSTAFSSON, IAEA, radiation Safety Section, PO Box 100, Wagramerstraße 5, A-1400, VIENNA, ÖSTERREICH,
Tel: +43-1-2060, Fax: +43-1-20607, E-Mail: m.gustafsson@iaea.org
Mr. M. SAMIEI, Tel: +43 1 206022327, E-Mail: m.samiei@iaea.org

1st EC/ISOE Workshop on Occupational Exposure Management at NPPs
Malmö, 16-18 September 1998

This workshop, organised by the European Commission (EC) DGXI and the ISOE European Regional Technical Centre, and sponsored by the Nuclear Energy Agency and International Atomic Energy Agency, is targeted at radiation protection professionals (radiological protection managers and senior staff members) from all types of Nuclear Power Plant (NPPs), contractors and Radiological Protection Authorities.

Its aims are :
- to provide a large forum for the exchange of nuclear power plant occupational exposure concerns (practices, management and procedures, dosimetric results and problems, improvements, techniques and tools, etc.), and
- to allow vendors to present their recent experiences in radiological protection (measurement techniques, operating and plant design improvements, ALARA practices during operation and outages, etc.).

The workshop format will include plenary sessions, posters sessions, small group discussions and vendor exhibits. The official language of the workshop will be English, but in order to facilitate a wide participation, presentations during plenary sessions may be given in French, German or Spanish and will be simultaneously translated into English.

Contact Persons:

Mr. P. CROÜAIL, CEPN, BP48, 92263 FONTENAY AUX ROSES CEDEX, FRANCE. E-Mail: crouail@cepn.asso.fr
Tel: +33-1-46547460, Fax: +33-1-40849034

Mr. J.-M. WILLEMENOT, EC, DGXI.1.C, Bâtiment Wagner, Plateau du Kirchberg, L-2920 LUXEMBOURG. Tel: +352-4301-36392
E-Mail: jean-marc.willemenot@dg11.cec.be

ALARA NEWS

« Radiation Protection in connection with the Decommissioning of Nuclear Plants »: A Swedish Report

This report presents the Swedish Radiation Protection Institute's preliminary views and position concerning the decommissioning of nuclear power plants. To prevent the exposure of the decommissioning personnel and the general public to unacceptable levels of radiation and to protect the environment and future generations of human beings, it is SSI's task to formulate and issue the necessary terms and regulations with which the reactor licensees must comply during the decommissioning work.

Contact :
Mr. I. LUND, SSI, S-17116 STOCKOLM, SWEDEN.
Tel: +46-8-729-7157, Fax: +46-8-729-7108,
E-Mail: ingemar.lund@ssi.se

Consultative Document on Proposed UK Regulations

On 25 February, the UK Health & Safety Executive (HSE) will publish in a Consultative Document proposals for implementation of the European Basic Safety Standards (BSS) for protection against ionizing radiation and for the safety of radiation sources. The proposals cover draft regulations to replace the current Ionising Radiations Regulations 1985, together with supporting Approved Codes of Practice and regulatory guidance. There will be a four months public consultation period with an end date of 30 June. HSE intend to finalise the regulatory package in 1999 so that it can come into force on 1 January 2000.

Contact :
Mr. J. CROFT, NRPB Chilton, DIDCOT OX11 ORQ
Tel: +44 123 582 2680; Fax: +44 123 582 2650
E-mail: john.croft@nrpb.org.uk

ALARA Course
Saclay, 17-19 March 1998

A 3-days ALARA training course will be held at the Nuclear Sciences and Techniques National Institute (INSTN). This course - in French - will present both theoretical and practical examples with the participation of representatives of the French NPPs and utilities.

Contact :
Mrs M.-R. LEBOURG
INSTN, CEN-Saclay, 91191 Gif sur Yvette, FRANCE
Tel: +33 1 69 08 31 04 ; Fax: +33 1 69 08 97 77

EUROPEAN ALARA NETWORK Contact Persons

- **BELGIUM**

Mr. P. DEBOODT, SCK/CEN, Boeretang 200, B-2400 MOL.
Tel: +32 14332853; Fax: +32 14321624
E-mail: pdeboodt@sckcen.be

- **FRANCE**

Mrs. G. ABADIA, INSERM, 101 Avenue de Tolbiac,
F-75685 PARIS Cedex 14
Tel: +33 1 44 23 62 83; Fax: +33 1 44 23 62 84
E-mail: abadia@tolbiac.inserm.fr

Mr. C. LEFAURE, CEPN, BP 48,
F-92263 FONTENAY aux ROSES Cedex
Tel: +33 1 46 54 74 67; Fax: +33 1 40 84 90 34
E-mail: lefaure@cepn.asso.fr

- **GERMANY**

Mrs. A. SCHMITT-HANNIG, BfS, Inst. für Strahlenhygiene,
Ingolstädter Landstrasse 1, D-85764 OBERSCHLEISSHEIM.
Tel: +49 89 31603 101; Fax: +49 89 31603 140
E-mail: schmitt@bfs.de

Mr. W. PFEFFER, GRS/mbH, Schwertnergasse 1,
D-50667 KÖLN,
Tel: +49 22 12068 773; Fax: +49 22 12068 888
E-mail: pff@mhsgw.grs.de

- **ITALY**

Mr. A. SUSANNA, ANPA, Via Vitaliana Brancati 48;
I-00144 ROMA,
Tel: + 39 6 500 728 60; Fax: +39 6 500 728 56

- **THE NETHERLANDS**

Mr. J.C. ABRAHAMSE, N.V.EPZ, Lokatie Zeeland,
Wilhelminahofweg 3, Postbus 130, NL-4380 VLISSINGEN.
Tel: + 31 113 35 6360; Fax: + 31 113 35 2550

- **SPAIN**

Mr. P. O'DONNELL, CSN, Justo Dorado 11,
E-28040 MADRID
Tel: +34 1 346 05 61; Fax: +34 1 346 05 88
E-mail: pot@csn.es

- **SWEDEN**

Mr. I. LUND, SSI, Box 60204, S-17116 STOCKHOLM.
Tel: +46 8 729 7157; Fax: +46 8 729 7108
E-mail: ingemar.lund@ssi.se

- **SWITZERLAND**

Mr. M. FURRER, HSK/RAS, CH-5232 VILLIGEN.
Tel: +41 563 103 811; Fax: +41 563 103 907
E-mail: furrer@hsk.psi.ch

- **UNITED KINGDOM**

Mr. J. CROFT, NRPB Chilton, DIDCOT OX11 ORQ
Tel: +44 123 582 2680; Fax: +44 123 582 2650
E-mail: john.croft@nrpb.org.uk