European ALARA Network Issue 6 - February 1999

European ALARA Newsletter

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Editorial

In November 1998, the second European ALARA Workshop on « good radiation practices in industry and research », took place in the UK at Chilton NRPB premises. The workshop was attended by 60 participants from 11 European countries, and the 36 presentations prompted very fruitful discussions. It was clear for all participants that as demonstrated by several presentations, industrial and research sectors are prominent in terms of radiological accidents and feature prominently in the high doses distributions. A summary of the workshop is presented in this issue of the Newsletter, it includes recommendations to the European Commission such as :

- the Commission could use the Network in order to manage, at the European level, a feedback experience system to ensure widespread dissemination of case studies and lessons to be learned from accidents and incidents.
- the Commission should encourage improved training in industrial radiography.
- the Commission could usefully support work to improve the robustness of source control mechanisms…in the design of radiography equipment.
- the Commission could usefully explore improvements in the disposal of low activity waste arising from NORM…

After the successes of the first two Workshops the decision has been taken to organise a third one, in 1999, concerning « ALARA and internal exposure ». It will deal with all problems encountered in the management of this type of exposures and to maintain them ALARA : difficulties in monitoring and assessing individual and collective doses, difficulties analysing their components in order to set up radiological protection options and difficulties in managing different risk perceptions. It will discuss available and potential solutions to solve these difficulties, will cover a variety of use sectors such as NORM, nuclear fuel cycle, research; etc. This third Workshop will take place at Munich in November 1999.

This, the sixth issue of the European ALARA Newsletter, also provides Jack Valentin, secretary of the International Commission of Radiological Protection (ICRP), with the opportunity to present the recent work of the Commission. During the last few months 4 reports have been either issued or are in the printing process : Publication 77 on radiological protection policy for the disposal of radioactive waste, Publication 78 on individual monitoring for internal exposure of workers, Publication 79 on genetic susceptibility to cancer, and Publication 80 on radiation dose to patient from radiopharmaceutical. The Commission is working on updating many other documents, and contemplate a possible need for a Consolidated and Recapitulated set of new Recommendations that should be issued in year 2005.

Feedback is a two way process and, on behalf of the EAN Steering Committee, I would like to tell Jack Valentin and all the ICRP members that the readers of the Newsletter appreciate being updated on what ICRP is doing. I hope that the Network will provide useful channels through its newsletters and workshops as well as its links with the European Commission, to give to ICRP actual feedback on radiological protection practice problems and needs, and that it will, in a modest way, help the ICRP in elaborating new recommendations.

Christian LEFAURE

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Observations and Recommendations from the 2nd EAN Workshop: « Good Radiation Practices in Industry and Research »

G. Thomas, J. Croft, C. Lefaure, P. Croüail

❑ Introduction

The second EAN Workshop was attended by 60 participants from 11 countries with a good mix of operators, health physics experts and regulators; all with interests in the industrial and research sectors. This paper summarises some of the highlights and the recommendations to the European Commission that arose from the discussions.

❑ Scope of the Problem

The opening presentation by Croft and Lefaure reviewed the wide range of uses of radiation in industry and research, identified potential problem areas and posed a number of questions designed to focus discussions during the Workshop. Dose distribution data, mostly from previous issues of the EAN Newsletter was used to identify that industrial and research sectors figured prominently in the higher dose bands, often being comparable to or even more important than doses from the nuclear sector. This was reinforced by later presentations both in terms of dose distributions and accident data. This latter point was developed and emphasised by Dr Cosset of the Curie Institute Paris who presented some fascinating data on the 696 victims of irradiation accidents treated in the Institute, since the inception of the Radiopathology unit in 1951. Table 1 provides a summary of some of this data.

Activity sector	French cohort	Foreign cohort	Total
Occupational exposure			
Nuclear Industry	46	16	62
Non Nuclear Industry	165	39	204
Research Laboratories	131	22	153
Medical Facilities	56	3	59
Patients	73	15	88
Public	11	25	36
Radiophobia/Advice	86	8	94
Totals	**568**	**128**	**696**

Table 1. Number of victims of irradiation accidents treated in the Curie Institute (France 1951-1997)

Subsequent sessions of the workshop covered: influences of management, naturally occurring radioactive materials (NORM), industrial radiography, research, irradiators, gauging systems and feedback. During these sessions a number of common themes emerged and rather than provide a chronological account of the presentations it is perhaps more relevant to present an overview grouped by the recommendations emerging from the final discussion.

❑ Safety Culture: How to Influence ?

A common theme running through the various sessions was the need to improve radiological safety culture; but it was recognised that this needs to be part of an overall approach to safety. Both the management and the workforce have roles to play but it is crucial that management fully embrace safety. A number of presentations identified that a strong influence on management can be the recognition that safety, efficiency and profitability go hand in hand; and that failure to address safety can be expensive - if you think safety is expensive, try an accident! (Aamlid). DuPont are a renowned leader in safety, and push management ownership of safety. This can be traced back 150 years to when a plant producing explosives blew up. The management decided to start again, but under strict safety measures and to focus management' s attention on safety they were forced to have their offices on the top of the plant!

A variety of regulatory enforcement programmes were presented emphasising different aspects, eg prior notification of use to permit inspections, approval of equipment designs, targeting of sectors for special attention (eg industrial radiography), prior risk assessments etc. Regulatory frameworks and the national safety culture will influence which are the most effective in each country. However, it is clear that regulatory enforcement programmes influence management approaches to radiological safety. Similarly the level of awareness of management and workers to radiological safety can be raised by feedback mechanisms from accidents (see below).

☛ **There is a need to pursue actions which will improve radiological safety awareness as part of an overall approach to safety. In this respect cooperation with professional bodies and industry group organisations may be productive.**

❑ Feedback of Information from Accidents

The Learning the Lesson articles in the EAN Newsletter have become a regular feature, and the interest and usefulness of such feedback was reflected at the workshop both in case studies presented and discussions.
This was considered to be one of the most important areas for future development, both in terms of feedback to the users and an input to decisions on resource allocation by competent authorities.

☛ **Whilst the establishment of a European accident database may be a useful long term goal, the Workshop recommended that the EC should give priority to:**

a) encouraging the establishment of compatible accident databases in all Member States: in this respect the UK database, IRID, and the experience in establishing it, may prove to be a useful template; and

b) supporting the establishment and operation of feedback mechanisms to ensure widespread dissemination of case studies and lessons to be learned from accidents

The Workshop placed particular emphasis on (b) and identified it as a priority matter. It was noted that the existing European ALARA Network could be used as a means of achieving this. To be useful at the worker level it would be essential to have the case studies in the native language of the worker. It was felt that the EC could help in this matter.

❑ **Dose Data Analysis**

Dose data from a number of countries was presented, and Frasch presented the work of the ESOREX project; European Study of Occupational Radiation Exposure. The present study includes the EC Member States plus Iceland, Norway and Switzerland; but there will be a second phase covering potential new entrant countries. The present study reviews the legal provisions, the organisational structures and technical facilities of the national registration system to monitor individual occupational radiation exposures; with a view to the potential to harmonise approaches. It is apparent that there are significant differences both in the practices of monitoring and record keeping and in the data structures eg work categories and dose bands. Harmonisation of the collection and formatting of dose data across Europe was seen as a desirable objective. However the Workshop wished to emphasise that the objectives of collecting such data should be clear and we should avoid collecting data that does not have a clear objective. Different profiles of exposure will occur in different countries; but what is important is understanding the driving forces so that options for improvement can be identified.

☛ **National and European data should be structured to help identify trends, areas that are not well monitored and overall to help to prioritise allocation of resources in order to reduce exposures.**

☛ **The Workshop identified that the Commission could usefully encourage a more uniform approach to the assessment of dose from exposures to naturally occurring radioactive material and from internal exposure.**

❑ **Source Security**

It was noted from the analysis of the feedback from accidents that poor source security had been the primary cause of a number of accidents. Further, poor source security in countries outside the EU; particularly from the former Eastern Block, posed risks from orphaned sources turning up in the metals recycling industries.

☛ **The Workshop commended the Commission' s collaboration with IAEA, World Customs Organisation and Interpol (as evidenced by the Dijon meeting) in order to address this problem and considered continued collaboration to be a high priority matter.**

❑ **Industrial Radiography**

The Workshop identified that industrial radiography accounted for a significant number of the annual doses above 15 mSv in a year and was the predominate sector responsible for serious radiological accidents. Both Spain (Zamora) and UK (Paynter and Smith) reported on enforcement programmes and associated initiatives targeted at this area of use.

a) Shielded Facilities

Many of the accidents and higher doses related to site radiography situations where there was almost total reliance on operator competence for radiological safety. If the work could be carried out in shielded enclosures then a high degree of safety from engineered safety features such as interlocks, could be provided. Dr Smith (HSE, UK) posed the ALARA orientated question, « when would it be reasonably practical to invest in the expense of a shielded enclosure? ». His proposed benchmark, based on case studies, was pragmatic; namely, when you could fit the workpiece on the back of a lorry. However in keeping with the earlier theme he also emphasised the power of regulators pointing out economic influences on management in preference to using regulatory muscle. One example he quoted was that of investment in an extensive and sophisticated installation costing approximately £400,000. Here the payback period for the company was estimated to be just 2 years, mainly due to a productivity increase of 30% associated with flexibility of working and more immediate feedback into production control from the quick turnaround NDT inspection regime that can come with a fixed facility.

b) Training Standards

A major contributory factor to accidents and high doses was the generally low standard of training in radiation protection and the lack of fresher training. The feedback from accidents addressed above was considered to be particularly relevant to possible improvements in this area.

☛ **The Workshop recommended that the EC take steps to encourage an improved and coherent standard of training and refresher training in industrial radiography. In this respect it would be effective to cooperate with both national professional bodies and recognised accrediting organisations.**

c) Radiography Equipment

It was noted that equipment failures, particularly in the decoupling of sources, often provided the challenges to safety systems and procedures that eventually resulted in overexposure. Unfortunately equipment manufacturers were not represented at the Workshop.

☛ **There was a perception from participants that the design of radiography equipment had not progressed at the same rate as other technologies and that the Commission could usefully support work to generically improve the robustness of source control mechanisms and to investigate the viability of fail-safe source return sensors/detectors.**

It was also noted that as the nuclear industry had discovered, active dosemeters, could provide useful direct feedback to workers on the consequences of their actions and raise their general level of awareness. Their use in many sectors may be beneficial, and particularly so in industrial radiography.

❑ **Qualified Experts**

It was noted that the term Qualified Expert was interpreted differently across Europe, with the standard ranging from that of a professional consultant to an employee who has received only 1 week's training, targeted towards supervision within his organisation. The Workshop identified that Qualified Experts could have a significant influence on the standard of radiological protection actually achieved in the Industrial and Research sectors and that in view of the disparate uses in these sectors, professional consultancy was of importance.

☛ **It was recommended that the Commission further support the efforts of the Article 31 Group to harmonise the level of expertise needed in this function.**

❑ **Internal Exposure**

☛ **It was considered that the assessment and management of internal exposures was less well developed than that for external exposures. There was general support for the proposal by EAN to the Commission for the Third Workshop to address internal exposures.**

❑ **NORM**

A case study on the manufacture of refractory material using sands containing NORM (Smith) provided an example of a situation where occupational radiation exposure, mostly from internal exposure, had only recently been recognised. He described efforts made to reduce exposures, which had been running at a significant fraction of the dose limit for decades. It was generally agreed that this was typical of a number of NORM processes, and warranted attention. This case study also identified a conflict between the ALARA principle and the Not in My Back Yard (NIMBY) approach to waste. The case in point had accumulated some 200 tonnes of waste for which legal authorisation for disposal had been granted but without anyone willing to accept it; resulting in occupational doses being accrued from storage of the waste. (See Communications and Perceptions below).

The removal of radium bearing low specific activity scale from pipework used in the offshore oil and gas industry produced waste disposal issues which were seen to be treated in an inconsistent manner. Cleaning carried out on oil rigs allowed this waste from NORM to be disposed of at sea whereas if carried out on land the waste could not be treated in the same way as it would contravene the London Dumping Convention and OSPAR. Similarly the radiologically attractive option of re-injecting the waste into oil wells was not permitted.

☛ **It was felt that the Commission could usefully explore improvements in the disposal of low activity waste arising from NORM.**

❑ **Communication and Perception**

A common feature of many aspects of use of ionising radiations was communicating with both workers and public on the levels of risk involved.

☛ **The Workshop considered that perceptions and comparisons of risk were at the heart of the acceptance and implementation of radiation protection. This requires easily understood information to be made available to the various audiences. This was seen as an area the Commission should support.**

❑ **Conclusion**

The Workshop achieved its objective of providing a focus for feedback on the application of ALARA in Industry and Research. The format of the Workshop again fostered discussion and the identification of what it is hoped will be useful recommendations to the Commission. We now look forward to the next Workshop in Munich.

What's happening within ICRP?

J. Valentin, ICRP Scientific Secretary

Almost every « ALARA reader » is likely to know that there is a non-governmental organisation called the International Commission on Radiological Protection, or ICRP. Most ALARA readers probably also know that ICRP provides Recommendations and Guidance in its journal, the Annals of the ICRP, and perhaps also that these Recommendations are adhered to in most countries. For instance, both the IAEA Basic Safety Standards and the European Basic Safety Standards Directive are derived using ICRP Publication 60 as a major foundation. Some may know that legally speaking, ICRP is an Independent Registered Charity in the United Kingdom, and currently has its small Scientific Secretariat in Sweden. But I fear we still remain a relatively anonymous organisation, and we certainly want to achieve more transparency about our plans and ourselves. So what are we doing, all the time?

❑ **Recent and imminent reports**

ICRP Publication 77, « Radiological protection policy for the disposal of radioactive waste », re-states the existing policies of ICRP in this area, and tries to clarify some misconceptions about the use of collective dose. It is primarily aimed at people with a general interest in disposal of radioactive waste, rather than technical experts.

ICRP Publication 78, « Individual monitoring for internal exposure of workers », replaces the earlier Publication 54. In so doing, it takes account of the 1990 Recommendations of ICRP, and of the new anatomical and biokinetic models subsequently adopted by ICRP. It is also aligned with the new general principles for the radiation protection of workers, as given in Publication 75.

ICRP Publication 79, « Genetic susceptibility to cancer », is being printed as this is written. It is a very comprehensive review of this important and quickly expanding area, ending with a preliminary judgement of the potential implications for radiological protection. Starting with this issue, the presentation of the Annals of the ICRP will also be updated.

ICRP Publication 80, « Radiation dose to patients from radiopharmaceuticals », will be printed as Addendum 2 to Publication 53 early in 1999. It will contain biokinetic models, absorbed doses, and effective doses for about a dozen new radiopharmaceuticals, as well as updated information on some of the more frequently used ones discussed in earlier Publications.

Two further reports have been approved for publication and are expected to be printed during 1999: one on « Risk estimation for multifactorial diseases » (ie, affected by several genes and the environment in combination); and one on « Doses to the embryo and foetus from intakes of radionuclides by the mother ».

❑ CD ROMs

In addition, ICRP will venture into a new area: a CD ROM database of dose coefficients for workers and members of the public, extending Publications 68 and 72 will become available very soon (our usual publisher, Elsevier Science Ltd, handles the distribution). If this is well received, we are likely to produce several further CD databases soon.

Another type of CD ROM, which will permit interactive analysis of the data provided in Publication 78, is being prepared by the German Bundesamt für Strahlenschutz. This will not be an ICRP product, since current ICRP policy is to provide databases but not software programs under its own banner. However, obviously this BfS project is conducted in collaboration with ICRP.

❑ Reports being finalised

The aim of a project on « chronic » (persistent) exposure is to develop recommendations concerning the application and withdrawal of countermeasures in exposure situations arising from the long-term presence of radioactive materials in the environment, and the management of the residual exposures after the withdrawal of countermeasures.

A further project aims to review existing recommendations on radiological protection for disposal of long-lived solid radioactive waste, such as spent nuclear fuel. Previous advice (in ICRP Publication 46 from 1985) is still regarded as valid, but there is a need to consider its overall usefulness to decision-makers.

❑ Reports in preparation

In addition to the upcoming report on doses to the foetus after intakes by the mother, another document concerning age-dependent doses to members of the public from intakes of radionuclides is intended to provide a discussion of general values of effective dose coefficients for populations and their reliability.

One project is intended to update and extend the data on « Reference Man » given in ICRP Publication 23 on parameters for use in dosimetry and on biokinetic models for the metabolism and excretion of incorporated radionuclides. A first report on the skeleton, Publication 70, was printed in 1995. A report on Anatomy, physiology, and elemental composition is under way. A third report on the Digestive system is expected to follow later. A project on the Respiratory Tract Model of ICRP is intended to produce a technical document serving as a user guide offering advice on the application of the human respiratory tract model described in ICRP Publication 66 from 1994.

Furthermore, a number of new projects were started in 1998. These include cancer risk at low doses, radiation risks to the embryo and foetus, quality factors and RBE, further doses from radiopharmaceuticals, dose coefficients for external radiation, pregnancy in medical practice, patient safety in radiotherapy, and interventional procedures. Other areas are constantly being monitored for possible later inclusion into the ICRP work programme.

❑ Plans for the future

The possible need for a consolidated and recapitulated set of new Recommendations is currently being contemplated by ICRP. A possible target date might be in 2005.

Such new Recommendations would be likely to emphasise practical applications of the ICRP principles for the protection of the general public. This would mean that they would discuss how we are all continuously exposed to inevitable radiation, and therefore only a part of the dose to a person is controllable; and likewise, that in interventions, only a certain amount of dose can be averted by means of the intervention. Various ideas on how these difficulties could be tackled will be floated, and input from the radiological protection community will be sought. Of course, any proposed new recommendations will also be circulated for consultation.

❑ ***Two radiography incidents in Italy***

(Case no. 8)

In May 1992 a 19 year old radiographer, on the first day of his employment, received a significant overexposure, while performing his first radiography on a part of a gasduct in an open site. The source he was using was an Ir 192 source of about 1480 GBq (40 Ci). He was working completely alone and had been given almost no training and extremely poor information by his employer. At some stage the source became disconnected from the drive cable and he found it on the ground. He was not able to immediately recognize it as the source, picked it up to examine it and tried to insert it in the projection sheath. All these actions lasted 2-3 minutes. The evening of the same day, his hands grew swollen and red. The young radiographer was admitted to the nearest hospital with radiation dermatitis.

His dose were estimated as follows: whole body dose: 499 mSv; eye lens dose: 151 - 517 mSv; hand dose: 74 - 113 Gy.

The events that caused the overexposure can be summarized as follows:

a) the radiographer was left alone by the person in charge of his training during the exposure with a gammagraphic apparatus, whose operating conditions had not been regularly checked;
b) he had inadequate training, and no accurate information about the risks connected with the use of ionizing radiations;
c) he had never seen a diagram, nor a picture of a source;
d) he was not aware that he should use his portable monitor, nor did anyone tell him to switch it on.

Lessons Learnt

Training and Information for workers: *This is a duty on the responsible administrators of the firms, at least in Italy. Usually they transfer this task to the qualified expert; but it is not always the case; they sometimes disregard this task, with heavy consequences. It is absolutely essential that appropriate training is provided.*

Management:
Providing training is one aspect of radiological protection but this is just one part of an overall approach to managing radiation protection.

(Case no. 9)
In September 1997 firm A asked firm B to carry out some non-destructive testings on its behalf in the installation of firm A. According to the contract, firm A was to supply its gammagraphic apparatus, whereas firm B would supply its personnel and its radiation protection organization.
On September 29th, 1997 some radiography had to be carried out on a very large 15 cm thick vessel. Since the exposure was expected to last seven hours, workers of firm A and B agreed that the two operators of firm B would return the source to the shielded position at the end of the exposure, collect all the exposed films and leave them in the radiographic laboratory. The next morning a worker of firm A was to replace the apparatus in the source store. The exposure was carried out with a Co 60 source of 1221 GBq (33 Ci) between 9 p.m. of September 29th and 4 a.m. of September 30th. At 5.30 a.m. Mr BM of firm A was the first who went to the installation and, as agreed, worked to replace the gammagraphic apparatus in the source store. While collecting the projection sheath, he noticed a metallic noise and he immediately understood the significance and danger. He hurried towards the entrance of the installation and stopped the incoming workers. In a few hours all normal operating conditions were restored.
The doses of Mr MB were estimated as follows: whole body dose: 890 mSv; hand dose: 3.56 Gy; the same dose was estimated for the eye lens. Mr BM was immediately admitted to a hospital; some symptoms of a radiation dermatitis were present but soon faded away.
With regard to the radiation protection organization, both firms A and B had a very good record: apparatuses were frequently checked, safety procedures were adequate and available on site, all the workers had been given good quality portable monitors and were normally used to record the dose rates. Furthermore, all the workers of the two firms had been adequately informed about risks associated with radiations; in particular, the workers of firm B had attended a refresher course just three months before.
It was concluded that the two workers of firm B misconnected the remote control cable with the source holder, so that the source was pushed to the working position, but it could not be returned to the safety position at the end of the irradiation. Further they did not switch on their portable dose rate monitor. When they collected the exposed films at the end of the irradiation, they had to be in a position quite close to the source, but the vessel thickness shielded the two workers from significant irradiation, as none was detected by their personal dosimeters.

Lessons Learnt:

- ***Cable-source holder connection:*** *All the overexposures were triggered by a misconnection between the source and the remote control cable. It is evident that this is the weakest point of the gammagraphic apparatus. Researches should be stimulated to design new systems. Furthermore, this problem is not limited to the Italian situation, since all the apparatuses used are produced abroad.*
- ***Periodic safety controls: Firms operating with such*** *apparatus should be more careful with the periodic checks on the safety systems of their apparatus.*

ALARA NEWS

« Provision of Omissions from the Regulatory Control of Radiation: Application of Concept of Exclusion, Exemption and Clearance »
Technical Committee Meeting IAEA
Vienna, 14-18 December 1998

One of the conclusions of the first EAN Workshop (Saclay, France, December 1997) was that the problem of the release of materials from nuclear installations still needs significant development. One way to address this important question is to try to reach an international consensus on the definitions, the principles and the implementation of the release of materials. The first Workshop focused on clearance in relation to decommissioning, but there are other situations, eg. routine operations that need to be considered. Three concepts are related with release of material depending upon the situation:

- exposures which are not amenable to control would be covered by “an exclusion”,
- practices which give rise to a trivial risk should be covered by “an exemption”,
- for materials which have been part of a nuclear installation, “clearance” has to be used.

The scope of the Technical Committee Meeting organised by the IAEA was to clarify the significance of these three terms. The discussions based on the draft version 4 of the Safety Guide NS 33 gave rise to the following conclusions:

- the draft provides a good basis for further development of the concepts and their application,
- this is also true for the use of “exemption” for some interventions,
- some annexes have to be added to the document; one of which will deal with naturally occurring radioactive materials,
- the exemption levels are given in the Basic Safety Standards, but further developments are required for the derivation of clearance levels.

The final version of this IAEA Safety Guide is intended to be produced by the end of 1999.

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International Conference on Radiation Protection: What are the Future Training Needs?
Saclay (France), 6-9 September 1999

Due to changes in techniques and regulations in radiation protection, a comprehensive review of training in this field is essential. This should involve a collaborative approach of the various interested parties: employers, trainers, and users/employees. Undertaking this review at an international level should enrich the discussion and facilitate the development of a common approach.

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DORIS-2: Evaluation of dose reduction programmes in Swedish BWR's

An evaluation of the present status of radiation fields and occupational exposures in Swedish BWR's and an update of an earlier presented research project DORIS (Dose Reduction in Swedish BWR's) is presented in this new report*. Recent BWR dose reduction programmes, both plant specific and more general programmes, are addressed. New methods and findings are presented in a separate section: new on-line monitoring technique of dose rates, cobalt balances in the plants, influence of factors such as iron balance optimisation, zinc injection, HWC operation, fuel burn-up, fuel failures and reactor water temperature on activity build-up on system surfaces and concentration of radioactive particles in the reactor water during operation and shutdown.

(*) SSI-project 992.97, Report 98-0011R, September 1998.
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2nd International Symposium on the Release of Radioactive Material from Regulatory Control « Harmonisation of Clearance Levels and Release Procedures »
Hamburg (Germany), 8-10 November 1999

Due to the worldwide low capacity in final repositories and the rising numbers of nuclear installations for decommissioning the release of low radioactive contaminated material from regulatory control has gained more importance. Therefore, extensive research have been devoted to develop clearance levels for unrestricted release and authorized use of those materials. In order to avoid problems in international trading of released materials, the harmonisation of clearance levels is a key future task.
Considering this, TÜV Nord, the leading organization of experts in Germany, OECD/NEA and the European Commission have decided to hold an international symposium in November 1999 in Hamburg. This symposium is meant to be a platform to inform all participants about national regulations for clearance and about the international work of defining levels for clearance and authorized use, in order to look for the possibilities of international harmonisation.

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New Safety Guide in Spain
« Safety and Radiation Protection Issues in Industrial Gammagraphy »

The main purpose of the new safety guide 5.14 approved in October 1998 is to recommend and provide advice on the whole of the radiation protection programme for industrial gammagraphy facilities. Points of interest that have been considered in the realisation of this guide are:

- development of safe working procedures both for routine work and emergency response planning,
- safety structures, clearly defined responsibilities of staff,
- worker training, increasing attention both for formal training and on job training,
- radiation monitoring requirements both for personal and workplace monitoring
- maintenance schedules, routine checks
- testing and maintenance of equipments requirements
- storage, movement and transportation of radiographic sources requirements,
- implementation of ALARA principle.

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European Study on Occupational Radiation Exposure (ESOREX) -
Extension of efforts in Eastern Europe

The ESOREX project is an international study on occupational radiation exposure. It is being carried out by the Federal Office of Radiation Protection (BfS) in Germany on behalf of the European Commission. It includes the Member States of the European Union, and also Iceland, Norway and Switzerland. The purpose of ESOREX is to carry out a survey in each of these countries of

- the administrative systems used to register individual occupational radiation exposure,
- the number of occupationally exposed persons, and the dose distributions for the year 1995.

The study will provide comparable description of the administrative structures of the various national registration systems. It will also define the dose distributions in the different work categories. These two elements are to provide the basis for the analysis of the differences in the individual states and for the identification of the possibilities for achieving European harmonization within the scope of the new Basic Safety Standards, laid down in Council Directive 96/29. The surveys have been carried out mainly during 1998, by means of visits to, and interviews with the competent bodies and authorities in these states. At present, the surveyed information and data are being analysed and evaluated. In 1999, the project will be extended to ten Central and Eastern European countries: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic, and Slovenia.

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European Commission « Radiation Protection »

3rd EUROPEAN ALARA NETWORK WORKSHOP « MANAGING INTERNAL EXPOSURE »

at BfS facilities, München, GERMANY
15-18 November 1999

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FIRST ANNOUNCEMENT

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Objective

The objective is to provide a means of exchanging information on experience of implementing radiological protection principles, particularly ALARA, in occupational exposure situations where there is actual or potential internal exposure. In particular it will focus on the issues that managers have to address in practical situations, the factors that they need to take into account and the availability of relevant monitoring data. The workshop will identify successful strategies to manage such situations and problem areas where initiatives are needed to achieve improvements. These will fund the basis of recommendations to the European Commission.

Scope of Workshop

The Workshop will cover in both the nuclear and non-nuclear sectors, i.e industry, research and medical sectors, the following items:

- implementing ALARA in routine operations
  - balancing conflicts between internal and external exposure routes
  - how to take account of potential internal exposures
  - risk perception and problems of communication
- internal monitoring regimes for different exposure scenarios
- protection options to reduce internal exposure
- problems of providing realistic dose estimates
  - parameters that can be measured
  - models to convert to dose quantities
  - uncertainties
- monitoring arrangements in the event of incidents.

Whilst the content will necessarily address the various means of assessing doses, and their inherent advantages and disadvantages, the focus of the Workshop will be on the management of exposure in practical situations. Prominence in the oral presentation will be given to case studies that address the choice of monitoring regimes and how the monitoring data and other factors are used in the management of exposure. In addition there will be posters papers and softwares demonstrations. The number of participants will be limited to a maximum of 80.

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