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Editorial

The second EAN Workshop on “good radiation practices in industry and research” recommended that priority should be given to:

(i) Encouraging the establishment of compatible radiation accident and incident database in Member States

(ii) Supporting the establishment and operation of feedback mechanisms from accidents and incidents to ensure widespread dissemination of case studies and lessons to be learned both at national and European levels

Following these recommendations, the qualified expert group of the French Society for Radiation protection (SFRP) has set up a national system to track the lessons learned from radiological incidents in France. That system, so called RELIR, relies on several networks: qualified experts, occupational physicians, medical physicists, radiation protection trainers… It intends to provide stakeholders with educational material on lessons learned. As well, the Directorate General Environment from the European Commission has now decided to support a EURAIDE (European Accident and Incident Data Exchange) pilot study co-ordinated by the NRPB (UK). That pilot study will identify the scope, describe the functionality, and propose a management scheme for a planned radiation accident and incident data exchange system at the European level.

The second EAN Workshop and the third one on “managing internal exposure” identified parallels in this area with the development of the application of ALARA for external exposure in the 1980's and in particular recommended that case studies on the application of ALARA for internal exposure be supported within new research programs. The Directorate General Research from the European Commission has now decided to support such research within its fifth framework program; this will be done through the SMOPIE (Strategies and Method for Optimisation of Internal Exposure of Workers from Industrial Natural Sources) project co-ordinated by NRG (The Netherlands). The main scope of that project is to recommend monitoring strategies and methods for optimising internal exposure in a wide range of predictable occupational exposure situations.

More recently the 5th EAN Workshop on industrial radiography (see article page 2) recommended to set up a group with the European Non Destructive Testing Society in order to develop Codes of practices targeted at NDT companies and clients. Contacts with that Society as well as with EC are very promising for future co-operation.

As these projects are linked with the work of the EAN, close cooperation will be maitained with them. EAN will help in particular to guarantee satisfactory coverage of the countries not represented in the EURAIDE pilot study and of the exposure categories for those situations not encountered by the SMOPIE industrial partners. The main results of the EURAIDE and SMOPIE projects will be regularly reported to the EAN steering group and published in the EAN Newsletter.

Very recently, the European Commission has positively reaffirmed its interest in the EAN, in supporting it financially for another three years’ within its fifth Framework program. The EAN reinforced at the end of 2000, with the participation of Austria and Czech Republic, but the network has also enlarged its activities for example, proposing new means for facilitating ALARA implementation (European surveys and sub-networks, see Newsletter issue 9), or giving rise to European research programs and operational systems. Moreover, looking at the format and results of the EAN, the International Atomic Energy Agency of the United Nations, has started a process to set up similar networks in other regions in the world (in South America, Africa, Asia, and Central European countries). So, our network is not only is increasing in size but becomes a reference outside Europe.

Christian LEFAURE

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5th European ALARA Workshop "Industrial Radiography – Improvements in radiation protection": Summary and Recommendations
Rome, Italy, October 2001

C. Lefaure, J. Croft, M. Paganini-Fioratti

❑ Introduction

The 2nd EAN Workshop on "Good Radiation Practices in Industry and Research" in England in December 1998 concluded that there was scope for improvement in the optimisation of radiation protection (the ALARA principle), especially in industrial radiography. The Workshop made a number of recommendations concerning priorities for consideration by the European Commission. These included improving radiological safety culture, encouraging accident databases and feedback, harmonisation of European requirements for Qualified Experts, and improved communications. For industrial radiography, improvements in radiographic equipment safety and worker training were key recommendations. This, the fifth workshop took the recommendations of the 2nd workshop as a starting point and focussed on industrial radiography.

About 70 representatives from 21 countries took part in the 5th Workshop. Most of the stakeholders were represented eg International Organisations (International Atomic Energy Agency - IAEA, European Commission-EC), national regulatory bodies, Non Destructive Testing (NDT) companies and their professional organisations, client companies, industrial radiography equipment manufacturers, radiological protection training organisations, qualified experts, research centres… Special mention should be given to the role of IAEA in supporting the participation of countries from the Middle East and Eastern and Central Europe.

❑ Structure and Content

That Workshop included some 26 papers for oral presentation and 17 poster papers. For a major part of the Workshop the participants split into 6 Working Groups to review the issues associated with industrial radiography and recommend ways forward.

The opening paper from P. Shaw set the scene for the workshop by reviewing the scale of industrial radiography work and the frequency with which overexposures and accidents occurred in this sector of work. While the European Statistics from ESOREX (G.Frasch paper) provides a figure of about 20,000 workers in industrial radiography in Europe (EU member states and applicant countries), P. Shaw noted that other estimations rise up to 40 to 50,000 workers. He also noted that a number of different international organisations (UNSCEAR, WHO reference Centre "Institut Curie", IAEA…) had reported that about 40 % of occupational exposure radiation accidents involved industrial radiography. The paper identified a number of issues and questions for the Workshop to consider.

A paper from G. Nardoni (AIPnD, Italy), the president of the International Committee for Non-Destructive Testing reviewed relevant changes in technology and whether this presented new challenges to radiation protection or opportunities for a major shift to non-radiation techniques. He concluded that although there are certain sophisticated new developments that can improve the quality of the test results, at present these are limited in application, and that there was unlikely to be a significant change in the pattern of radiation based industrial radiography in the foreseeable future.

"Radiography has been the first non-destructive testing technique… The ultrasonic examination represents the major competitor to radiography… The radiography examination is the only one that can clearly detect a lack of penetration at the root of the welds… This capability of identifying the nature of defects, make radiography the mandatory test for the qualification of welding procedure and welder qualification… Another large application of Radiography is the examination of castings… No other test may be used in this case…"

A number of presentations from equipment manufacturers demonstrated that advances had been made in the safety aspects of the design of equipment. Several of these focussed on the introduction of Selenium-75 and the potential this provided for smaller Controlled Areas. However they also noted the reluctance of NDT companies, in a competitive market, to invest in equipment that provided greater safety features but cost more than the traditional equipment. A similar point was made by regulatory body representatives : "the main problem is that this is a very competitive field, where customers put high pressure on the gammagraphy facilities owners and they in turn on their workers" (E. Rodrigo Gonzalez).

A session on Safety Culture/Organisation and Management had a number of papers reviewing the various influences that contribute to:
(a) *poor working practices*: for example, due to poor working environments. A. Garrigou noted that "industrial radiography is often presented by clients as an easy job…", while ergonomic studies show that "According to the surroundings of the element to test (for example when there are scaffoldings, solenoid valves, etc… the installation of the film cassettes and of the guide tube can become a tricky job…" (see Pic.1)

Pic.1: *Risky and uncomfortable posture during a radiography*

(b) *improving working practices, in particular through the attitude of management, clients and Regulators*. It was noted (A. McDonald) that clients that placed emphasis on safety matters and were known to inspect operations, got the better trained and equipped radiography teams. H. Hoogstrate provided the NDT firm's point of view in terms of both managers and workers; he pointed out several good practices. During the discussions, certain regulatory requirements appeared to be quite different from one country to another. For example, in some countries it is mandatory for the client to notify regulatory bodies in advance of any industrial radiography job to allow an inspection of the NDT organisation and working conditions as well as to facilitate the preparation of the work at the NDT company level.

The session on training reviewed a number of existing and new initiatives to improve training standards and some new initiatives in different countries. An example of the latter is an IAEA programme of work to develop training modules for industrial radiography, coupled with a programme to "train the Trainers" (J. Wheatley). An important input to this is the ability to capture and learn the lessons from accidents and a number of initiatives were covered in the papers: the UK Ionising Radiations Incident Database (IRID), the French « Retour d'Experience sur Les Incidents Radiologiques » (RELIR), the EC European Union Accident and Incident Data Exchange system (EURAIDE) and the IAEA Radiation Event database (RADEV).

❑ Working Groups

The questions posed in the overview paper by Shaw et al. provided the starting point for the discussions of each of the Working Groups. Each Group was given a particular area to focus on but were not constrained from considering other issues. The final session of the Workshop was devoted to the reports from the Groups and general discussion. As might be expected there was considerable overlap between the reports due to the interdependency of many of the issues. From this there emerged a broad consensus of the "needs" in order to pursue the ALARA objective in Industrial Radiography, together with recommendations on how these needs could be addressed.

❑ Needs

Training

- There is a case for harmonised standards of training for industrial radiographers and the supervisory staff within European countries. This should include periodic refresher training.
- The first step should be to carry a survey of the present situation in Europe.
- To ensure high standards, mechanisms for Approval/Certification should be introduced, to cover - Radiographers - Supervisors - Trainers - Training Centres
- Incident and Accident feedback should be part of the training
- Training should include practical exercises, such as source recovery

Accidents & Feedback

- Event/accident reporting needs to be encouraged to ensure that lessons are learnt This requires the establishment of reporting and feedback mechanism that protect the anonymity of persons and organisations.
- Where serious accidents occur, detailed investigations to identify the underlying causes should be encouraged.
- To facilitate feedback a unified categorisation system should be developed.
- The means of making the feedback available in the local language is important. (It was recognised that the work of the EU with EURAIDE and the IAEA with RADEV addressed this and the previous issue).
- In addition to learning from accidents there was a need to learn from good practices: the EAN Newsletter provides one means of doing this but there is scope for more.

Equipment

- Equipment manufacturers need to continue to liase closely with users and regulators to ensure that designs are optimised to minimise failures (sources disconnects etc), doses and conventional non-radiological risks.
- There is a need for the development of an active detection system integral to gamma radiography source containers to positively confirm (in a fail-safe manner) when the source is not fully retracted. This will not be easy, but the potential benefits are worthy of committing research resources.
- Safety improvements in design come at a price and experience indicates that the highly commercial nature of the industry is such that many companies will not make the necessary investment unless there are commercial incentives from Clients as well as supporting regulatory pressures.

Influencing Safety Culture

- The doses received by workers in industrial radiography are often higher than in the nuclear industry and there is a need to encourage work planning and dose management.
- Regulatory bodies can set the tone for safety culture and therefore they must have appropriate enforcement powers and be seen to use them if required.
- Licensing of radiography companies should take into account training requirements, the financial provision made for them (and other aspects of safety) and the history of provision.
- Because of the competitive nature of the industry, Clients are seen as being potentially particularly influential on the standard of radiological safety delivered by industrial radiography companies. There is a need to raise the awareness of the clients and to also remind them of their responsibilities for safety when industrial radiography takes place on their premises.

❑ Conclusions and Recommendations

As well as identifying the "needs" for improvement, the workshop also identified the principal means by which these could be addressed; either through giving ongoing support to existing initiatives or through new initiatives.

1. A Working Group should be established at the European level to take forward improvements. The core of this group

should be representatives from European ALARA Network and the European Non Destructive Testing Society, with other Stakeholders being drawn in as the Working Group develops.

2. The Working Group would provide an appropriate vehicle for:

2.1. Developing Codes of Practice, targeted at Clients as well as NDT organisations, to provide guidance on safety requirements and best practice.

2.2. Carrying out a review of the current situation in Europe.

2.3. Developing a unified approach to training (with links to IAEA's programme in this area).

3. The European Union should commission research into the development of an active detection system that could be integral to radiography source containers to positively confirm whether the source is, or is not, in the fully safe condition.

4. There was strong support for the EU draft High Activity Sealed Sources (HASS) Directive, as being a means to improve source security.

5. There was strong support for the development of national databases on radiation accidents and improvements to the feedback mechanisms being pursued by the EURAIDE (EU) and RADEV (IAEA) projects.

Minimum Requirements for Qualified Experts on Radiation Protection in Europe

J. van der Steen, NRG, the Netherlands

❑ Training and Education

Within the European Union, education and training in the various disciplines of radiation protection is considered to be a very important tool for promoting safety culture and improving the level of competence of the personnel involved in radiation protection. It has acquired an important place in securing the safe handling of radioactive materials and radiation sources. Article 38 of the Euratom Basic Safety Standards imposes requirements on the member states on training and education of the "qualified experts" and their exchange within the European Union. The EU definition of a qualified expert is:

"Persons having the knowledge and training needed to carry out physical, technical or radiochemical tests enabling doses to be assessed, and to give advice in order to ensure effective protection of individuals and the correct operation of protective equipment, whose capacity to act as a qualified expert is recognised by the competent authorities. A qualified expert may be assigned the technical responsibility for the tasks of radiation protection of workers and members of the public."

However, when looking at the education systems and the contents of the courses in the different member states, one has to conclude that there exists a large variation in the way the requirements are fulfilled. In order to seek to harmonisation on these points, several actions have been taken.

In 1995, the Group of Experts according to Art 31 of the Euratom Treaty considered the advisability of preparing a recommendation concerning Community level harmonisation of the qualification requirements of qualified experts. A working group was set up and produced a guidance text on basic and additional training for qualified experts, including a basic syllabus for the items to be addressed in the training. The information for this guidance was based on an inquiry held in the member states on their educational system. It showed a large variety of training requirements, legal requirements and administrative practices in the member states. The Art 31 Expert Group considered the guidance text as a first step towards harmonisation of criteria for qualified experts within the European Union. The text and the syllabus were adopted by the European Commission and published as a Communication from the Commission in the Official Journal C133, dated 30 April 1998.

In 1999, the Art 31 Expert Group reactivated the working group to assist the Commission on the possible establishment of a discussion platform, that would consider the professions dealing with radiation protection, the definition of their responsibilities and their training needs.

The main objectives are:

- To propose common, standard criteria for training and qualification of the qualified expert in radiation protection, to allow mutual recognition by member states.
- To propose basic syllabuses and curricula for training in different areas of radiation protection, such as industrial radiography, medical diagnostic and therapeutic applications, nuclear power, etc.
- To advise on the development of continuing professional education and training in radiation protection for specific areas.

As a first step, the working group advised the Commission to carry out a survey on the present situation of qualified experts in all member states and applicant countries. The survey should list and analyse the existing various definitions and roles for qualified experts; their legal and regulatory basis; the educational and training requirements and awarded qualifications; structure and systems of certification and recognition; and accreditation procedures for the institutions organising training courses.

❑ Mutual Recognition

In order to explore the possibilities of involving the European members of the International Radiation Protection Associations in assisting with the implementation of the European directives, the European Commission took the initiative to organise regular meetings. A first meeting was held in Luxembourg, October 1998. During that meeting, it was concluded that the Associations could play a role in the establishment of criteria for mutual recognition of qualified experts within the member states. To this end, a working group on the recognition of qualified experts (WGRQE) was established.

The WGRQE took notice of the work, carried out by the Art 31 Expert Group and tried not to duplicate the work. Instead of that, the group concentrated on requirements for recognition of the capability of qualified experts rather than recognition of training and education.

The WGRQE noticed that, with the implementation of the Euratom Basic Safety Standards in the national regulations, emphasis is placed by several member states on the word “capacity” in the above-mentioned definition. In general, the qualified expert is recognised by a competent authority of a member state, specifically when he has certain responsibilities or duties in radiation protection as defined in licences for practices with ionising radiation. At the moment, this recognition is in most cases based on qualifications with respect to the education of the qualified expert. In some member states however, the recognition is based, or will be in the near future, on a system of registration, or certification, of the capabilities of the qualified expert. This includes not only the initial training of the qualified expert, but also takes into account the expertise build up during the expert’s professional work and refresher courses. Such a system should ensure that the expert meets minimal quality assurance qualifications throughout his professional career. A system like that has been introduced already in the UK, where the Society for Radiological Protection plays an important role in the registration system. In the Netherlands, the government has taken the initiative to develop such a system.

The WGRQE agreed to propose to the representatives of all EU Radiological Protection Societies the following actions:

- Preparation of a list of the authorities in each Member State that recognise the capacity of the qualified expert.
- Preparation of a table with the various procedures for the recognition of the qualified expert (formal examination, assessment of knowledge and experience, recognition by regulatory body, recognition by assessing body, no formal recognition).
- Construction of a case study: description of the qualifications needed in each Member State for a qualified expert discharging the tasks required by the Euratom BSS in the context of industrial radiography.

Further on, the WGRQE made a distinction between radiation protection experts on the following basis:
- Qualified experts that have a responsibility for the tasks to protect workers and members of the public assigned by their employers (or act as consultants).
- Radiation protection practitioners, or (skilled) exposed workers.

Both groups may travel from one Member State to another. The WGRQE proposes that radiation protection experts require certain qualifications for mutual recognition, based on an assessment of their capabilities to act as a qualified expert. The WGRQE concluded, however, that also for the group of radiation protection practitioners there is a need for some internationally agreed qualifications in practical radiation protection, albeit that for the latter group the system for mutual recognition may be less stringent. For these persons, it might be sufficient to define an extended syllabus for their education, comparable to the syllabus as published in the Official Journal C133.

The WGRQE also reflected on the operational aspects of mutual recognition. As mentioned above, some Member States are considering the introduction of a certification, or registration, system for qualified experts. For mutual recognition it is necessary that the assessing bodies, or authorities, in each Member State recognise each other’s system of registration or certification. The EU Radiation Protection Societies could possibly play also a role in this process, in order to see if the criteria are acceptable for mutual recognition.

❑ Prospects

The initiatives taken may eventually lead to an improved level of competence of personnel involved in radiation protection, thereby ensuring the requirements of the Basic Safety Standards on qualified experts and their exchange within the European Union. However, it will take quite some time before harmonisation of education and training and mutual recognition of qualified experts will be realised. It is not an easy task to get international agreement on minimal requirements for these issues, given the differences in the educational systems in the member states. Nevertheless, a start has been made, and the initiatives taken by the European Commission can be regarded as a necessary follow-up to implement the requirements set by the Basic Safety Standards on qualified experts in the European Union. In order to achieve the goals of the working groups in a reasonable time scale, the Commission needs to make the necessary resources available. We hope that the coming year will provide a good perspective for progress in this important area.

The ITRAP Pilot Study

C. Schmitzer, P. Beck, Austrian Research Centers Seibersdorf (ACRS)

❑ Introduction

Illicit trafficking and inadvertent movement of nuclear and other radioactive materials is not a new phenomenon. However, concern about such activities has increased remarkably in the last decade. Although the number of such incidents has risen, the overall extent of the problem is not restricted to Europe and not to nuclear pro-liferation. A few percent of these incidents involve so-called “special nuclear materials", which may be used for nuclear weapons and therefore cause a threat of nuclear proliferation. The vast majority of these incidents, however, involve radioactive sources, low-enriched, natural or de-pleted uranium, which are not usable for weapons. There have been instances in which loss of control over radioactive materials has led to serious, even fatal, consequences to persons. Examples include unintentional incorporation of radioactive materials into recycled steel, recovery of lost radioactive sources by unsuspecting individuals, and deliberate purloining of radioactive material.
The ITRAP project – financed by the Austrian Government and executed by the Austrian Research Center in close cooperation with the IAEA, World Customs Organisation (WCO) and Interpol – aimed at finding international consensus on specifications for detection equipment and

instrumentation as well as verification of such specifications in laboratory tests and field installations. Under the umbrella of the pilot study, 23 international companies participated in the study and many of them devised improvements of their monitoring equipment.

❑ Objectives of the Study

An important element of this study was the harmonized establishment of detection thresholds for practical implementation at borders or similar checkpoints. However, equally important was the verification of agreed specifications in controlled laboratory conditions and in realistic operating environments (field tests). All crucial parameters, as inter alia the false alarm rate, were verified by a significant testing effort as compared to approaches based on statistical calculations only.

❑ Assessment Program

Details of the assessment program are found elsewhere[1][2]. Specific scenarios have been analysed [3] and another overview has been presented at the IRPA Congress in Budapest [4]. The core of the testing program was focused on the radiological parameters sensitivity (detection probability) and false alarm rate with their associated confidence levels in the laboratory evaluation. Close to 200.000 tests were performed on mostly stationary instruments alone to verify these parameters. The main findings shall be reported here.

❑ Lessons Learnt

Among other important findings, the experiences gained in reference to the chosen intervention level and the consequences of the statistical specifications adopted shall be presented. The study has profited from the willingness of all manufacturers to cooperate and improve their systems based on these findings.

Investigation level

The detection limit is a quantity intrinsic to an instrument and describes its capabilities with respect to sensitivity. The investigation level is a term specifically adopted throughout the study to describe the nominal radiation level in terms of radiation field strength at the point of detection (radiation intensity) at which an alarm is triggered and subsequent investigation of individuals, vehicles or goods should be established. It is an agreed setting based on analyses of threat potential, possible harm caused, and acceptable false alarm rates. A compromise must be reached in establishing a practical alarm threshold so that illicitly trafficked radioactive or nuclear materials may be detected, yet provide an acceptably high immunity to fluctuations of background radiation or naturally occurring radioactive materials (NORM). A particular investigation level is related to the actual alarm threshold setting of a monitoring instrument. This setting can be expressed in terms of multiples of background, or as a multiple of the standard deviation of the background countrate.

Specifications and consequences

For stationary monitoring instruments, the following specifications were adopted:

- *Gamma*: detection sensitivity (nominal alarm threshold) at 0.3 µSv/h at 99.9% probability for Am, Cs, Co. Exposure interval 1 sec within 10 sec occupancy interval, 60 second quiet time; background at 0.2 µSv/h
- *Neutron*: flux density of 20,000 n/s of weapons grade Pu (equivalent to 0.2 MBq, i.e. 0.01 µg of Cf-252)
- False alarm rate at not more than 10-4 (1 in 10.000)

The requested probability for alarm detection (the nominal investigation level) necessitates an instrument alarm threshold setting much below the nominal value to capture 99.9% of the events (about 3s – standard deviation - below nominal). On the other hand, the requirement of a false alarm rate not exceeding 1 in 10.000 proved to be challenging for many instruments, necessitating a lowest allowable threshold setting well beyond 3.8s of the backgound countrate. Assuming an ideal Gaussian distribution (Fig. 1), the dotted line would represent such a chosen compromise, allowing very few “background” related alarms, while at the same time capturing most “source” related alarms. It can be shown that for the limiting case of Gaussian behaviour the minimum separation amounts to approximately 7s of background count [5].

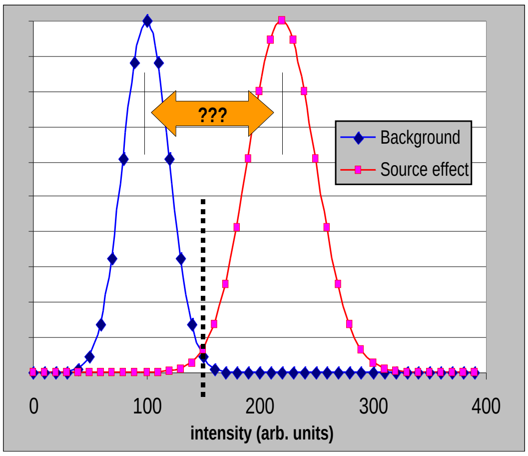

Fig. 1: *Schematic diagram of overlapping signals from background and radiation source.*

The following number of tests have been performed under laboratory conditions. About 50% of participating instruments passed the tests after an improvement phase (specifically for neutron detection).

	Tests	Number of Tests
Fix-installed monitoring systems	Gamma sources ^{241}Am, ^{137}Cs, ^{60}Co	50,000
	Modified neutron source Cf-252	51,000
	False alarm tests	86,000
Pocket sized and hand held instruments	Gamma sources ^{241}Am, ^{137}Cs, ^{60}Co	10,000
	Modified neutron source Cf-252	10,000
	False alarm tests	20,000

- **Field Testing**

The systems having successfully completed the lab test were set up at the Austrian-Hungarian border crossing at Nickelsdorf, monitoring car, bus and truck lanes. A major problem proved to be the legal basis for intervention subsequent to an alarm condition. Multiple training sessions for the border guards resulted in efficient procedures for identifying the most common cause of alarms, naturally occurring radioactive materials. To assist with these investigations, a hot line was established to experts who could be called upon for clarification and/or remote diagnosis on a 24 hour basis. Similarly, all instruments could be remotely contacted by the experts and individual parameters (countrate profiles, calibration) assessed on-line. Field testing continued throughout 10 month.
Training and response procedures must be considered an integral part of overall system performance. Border style situations do not allow much time for detailed analysis. Operations must be structured to achieve conclusive decisions quickly, in view of multiple other obligations of border guards. Instruments – both stationary and hand-held – must assist in detecting agreed threat potentials as well as maintaining self protection.

Fig. 2: *View of monitoring systems at the lab test facility and the gamma test source (center)*

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❑ ***A radiography incident at a research accelerator in Sweden (Case no. 11)***

One researcher entered an experimental area at a high-energy electron-beam research facility, accompanied by his son. The operator in charge of the accelerator, who had no information about their presence, directed a 100 MeV electron beam to a photon production target in a neighbouring room with the resulting well-collimated photon beam directed through the experimental set-up in the room where the two persons were located. A reconstruction indicated that they had been exposed to whole body dose rates of 30-60 mGy/h and 3-8 mGy/h respectively for the two beam currents used during the exposure. The possible exposure times were 10 minutes for the researcher and 5 minutes for the son according to their recollection. The estimated doses are of the order of 10 mGy with large uncertainties. No personal dosimeters were used.
The prime cause of the incident was that the operator had beforehand disabled the interlock system at the request of the researcher, although he was not entitled to give such an order. Underlying this was the fact that the management had shown no clear commitment to radiation protection, and in particular had not set down rules that should have given the operator clear responsibilities and the power to refuse such a request. The same research group did not want to switch-off some bending magnets that were part of the interlock system since it would have made it difficult to regain the same beam quality. Instead, another "home made" interlock arrangement was used and this proved inadequate. Together with other deficiencies such as: unclear internal responsibilities, illogical warning lights/instructions, lack of personal/warning dosimeters, lack of functional information channels and the presence of a non-authorised person (the son), this made this incident possible. There were probably no intentions to break the law, but the series of mistakes and poor decisions have to be interpreted as a consequence of a non-functional radiation protection organisation and a lack of radiological protection culture among the research team.

Lessons Learnt

• Laboratory managers should be sensitise to their legal and judicial responsibilities in terms of radiation protection. Their commitment should rely on adequate information and training on radiological risks and their management.
• The responsibilities and information channels of the radiation protection organisation have to be clearly defined.
• The disabling of an interlock system should be allowed only in clear-cut cases where special procedures, approved by designated senior managers, should be put in place to ensure that the radiation incidents are avoided.

Point of view of the Swedish regulatory body
By chance, the exposures and therefore the doses were quite low; though they should have been much more important with such a device, and then leading to a serious accident. This event points out an crucial lack of radiation protection culture, both at the management of the installation and at the researcher levels. In such a case, a prosecution should be performed as a way to sensitise these stakeholders, to modify their behaviour and to avoid a future accident.

ALARA NEWS

3rd ISOE European Workshop on Occupational Exposure Management at NPPs

Portoroz, Slovenia, 17-19 April 2002

After the success of the Malmö and the Tarragona Workshops in 1998 and 2000, the European Commission Directorate-General for the Environment, Nuclear Safety and Civil Protection, the International Atomic Energy Agency (IAEA), the OECD Nuclear Energy Agency (NEA) and the CEPN (the ISOE European Technical Center) are jointly organising and sponsoring the 3rd ISOE European Workshop on Occupational Exposure Management at Nuclear Power Plants. This workshop is targeted to radiation protection professionals (radiological protection managers and senior staff members) from all types of NPPs, contractors and radiological protection authorities.

The workshop will:

- provide a large forum for operators to exchange practical information and experience on occupational exposure issues at NPPs
- allow vendors to present their recent products
- give an opportunity to participate in plenary sessions, poster presentations, small group discussions and vendors exhibition.

New challenges for Radiological Protection such as the management of contamination control or a common radiological safety culture within nuclear utilities and contractors, will be addressed during plenary sessions (in English, French, German, Spanish or Russian).

The programme is available at http://isoe.cepn.asso.fr/

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3rd French Conference on the Optimisation of Radiation Protection in the Nuclear, Industrial and Medical Field

La Rochelle, France, 11-12 June 2002

This conference – in French – will deal with the various aspects of the practical implementation of the ALARA principle for public, workers, and patients, in the various activities of the nuclear, industrial and medical sectors. The following subjects will be addressed: regulatory aspects, operational dosimetry, design and operation of facilities, dismantling of facilities, feed-back experience and networks, waste management, training.

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International Conference on Occupational Radiation Protection: Protecting Workers Against Exposure to Ionizing Radiation

Geneva, Switzerland, 26-30 August 2002

The IAEA is organizing its first International Conference on Occupational Radiation Protection. The objective of the Conference is to foster the exchange of information on current issues related to the exposure of workers to ionizing radiation in the course of their work and to formulate recommendations, as appropriate, regarding measures to strengthen international co-operation in occupational radiation protection. The Conference will address the issue of establishing occupational radiation protection standards and providing for their application. It will focus on a number of specific problems, inter alia, the complex issue of controlling occupational exposure to natural sources of radiation.

Contact person: Mrs. M. GUSTAFSSON
Tel: +43 1 2600 22725 - Fax: +43 1 26007
The Conference webpage address is:
http://www.iaea.or.at/worldatom/Meetings/2002/
E-mail: M.Gustafsson@iaea.org

Towards an Harmonisation of Radiation Protection in Europe

Regional IRPA Conference
Firenze (Florence), Italy, 7-13 October 2002

The first IRPA regional congress, involving most of the European countries will be held in Italy in Florence on 8-11 October 2002. Once again history repeats itself. In 1966 the Italian Association hosted the first international IRPA congress in Rome and now intends to initiate a close and harmonious co-operation with its European partners. The prime mover of this initiative is the need to improve radiation protection knowledge, to harmonise operational criteria and to implement, where possible, European Commission Directives in all the European countries. In this context the most relevant topics have been identified. It is important that all the associate IRPA European societies will attend this congress, during which a forum of the Societies will be convened.

The major scientific topics covered by the Conference are the following:

- Radioecology and environmental restoration
- Decommissioning of nuclear facilities and waste management
- Policymaking and legislative aspects of radiological protection
- Protection of the patient in medical applications
- Personal dosimetry in occupational exposure situations
- Techniques and instrumentation for radiation
- Dosimetry
- Modelling techniques for risk analysis and dose Assessment
- Radiation health effects and radiobiology
- Protection against non-ionising radiation
- Professional training and certification/recognition of experts

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First Announcement

6th European ALARA Network Workshop on "Occupational Exposure Optimisation in the Medical Field and Radiopharmaceutical Industry"

CIEMAT Facilities, Madrid, Spain
23-25 October 2002

Objective

The aim of this, the 6th EAN workshop, is to focus on possible improvements in optimising radiation protection for the workers in the medical and radiopharmaceutical sectors. The Workshop will try to achieve that objective by engaging interested parties (regulatory bodies; medical health physicists and radiation protection experts; occupational physicians; physicians and medical staff performing radiology, nuclear medicine, radiotherapy and interventional procedures; devices manufacturers, medical radionuclide manufacturers and carriers….) in the exchange of information and experience.

Scope of the Workshop

The Workshop will cover the following subjects:

- Operational experiences in the medical field, including incidents and accidents;
- The impact on occupational exposure of new technologies - in nuclear medicine, - radiotherapy (including permanent implants and endovascular brachytherapy) and, - diagnostic radiology;
- The influence of safety culture and regulatory approaches on occupational doses and on the ways to reduce them;
- The use and adequacy of available dosimeters and medical surveillance techniques to follow up efficiently the workers and to optimise their doses;
- The management of occupational exposure for pregnant workers;
- The relationships between workers, patients and relatives' exposures.

The Workshop will particularly cover specific populations such as:

- nuclear medicine staff
- staff performing interventional procedures
- lorry drivers carrying radioelements

In order to pursue these objectives it is envisaged to have oral and poster presentations covering the different work activities as well as the points of views of interested parties, and to devote part of the Workshop to work in small discussion groups. Therefore the number of participants will be restricted to a maximum of 80.

The Workshop will take place in the CIEMAT facility in Madrid, Spain, from the 23rd to 25th of October 2002.
Program and application forms will be available in May 2002.

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