



NEWSLETTER

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The impacts of Covid-19 pandemic on ALARA --- Testimonies from EAN Members

Page 2

A glimpse of initiatives taken by several organizations during the Covid-19 pandemic

Page 10

The Radium Action Plan in Switzerland

Page 12

What's new in EAN?

Page 15

Contacts

Page 17

The Covid-19

pandemic has raised unprecedented challenges and led to the implementation of dramatic measures such as confinement on a worldwide scale. Radiation protection professionals have responded by taking actions to **ensure the continued application of the ALARA principle during these changing and challenging circumstances**. This 43rd issue of the EAN Newsletter aims to share experiences of how several Radiation Protection related-organizations have adapted to the new context and the initiatives that have been implemented.

To achieve this, the EAN Editorial Board asked the EAN Members to send a **testimony on the impacts of the coronavirus pandemic on their organizations** and how they have adapted to ensure the continuity of the application of the ALARA principle. Contributions from Austrian AGES, French CEPN, Irish EPA, Swiss SFOPH and PHE in United Kingdom has been received and are presented in the first article.

At the time of #StayAtHome - face-to-face meetings, seminars, training courses etc. have been cancelled or postponed. **The Radiation Protection Community has mobilized to maintain links** and initiatives have flourished for the exchange of information and experience – notably about the management of the pandemic, and also to keep our minds busy during this period! The second article aims to provide a short list of these initiatives such as webinars and the provision of resources.

And to follow on from the sentiment that “**applying ALARA never stops**”, the last article presents the Radium Action Plan that has just started in Switzerland.

“*Art can help you escape from reality*” is a citation from the French painter Henri Matisse (1869-1964). You will find a few paintings from Mr. John Crossley (1952-...) to illustrate this Newsletter.

*The EAN Newsletter Editorial Board. –
Sylvain Andresz, Julie Morgan, Fernand Vermeersch
and Pascal Croûail*

The impacts of the Covid-19 pandemic on ALARA Introduction to the testimonies coming from the EAN Members

The EAN Editorial Board

S. ANDRESZ¹, J. MORGAN, F. VERMEERSCH³, P. CROÛAIL¹

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The Covid-19 outbreak and subsequent protective measures employed have deeply modified the daily-job of most radiation protection professionals worldwide. In many countries, the nuclear and non-nuclear sectors have continued work with ionizing radiation, much of which has been categorised as ‘essential industry’ by the governments. For example, nuclear reactors have a key role to play in many countries in ensuring that electricity supplies are maintained during the health crisis, the associated monitoring in the environment has to continue, and the medical uses of ionizing radiation are of utmost importance (e.g. chest X-Ray to assess the impact of the coronavirus on the lungs of patients) etc.

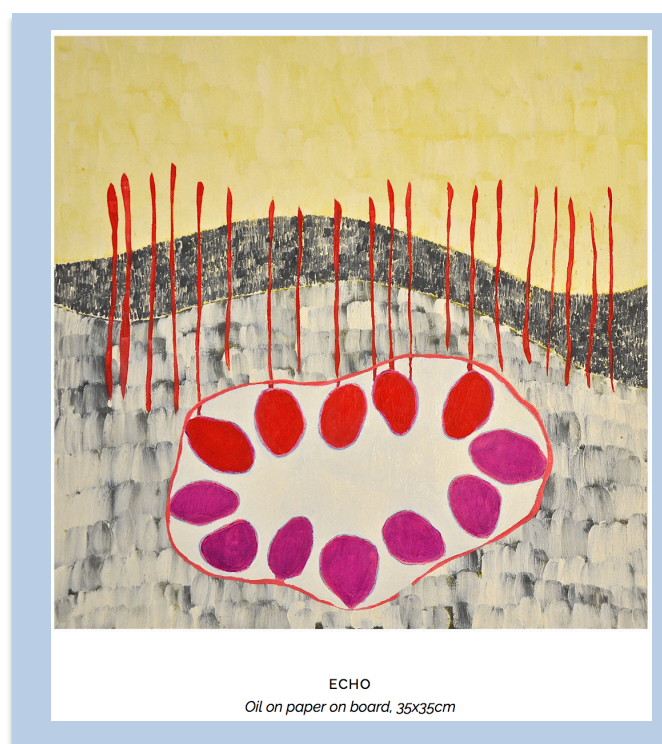
As a result, the profession has needed to implement and manage new working arrangements in response to the confinement and social distancing measures applied to manage the Covid-19 pandemic whilst ensuring continued standards of radiation protection.

In April 2020, the EAN Bureau and Editorial Board initiated the collection of testimonies and experience from the EAN Members on the impacts of the Covid-19 pandemic on radiation protection/ALARA in their organisation and how the application and consistency of radiation protection/ALARA is maintained given the circumstances.

A few questions were sent by email to the Members, to narrow the topics:

1. How is your job in radiation protection affected? What are the impacts in your organization.
2. What are the main difficulties and the initiatives taken?
3. Final thoughts

A total of five testimonies have been received from Austrian AGES, French CEPN, Irish EPA, Swiss SFOPH and PHE in United Kingdom and these are presented below. ■



Testimony coming from the Austrian Agency for Health and Food Safety, Department of Radiation Protection and Technical Quality Assurance, Austria

F. KABRT, E. LINDER-LESCHINSKI

Austrian Agency for Health and Food Safety,
Division for Radiation Protection,
1220 Vienna

What is your job in radiation protection/ALARA?

The tasks of the Department of Radiation Protection and Technical Quality Assurance are mainly to support the authorities in technical RP issues like monitoring, clearance and authorization procedures. The remediation of legacy sites as well as RP support for private clients are also among the tasks.

How is your job affected? What are the main difficulties and the initiative taken?

At AGES the employees' workplace was switched to teleworking wherever possible. The tasks and necessary presence in the laboratories were evaluated and adapted in accordance with the restrictions of the Covid-19 measures in Austria. As Covid-19 tests are carried out by AGES the work load in these laboratories rose rapidly. In other fields of expertise there was a decline in the amount of requested measurements, as the clients did not send samples. AGES was also tasked by the government to set up the national telephone hotline for Covid-19 questions by the public - especially in the beginning of the Covid-19 crisis there was a high number of callers. In order to cope with this high demand colleagues from all departments were asked to help answer the questions of the general public.

In the Division for Radiation Protection all office workers switched to teleworking. The laboratory capacity of the Department of Radiation Protection and Radiochemistry was reduced but not entirely shut down. The environmental monitoring of radioactivity in Austria is a routine task of AGES and was therefore continued in the public's interest. Especially with the fires occurring in the woods near Chernobyl the importance of this task was obvious. The first issue in maintaining AGES' measurement capacities was to secure the supply of liquid nitrogen for the detection systems as all liquid nitrogen was redirected to hospitals. The lab was able to acquire liquid nitrogen in the end, but it is an issue that has to be regarded nevertheless. Another issue that arose was the supply of respirator masks. Due to the high demand in the

medical sector it is important to evaluate their usage. Not only planned situations but also unforeseeable applications have to be taken into account.

It seems that part of the work load has only been postponed, especially because clients are restricted in their work themselves. Sooner or later these tasks will have to be dealt with regardless. The current down time can be used for minor tasks and duties which likely have been postponed in the past. In addition, research is a focus of our department at the moment, as it often gets pushed to the background in times of higher workload.

Final thoughts.

The Covid-19 measures bring an additional dimension to RP. RP can be affected by measures taken to counteract another risk. In this situation a limited supply of respirator masks, social distancing and the resulting delays of projects could affect RP. Fortunately the AGES' RP division is not yet affected. The probability of such an occurrence seems low, but as the Covid-19 measures continue the possibility can't be excluded for sure.

Another problematic situation could be having to weigh incurring additional dose against contact with people. Is there the possibility of a situation in which an additional dose would be received because of social distancing? Such a situation would be an ALARA case as the term "reasonable" needs to take into account not only the risk from ionising radiation but also with the risk of contracting Covid-19.

The Covid-19 measures show the implementation of ALARA outside a RP context: instead of dose contact between persons is evaluated. In this evaluation process different aspects are included: infection risk, disease patterns, social as well as economical issues. These issues are weighed against each other and measures are taken which lead to "as little contact as reasonably achievable". Thereby different countries follow different strategies and come to different conclusions. An objective assessment cannot occur, as these different aspects would need to be standardised units of measurement. Similarities to RP can be seen.

The communication in radiation protection can be quite challenging. The risk of contracting Covid-19 has similarities to ionising radiation. It cannot be seen and measures are taken to reduce the risk of people getting ill. Communication played a major role when the Covid-19 measures and restrictions were introduced and their necessity had to be explained. On the basis of that experience maybe conclusions for improving the communication in RP can be drawn. ■

Testimony coming from Nuclear Protection Evaluation Centre (CEPN), France

S. ANDRESZ

Nuclear Protection Evaluation Centre,
92260 Fontenay-aux-Roses, France

What is your job in radiation protection/ALARA?

The CEPN is a non-governmental organization (i.e. association under French law) with activities of research and development in the fields of optimisation of radiological protection and taking into account its different aspects: technical, sanitary, economical and societal.

I am working as 'research-engineer', in charge of radiation protection and optimisation studies for different utilities and users of ionizing radiation – mainly at national level and also at international level. I am also performing research work in the other fields of RP such as existing exposure situation (radon, NORM, etc.)

How is your job affected? What are the main difficulties and the initiative taken?

Because of national lockdown, all staff are required to telework.

General case.

Because the RP job is mainly 'paper-based' and can be pursued, a priori with the same level of quality.

Some information/document are on hard paper and cannot be access for the moment.

The annual schedule has been totally reshaped to take into account the circumstances and some studies have been given priority (i.e. the most-paper-based studies) when other are postponed.

Specific case 1 and issues.

Some studies require more interaction with external organisations and these are made by phone or IT system (Skype and Zoom have been used with good feedback). Adaptation and a certain level of 'technical agility' is needed and these may be difficult for some staff, ex. staff with less experience in IT.

During some meetings, interactions are made difficult due to technical issues. In addition, it is difficult to hold an efficient teleconference with a large audience.

Information may be easily lost/not catch within these new channels of communication. The overall RP work is rendered more difficult.

In addition, these new methods are totally dependent from IT systems and connectivity.

After some months of experience, I believe that IT cannot replace the fluidity of face-to-face meeting. Real interactions are needed to exchange about the subjects, especially the most complicated cases. Telework helps, but cannot replace the momentum and the energy of real meetings. Discussion are also needed for the necessary improvement of the content of the RP studies and also for the assurance quality of documents produced.

Face-to-face is also needed for innovative approaches to come to light (*brainstorming*).

Specific case 2 and issues.

Other studies required the presence of staff/expert on-site and these are postponed for the moment (e.g. radon measurement campaigns). These studies are often based on interaction with local stakeholders, such as mayors, professionals in the field of building, association, general public etc. These are 'win-win' meetings where both interlocutors are learning from each-others. So the impact on the general understanding of RP for the 'non-experts' is not negligible, as well as the gained experience for the 'expert'

Seminars, conference etc. have been postponed. It is also a pity but the impact is only a matter of delay.

Our organization regularly provides training and courses on optimisation and ALARA at university level and for professionals. Most the training courses have been cancelled this year. The impact on the courses/knowledge of student is therefore not negligible.

Final thoughts?

Globally, teleworks can help but it has also drawback and limitation that may affect the content and the elaboration of RP studies. The impact is different for every RP study and also hard to assess (or even to measure).

The overall job routine has been reshaped and new priorities have been implemented. This is time consuming. The health situation and lockdown have generated fear and anxiety: these psychological factors may influence the work (again it is hard to assess).

At the time of writing, it is expected that the confinement will be progressively lifted in the country. However, specific restrictions and limitation will be in place for long time and affect the way we operate at least on a medium term. The lessons learnt from the confinement and the post-confinement will be critical to understanding and establishing a new normality. The uncertainty and in the "new world" remains a source of anxiety. ■

Testimony coming from Environmental Protection Agency (EPA), Ireland

H. SYNNOTT

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Office of Radiological Protection
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Background

On March 12th the first in a number of restrictions to mitigate the spread of Covid-19 in Ireland were introduced by the Irish Government with the immediate closure of all schools. In the following days all non-essential businesses were ordered to close, and people were instructed to work at home where possible. All EPA staff who could work from home were instructed to do so and this included all inspectors with responsibility for the inspection of licensees with radiation sources such as hospitals, NDT companies and other industrial users of radiation sources.

Response

All on-site inspections were deferred until further notice except for incident/accident investigations if the presence of an EPA inspector is required. In such cases EPA inspectors will adhere to all public health advice.

It was clear that many hospitals would come under severe pressure due to the inevitable increase in Covid-19 related admissions and it was important that clarity regarding the regulation of practices involving ionizing radiation be given to this sector without delay. In mid March the EPA issued guidance to the medical sector on the following issues

- Inspections
- Use of mobile radiography equipment related to Covid-19 at locations not covered by their license
- Commissioning of new equipment
- Quality assurance testing.
- In early-April a further notification was sent to all non-medical licensees on the EPA's approach to regulatory issues such as
- Compliance assurance
- Safety and security of radioactive sources
- Maintenance and calibration of radiological equipment.

During the first two weeks of April all holders of HASS and licensees with mobile radiation sources were contacted by EPA inspectors to ensure that the security arrangements pertaining to these sources were satisfactory and to discuss any radiation protection concerns that they may have had. In early May it was decided to carry out some remote inspections through online platforms such as Microsoft teams. This approach has proved successful and is ongoing.

A risk-based approach was used to select licensees for inspections with holders of gamma radiography sources initially inspected. These inspections focus mainly on the review of documentation such as risk assessment and radiation safety procedures. The licensee is requested to forward this documentation for review in advance of the inspection and a follow up meeting is held with licensee representatives to review documentation/records and to explore with the licensee any radiation protection or compliance issues that they may have.

It is recognized that licensees may have difficulties implementing their usual quality assurance, maintenance, calibration, training schedules due to restrictions on travel imposed on their radiation protection adviser and contractors. In such circumstance's licensees are required to carry out a risk assessment, in consultation with their Radiation Protection Advisor, to evaluate the effect that this may have on the conduct of the practice and to ensure that equipment is safe to use. Where appropriate, any changes to normal arrangements must be discussed with an EPA inspector

It was made clear to all licensees that they should contact the EPA's regulatory services if they have any radiation protection or compliance issues or concerns. ■

Testimony coming from the Swiss Federal Office of Public Health (SFOPH), Switzerland

N. STRITT and colleagues

Swiss Federal Office of Public Health (FOPH),
Radiation Protection Division
3003 Bern, Switzerland

What is your job in radiation protection/ALARA?

The mission of the Radiation Protection Division of the FOPH as a competent authority is to protect the population and the environment against radiation hazards. The focus of our tasks is the implementation and control of radiation protection measures to minimize radiation doses and to prevent accidents. As licensing and supervisory authority, the Radiation Protection Division is responsible, above other, for supervising activities in the field of ionizing radiation. The FOPH is in charge for the execution and the control of legal requirements in radiation protection. The FOPH manages approximately 23,000 licenses for the use of ionizing radiation in medicine, industry and research, with exception of the nuclear field.

How is your job affected? What are the main difficulties and the initiative taken?

Since the beginning of the corona pandemic and the partial confinement decided in Switzerland on March 13, all employees of the FOPH were sent to work from home, if possible, and all meetings were organized remotely. The FOPH cancelled or postponed all onsite inspections in the medical field, including clinical audits. Nevertheless, during this period, the FOPH stayed in close virtual contact with the radiation protection officers, experts or medical physics experts of these facilities. Outside the medical field, we also postponed all non-urgent onsite inspections. However, several exceptions had to be made, for example for the surveillance of the remediation of a legacy site containing NORM where work had already begun and was still ongoing. The number of person for these inspections was limited to one FOPH member and two from the company. Hygiene measures (distancing, wearing of mask, etc.) were however easily applicable.

Due to the current overload in hospitals, medical practices and other affected companies caused by the COVID-19 crisis, the FOPH took several temporary measures concerning the licensing and supervising system.

In particular, FOPH authorized on March 25 2020 an extension of the measurement period for determining radiation doses (dosimetry). This decision aimed at

reducing the administrative and organizational workload regarding dosimetry of occupationally exposed workers. It allowed an extended measurement period of up to 3 months excepted for certain worker categories presenting higher exposure risks. This extended measurement period remained valid until end of June 2020.

The possibility of postponing quality assurance checks or maintenance of certain medical X-rays devices were further given to hospitals. The FOPH accepted that deadlines for quality checks or maintenance on diagnostic equipment could not be met for reasons linked to the pandemic (illness of technicians, lack of hospital resources, compliance with health rules/distancing, non-use of equipment). Postponements and cancellations had to be documented by the hospitals and they had to inform the FOPH at the end of each month. Quality checks and maintenance should, however, as far as possible, be caught up at the end of the pandemic. The FOPH did not initiate legal actions if these deadlines were not met as otherwise required by law. However, this exception was not made for the quality assurance checks and maintenance of radiotherapy units using ionizing radiation. If these could not be carried out in time, the use and license of such equipment were suspended. The system could then no longer be operated. Such systems could only then be operated again after maintenance had been carried out or after the quality assurance program had been put in compliance with the legislation again.

Due to the situation of partial confinement, no radiation protection courses could be held in March, April and May 2020. Persons required to take a radiation protection course in order to meet the training requirements for the use of ionizing radiation could obtain a delay by providing the corresponding supporting documentation. The deadlines for training requirements were adapted accordingly in the corresponding licenses. However, the radiation protection training required by law still must be successfully completed by 31.12.2021 at the latest with written proof.

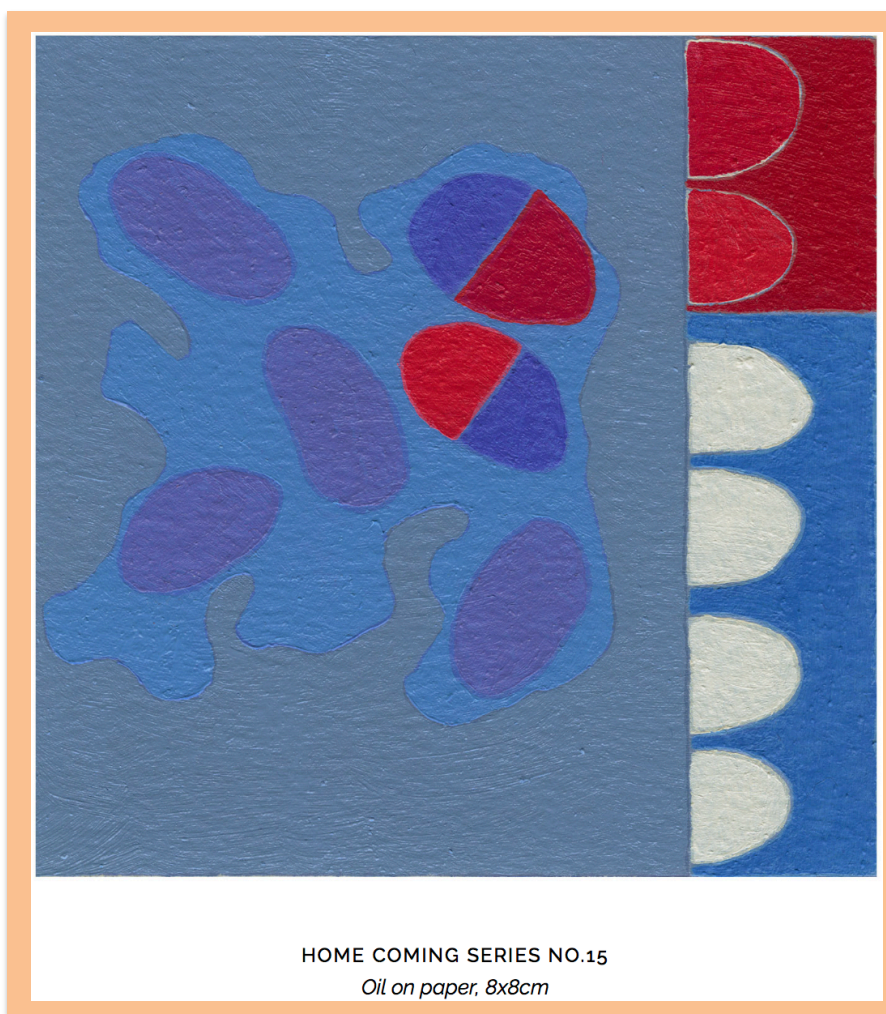
An ordinance on the suspension of deadlines in civil and administrative proceedings was also introduced during the pandemic. The legal and official deadlines for administrative procedures, in particular for procedures related to ionizing radiation licenses, were suspended due to the emergency ordinance during the pandemic on Swiss territory. Further, delays for the execution of corrective actions were accorded on a case-by-case basis if necessary and if the protection level could be respected.

Final thoughts?

Since beginning of June, classroom teaching is allowed to resume and work in general started again. Shops, markets,

museums, libraries and restaurants may open again but under strict compliance of precautionary measures. The government issued a series of measures aiming at protecting the population and workers in reaction to the pandemic, which were gradually eased. The competent authority for radiation protection is again able to carry out its tasks in a more normal way, to perform progressively more onsite inspections and to retrieve the various measures put into place due to the pandemic. First experiences have shown that home working was possible

and even suitable for more tasks than expected. Slowly and in respect of precautionary and hygiene measures, Switzerland comes back to the new normality in all fields including the one of radiation protection. ■



HOME COMING SERIES NO.15

Oil on paper, 8x8cm

Testimony coming from Public Health England, United Kingdom

J. MORGAN

Public Health England
Centre for Radiation and Chemical Hazards (CRCE)
Oxfordshire, UK

What is your role in radiation protection?

I am a certificated radiation protection adviser (RPA) providing advisory services to a portfolio of companies working with a variety of ionising radiations within the non-nuclear sector.

How is your job affected? What are the main difficulties and the initiatives taken?

My role is focused on providing formal radiation protection advice to customers to assist them with achieving compliance with national legislation. I communicate with my customers via email or telephone throughout the year, as necessary, but a key part of the service consists of one or more annual site visits to meet with the customer's radiation safety representatives. As part of these visits I would also typically undertake dose rate and/or contamination measurements to support the customer's existing arrangements, or as an independent review of radiation levels.

Following the implementation of the UK lockdown all routine, non-urgent site visits were cancelled to respect the travel and social distancing restrictions. I started working from home from mid-March and I continued to provide telephone and email advice as before. Where technology allows, I have organised video conference meetings as an alternate means to review customer arrangements. The advantage to this is that it maintains a dialogue concerning radiation protection issues, however it cannot fully replace a site visit where facilities, equipment and records can be observed and tested. Equally, security considerations have to be taken into account and this will limit discussions about high activity sealed sources (HASS) and sources of a similar hazard via unsecured video conferencing methods.

What areas have been affected by COVID-19 that could impact on ALARA?

There are various routine checks, tests and surveys that are carried out by users to monitor for, and manage, exposures arising from the use of ionising radiation in the workplace. The combined factors of staff shortages due to illness; temporary closure of companies and service organisations; re-deployment of staff to essential operations, and the huge shift to homeworking, creates the potential for regulatory non-compliance in multiple areas. My role has necessarily

required me to consider which elements of my customer's radiation protection arrangements may be affected so I can best advise them where additional actions are needed. Some general examples of issues discussed within the non-nuclear sector include the following:

- **monthly source accountancy checks (verification of source presence and location)**
There must be arrangements in place to ensure that checks are still carried out even where there is little or no staff presence on site. Lost, stolen or incorrectly stored sources have the potential to result in unintended exposure of employees, members of the public and releases to the environment.
- **routine surveillance checks of engineering controls, safety systems and warning devices**
Where equipment/facilities continue to be used, the ongoing reliability and operation of control measures is a key factor for restricting exposures to as low as reasonably practicable.
- **routine dose rate and contamination monitoring inside and outside the boundaries of supervised and controlled radiation areas**
Monitoring must be carried out at appropriate intervals to detect any breakdowns in controls or systems, and changes in radiation or contamination levels. Depending on the type and frequency of work being carried out, monitoring intervals may need to be reviewed.
- **biennial (2-yearly) leakage testing of sealed radioactive sources**
Limited site access may prevent or delay the completion of source containment checks.
- **annual testing of radiation monitoring equipment (handheld monitors, installed monitors, electronic dosimeters)**
Consideration must be given to the reliability and ongoing suitability of equipment that is used beyond the normal 12 months testing interval due to reduced services offered by instrument testing facilities.
- **personal dosimetry: dosimeter issue and dose reporting intervals**
Dosimeter wear periods may be extended due to reduced services available from approved dosimetry services resulting in reduced frequency of dose reporting for monitoring staff exposures.
- **routine quality assurance testing of dental and medical X-ray equipment**
The potential for delay in routine testing designed to detect X-ray equipment issues that may affect patient dose optimisation and/or impact on operator exposure.
- **radiation protection training, included refresher training**

Arrangements for training new and existing staff if formal training courses cannot be run due to social distancing restrictions.

- **disposal of radioactive waste and waste sealed sources within permitted accumulation time limits**

Lack of waste collection services may result in volumes and activities of accumulated radioactive waste exceeding authorised levels. This can impact on storage arrangements including potential for increased dose rates associated with managing large accumulations of waste (dependent on radionuclide, half-life, etc).

Where a practice involving the use of ionising radiation is well established then the existing arrangements have likely already demonstrated that exposures from routine work are being restricted as low as reasonably practicable, and steps have been taken to limit the likelihood and severity of accident situations. The issues outlined above must then also be considered and addressed as part of a proactive approach to maintaining the existing standard of radiation protection in the workplace during the COVID-19 pandemic. Provided this has been done, then this will significantly lower the risk that any combination of these issues would result in elevated radiation exposures of employees or members of the public.

Arrangements may deviate from the norm but this does not necessarily equate to outcomes that are less than practicable. For example, simply reaching a test expiry date does not mean that a radiation monitoring instrument is suddenly non-functional or unsuitable for use. The requirement to test annually is considered best practice under normal operating conditions but, where there is limited testing provision, there is good rationale for continued use of an instrument that provides important capability to undertake routine or emergency surveys of

radiation levels. The potential for adverse consequences lies in the situations where a radiation monitor is faulty and appropriate pre-use checks (which would detect the issue) have not been performed, and/or in the reluctance to make use of radiation monitoring equipment due to an arbitrary date having been exceeded. Both scenarios could result in either a lack of monitoring being undertaken, or a false sense of reassurance from unreliable results. However, neither scenario is uniquely confined to the COVID-19 crisis and, in fact, highlights the essential role of adequate training of staff with radiation protection responsibilities and the ongoing review of arrangements in conjunction with a radiation protection expert.

Final thoughts

The degree to which any one of these issues presents a risk in relation to the restriction of exposure is highly individual to the type, and circumstances, of radiation work being undertaken. Where it is identified that a certain issue may affect a customer then a sensible, pragmatic approach - supported by appropriate risk assessment - is adopted.

Many of these issues have been acknowledged by the UK regulators who have produced temporary regulatory position statements (RPS) to provide guidance on compliance in specific areas during this unprecedented time. It is worth noting, however, that the regulators have stressed that compliance is expected.

There are also many learning opportunities from this experience which will result in changes to how I interact with my colleagues and also provide support to customers in future; including the increased utilisation of teleconferencing and the development of on-line radiation protection training courses. ■

A glimpse on initiatives taken by several RP-related organizations during the Covid-19 pandemic

The EAN Editorial Board

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This second article aims to provide a short list of initiatives taken by different radiation protection organizations to maintain the exchange of information during the Covid-19 pandemic.

IAEA Webinars: Maintaining the Highest Level of Radiation Protection During the Covid-19 Pandemic

O. BURÇIN, L. DOJCANOVA,

International Atomic Energy Agency,
Vienna International Centre
1400 Vienna, AUSTRIA



The Agency has already organized 2 webinars dealing with the impacts of the Covid-19 pandemic on occupational radiation protection (ORPnet):

The COVID-19 global pandemic has introduced new challenges for healthcare workers globally but also for technical services in radiation protection and safety. Based on its experience of webinars in occupational radiation protection topics, the IAEA organized free webinars related to COVID-19 bringing together worldwide experts to share knowledge and expertise, strengthening radiation protection efforts, and ensuring continuity of all services important for radiation protection under the unprecedented circumstances of the COVID-19 pandemic.

In April and May 2020, IAEA organized three webinars with experts from IAEA, Belgium, Greece, the United States, and Turkey. Out of almost 4000 registered participants, more than 2600 from 111 countries attended the live sessions and the others watched the recorded webinars.

The list of webinars with learning objectives and links to recordings can be found below:

COVID-19 and Chest CT: Protocol and Dose Optimization
Learning Objectives:

- To learn about principles of protocol and dose optimization for chest CT
- To understand issues with chest CT in COVID-19 infection

Watch the recording here:

<https://www.iaea.org/resources/webinar/covid-19-and-chest-ct-protocol-and-dose-optimization>

COVID-19 and Health Workers: Radiation Protection
Learning Objectives:

- Strategies to work safely while under stress without jeopardizing radiation protection and safety
- Arrangements to protect health workers using radiation sources from COVID-19 infections
- Arrangements for facilities converted into pandemic hospitals
- Difficulties faced by health workers when using personal protective equipment (PPE) against radiation to avoid COVID-19 infections and reuse of PPEs
- Projections for possible dose increase for workers due to an extended screening

Watch the recording here

<https://www.iaea.org/resources/webinar/covid-19-and-health-workers-radiation-protection>

Continuity in COVID-19 Pandemic: How to Run Effective Technical Services for Individual Monitoring During Pandemic

- Adoption of the IAEA GSR Part 3 requirements and GSG-7 guidance for technical service providers during the current COVID-19 pandemic
- EURADOS recommendations for technical service providers to deal with the COVID-19 pandemic
- Strategies for practical implementation by service providers

- Experience of the IAEA Radiation Safety Technical Services

Watch the recording here

<https://www.iaea.org/resources/webinar/continuity-in-covid-19-pandemic-how-to-run-effective-technical-services-for-individual-monitoring-during-a-pandemic>

The upcoming webinars and other recording related to COVID-19 can be watch here

<https://www.iaea.org/topics/health/infectious-diseases/covid-19/webinars>



Social sciences and Humanities in ionising radiation REsearch

The SHARE platform is acting for the integration of social sciences and humanities in research, practice and policy related to ionizing radiation. It has reflected on the lessons from radiation protection, emergencies in Chernobyl and Fukushima and drawn insights from a variety of top experts on radiation protection and nuclear or radiological emergency situations. In all SHARE webinars experts have reflected on the relationships between radiological communication and the Covid-19 context.

Three seminars have been organized:

- **Lessons we are learning from the COVID-19 pandemic for radiological risk communication**
- **Balancing action and longer term outcomes during a time of crisis**
- **Key challenges for managing a transition phase: lessons from Chernobyl and Fukushima accidents** (organised jointly with NERIS research platform)

The recorded webinars are available here:

<https://www.ssh-share.eu/share-webinars/>



THE SOCIETY FOR RADIOLOGICAL PROTECTION

The British SRP has developed a programme of webinars and virtual events starting in May. The events are suitable for beginners and more experienced practitioners and free to all SRP members and non-members.

The following has been already organized: register please follow the links below.

- Beginners Guide to Internal Dosimetry (<https://lnkd.in/dhpp-jP>)
- An Introduction to Non-Ionising Radiation Safety Management (<https://lnkd.in/dKFRbGt>)
- The Annual Ionising Radiation Metrology Forum Workshop (<https://lnkd.in/d7ccqpd>)



To support researchers during the Covid-19 pandemic, EDP Sciences has opened the journals content on their website from 2018-2020 so it is freely available for all to read.



In particular, the resources from *Radioprotection*, the Journal of the French Society for Radiation Protection are open to all: <https://www.radioprotection.org>



The WNN has a special webpage that documents how the nuclear energy sector has reacted to the challenges presented by the Covid-19 pandemic and with a particular focus on safety, security and non-proliferation.

<https://world-nuclear-news.org/covid-19>



The Radium Action Plan Switzerland 2015-2022

M. PALACIOS, N. STRITT and colleagues

Swiss Federal Office of Public Health

Radiation Protection Division, 3003 Bern, Switzerland

The objective of the Radium Action Plan is to get the situation of radiological legacies related to the use of radium-226 as luminescent paint by the watch industry until the 1960s under control. No one in Switzerland should be significantly exposed anymore to radium-226 stemming from the watch industry activities. For this reason, the Federal Council approved the extension of the Action Plan for another three years. Thanks to this decision, the Federal Office of Public Health (FOPH) will be able to examine the almost 1000 properties (buildings and gardens) identified as potentially contaminated and, if necessary, remediate them. The status of the different work areas of the Action Plan is presented below. Of the 668 properties examined so far, 113 displayed levels of exposure unacceptable for occupants and need to be remediated. To date, 97 of them have already been remediated.

Extension of the Radium Action Plan

In 2016, the FOPH has entrusted the Institute of History of Bern University with a research mandate to identify the properties in Switzerland in which radium-226 was used for activities connected with the watch industry up to the 1960s. The University of Bern identified about 1000 properties, which might be contaminated with radium-226, compared to a first estimation of 500 when the Action Plan was first developed in 2015.

An extension of the Action Plan for another three years has therefore become necessary in order to examine and, if required, remediate all these newly identified properties. The Federal Council approved the extension during one of its April 2019 meetings', along with an additional 4 million euros financing for the period 2020 - 2022. On this occasion, the FOPH published a status report of the work carried out under the Action Plan as of December 31, 2018. This report is available at the following internet link: www.bag.admin.ch/heritages-radium. The most affected cantons such as Bern, Solothurn and Neuchâtel, which had already provided voluntary financial support for the period 2015-2019, have agreed to continue their involvement. The watch industry also supports the extension of the Action Plan through a voluntary financial contribution.

Status of diagnosis

The diagnostic approach consists of measuring the dose rate over the entire surface of an affected building or outdoor area. If traces of radium-226 can be found in indoor areas, the FOPH assesses the potential effective dose received by people in the building based on the measurement results and exposure scenarios. If the effective dose resulting from this assessment exceeds 1.0 mSv (millisievert) per year, the FOPH considers a remediation necessary. For outer areas, remediation is required if the concentration of radium-226 in the soil exceeds the threshold of 1000 Bq/kg (Becquerel per kilogram).

To date, 668 properties comprising nearly 3900 dwellings (or commercial spaces) have already been measured and assessed. Of these, 113 properties require remediation, representing 74 dwellings (or commercial spaces) and 74 gardens. The average remediation costs per object are in the order of 30'000 euros for decontamination and 12'000 euros for the reinstatement work. Most of the waste generated indoors (80%) can be conventionally incinerated.

Nearly 90% of the objects needing a remediation are nowadays used for residential purposes. In the majority of cases, the calculated effective dose for indoor spaces was between 1 and 10 mSv/year. In five objects, however, this dose was between 10 and 17 mSv/year. The average radium-226 values measured in soil samples from gardens needing a remediation were around 26'500 Bq/kg. In one case, the maximum measured values were around 670'000 Bq/kg radium-226. Table 1 summarizes the status of the Action Plan on December 31, 2019. ■

Table 1: Status of the Action Plan on December 31, 2019

Status	Diagnose	Results		Remediation
Location	Number of diagnoses performed	Number of properties not requiring remediation	Number of properties to be remediated	Number of remediated properties (or in progress)
Canton BE	212	161	51	47
Canton NE	281	247	34	28
Canton SO	98	77	21	19
Other cantons	77	70	7	3
Total	668	555	113	97

Status of remediation work

Remediation of 97 properties is completed or underway. The remediation approach includes planning, decontamination, rehabilitation, final measurements, and waste disposal. The objective of indoor remediation is to reduce the effective dose to residents below 1.0 mSv per year. Outdoor remediation aims at achieving a concentration of less than 1000 Bq/kg in all the soil. However, optimizing the reduction of contamination in order to succeed a net dose rate of 100 nSv/h (nanosievert per hour) at all points is always attempted.

Status of Waste Disposal

In accordance with the Swiss legislation, combustible waste with low radioactivity concentration may be disposed of in conventional incineration plants, if the FOPH gives its corresponding agreement and after informing the canton. The weekly allowed activity for incineration must not exceed 1000 times the authorization limit of 2.0 kBq for radium-226. Between 2015 and 2019, 160 m³ of combustible waste could be incinerated this way.

Inert waste with low radioactivity concentration may be disposed of in landfills, if the FOPH, the canton and the landfill operator give their respective agreement, in accordance with the Swiss legislation, provided that its maximum specific activity does not exceed 1000 times the clearance value of 10 Bq/kg for radium-226. A volume of 2000 m³ of inert waste could already be dumped in landfills under the Action Plan.

Waste contaminated upwards of the above-mentioned values has to be sent, under FOPH supervision, to the Federal Collection Centre for Radioactive Waste. To date, around 2.0 m³ of waste from the Action Plan has been disposed of this way.

Problem of mixed pollution

The FOPH has identified around ten former industrial sites listed in the register of polluted sites that require radium-

226 remediation. At the beginning of 2019, the FOPH set up a new "mixed pollution" support group with representatives of the Federal Office for the Environment (FOEN) and other bodies to seek solutions for dealing with complex cases of chemical and radiological pollution, in compliance with radiation protection and environmental protection legislation, as well as worker protection regulations.

A pilot project of a radium-226 remediation in the canton of Neuchâtel evaluated different pieces of land contaminated with radium as well as with volatile chlorinated hydrocarbons and heavy metals. The decontamination took approximately two months (Figure 1). A collaboration was established with a laboratory specialized in the handling of radioactive substances in order to reduce the activity of radium-226 contaminated samples. These samples could then be chemically analyzed and treated in a conventional laboratory. Inert radioactive waste with chemical contamination will be disposed of in 2020 in accordance with the legislation at the Federal Collection Centre for Radioactive Waste.

Monitoring of former landfills

The serendipitous discovery of contaminated wastes on a former landfill site during construction work has shown that wastes with high levels of radium and significant dose rates can still be found today. Therefore, a strategy has been developed to identify former landfills that may contain radium contaminated waste and classify them into 3 risk categories with specifically defined measures. The purpose of this classification is in particular to identify landfills that could pose a risk to a worker's health or the environment in case of excavation work or could endanger groundwater quality through radium contamination. For landfills that require monitoring or radiation protection measures an entry describing the radium contamination will be added to the internal cadasters of polluted sites. This will ensure the permanent availability of this information. The radiological monitoring of former landfills will be a long-term task of the FOPH.



Figure 1. Decontamination site of a lot with mixed pollution

What's new in EAN?

October 2019, Publication of **ALARA: A Practical Guidebook**

It was a long process (started in 2012!) but the EAN Working Group on ALARA Culture has finally achieved the publication of *Optimization of Radiological Protection - ALARA: A Practical Guidebook*.

The book aims to give a clear and practical picture of the ALARA principle and guidance for its application under the different exposure situations and in line with the latest recommendations and standards.



The Book combines theoretical aspects of ALARA and a panel of case studies coming from EAN Members and EAN workshops.

The book is aimed at radiation protection professionals, professionals with an interest in ALARA, teachers and trainers, students etc. And best of all, the ALARA Book is available free of charge from the EAN website.

- To present recent and emerging innovative ALARA “tools” that can be used in the different steps of the ALARA process.
- To help in the dissemination of the PODIUM project’s ALARA tools on the optimization of occupational exposure via personal dosimetry using computational methods.
- To investigate the benefits of these innovative tools for ALARA, and also identify potential limits and obstacles.
- Explore more broadly how innovative ALARA tools and the innovation may (re)shape the ALARA process for future years: ALARA, toward a (r)evolution?

The topics of the working groups were:

1. Are there specific challenges in the ALARA process that may be solved by innovative “ALARA Tools” (under development or to be developed)?
2. Are there specific issues which may limit the development and/or the use of innovative “ALARA Tools” (technical, legislative, ethical etc.)? How to deal with these issues?
3. What is the role of the radiation protection professionals (RPEs/MPEs/ RPOs, ...) with respect to these tools?
4. There is currently a lot of focus on research and innovation in areas beyond that of traditional RP research, notably artificial intelligence. Does IA have the potential to shape the ALARA process in the next year?

November 2019, EAN 19th workshop, in collaboration with PODIUM project

Innovations in instrumentation, computing and information technology have provided numerous tools for improving our day-to-day lives. In the same way, new and innovative approaches to radiation protection could also be developed to assist and improve the ALARA process. However, as with most new technologies, issues and challenges need to be identified and tackled.

EAN – in collaboration with PODIUM – organized it’s 19th workshop on the topic of **Innovative ALARA Tools** which aimed to meet the following objectives:

The local organisation was kindly taken care of by the Greek Atomic Energy Commission (EEAC, Member of EAN) and hosted at the Congress Centre of the National Centre for Scientific Research “Demokritos”,

The workshop gathered around 50 participants from 12 countries. The presentations are available here:

<https://www.eu-alara.net/index.php/activities/workshops/328-19th-ean-workshop-on-innovative-alara-tools.html> ■



The participants at the EAN PODIUM workshop

May 2020, Publication of the synthesis of the EAN 18th workshop on ALARA

The synthesis of the EAN's 18th workshop on 'ALARA for Decommissioning and Site Remediation' has just been accepted for publication in the Journal of Radiological Protection (JRP), the official journal of the Society for Radiation Protection (SRP) in the UK. The workshop was jointly organized with the ISOE Working Group on Decommissioning (ISOE WG-DECOM) and the French Atomic Alternatives Energy and Atomic Energy Commission (CEA) who hosted the workshop at Marcoule, South of France.

The objective was to examine the conceptual and practical aspects of the implementation of ALARA in the 'nuclear' and 'non-nuclear' sectors and also legacy sites. The memorandum presents a synthesis of the presentations and working groups discussions that took place and also

summarizes and compares the conclusions from previous EAN workshops on the same topic (1997, 2006). The article will be published in the next issue of JRP very soon.

June 2020, EAN Strategic Agenda Meeting

The current five years EAN Strategic Agenda covers the 2015-2020 period so it is time for the Members to think about the next term.

Two dedicated web-meetings took place 9th and 10th June 2020 to assess the achievements of the current Agenda and draft a new one. The objective is to finalize the next Agenda during the summer and validate it at the end of the year.

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