



EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR ENERGY

DIRECTORATE D – Nuclear Energy, Safety and ITER
Radiation Protection and Nuclear Safety

Meeting of the Group of Experts established under Article 31 of the Euratom Treaty

Luxembourg, 8 – 9 November 2017

SUMMARY REPORT

(Approved by the Group of Experts at the meeting 12 – 13 June 2018)

INTRODUCTION

The Head of Unit *Radiation Protection and Nuclear Safety* opened the meeting and welcomed the Group of Experts. He set out key priorities for the Commission's work and announced that a draft work plan for the Group would be prepared for finalisation during the first meeting of 2018.

The Secretariat informed the experts on a change in membership of the Group – a former expert has retired and a new expert has been nominated – and on presence and apologies for this meeting.

1. APPROVAL OF THE AGENDA

The agenda was approved with a slight rearrangement of the agenda items to account for the availability of individual presenters.

2. APPROVAL OF THE SUMMARY REPORT OF THE MEETING HELD ON 17 – 18 MAY 2017

The Summary Report of the meeting held on 17 – 18 May 2017 has been approved without amendments and is published on the Europa website¹.

3. ELECTION OF A NEW CHAIRPERSON AND A NEW VICE-CHAIRPERSON FOR THE TIME PERIOD NOVEMBER 2017 – APRIL 2020

According to the Group's Rules of Procedures, the Group of Experts elected Mr Mika Markkanen as new Chairperson and re-elected Ms Laurence Lebaron-Jacobs as Vice-Chairperson for the time period November 2017 – April 2020.

¹ The approved Summary Report of the November 2016 meeting can be found under <http://ec.europa.eu/energy/node/1183>

4. RULES OF PROCEDURE

The Commission presented the new Rules of Procedure as adopted by the Group of Experts by written procedure on 30 June 2017. The adopted Rules of Procedure are published on the Europa website².

Further to this, the Commission updated the Group on the new arrangements on transparency and on the follow-up of the file with the European Ombudsman.

5. STRATEGIC AGENDA FOR MEDICAL, INDUSTRIAL AND RESEARCH APPLICATIONS OF NUCLEAR AND RADIATION TECHNOLOGY (SAMIRA)

The Commission presented the "Strategic Agenda for Medical, Industrial and Research Applications of nuclear and radiation technology" (SAMIRA) initiative, which DG ENER is being developing together with other Commission departments. The objective is to identify issues relating to the use of nuclear and radiation technology outside the nuclear energy sector and propose actions by the Commission, Member States and stakeholders.

The SAMIRA initiative is in its scoping phase consisting of a study into the non-power applications in the EU and a conference planned for spring 2018. The study was contracted in April 2017 for a thirteen-month period. It will identify and characterise the key non-power applications in the EU and analyse the need of additional actions on European or national level. The study also includes a task analysing the supply and demand of medical radioisotopes up to 2030.

Members of the Group commented that the scope of SAMIRA is very wide and the actions that will follow need prioritisation and narrowing down to areas where the EU can add value. The Group will follow-up and help to achieve this on the basis of the information received in the scoping phase.

A record on the WP MED deliberations on SAMIRA's relevance and impact with regard to medical exposure is included in section 8.2 of the minutes.

6. ACTIVITIES RELATED TO THE TRANSPOSITION AND IMPLEMENTATION OF THE NEW BASIC SAFETY STANDARDS DIRECTIVE

Analyses in relation to Article 8a of Directive 2014/87/Euratom on the nuclear safety objective

The Commission presented initial findings of a study conducted by JRC Petten, analysing the terms 'early' and 'large' releases in the context of Article 8a of Directive 2014/87/Euratom, the Nuclear Safety Directive. This Directive contains a new safety objective aimed at excluding accidents with significant off-site radiological consequences. The study analyses qualitative definitions provided by IAEA and WENRA in their standards and criteria for new nuclear power plants, and seeks more quantitative definitions. The WENRA concept describes limited protective measures to be met in case of an accidental radioactive release, and develops semi-quantitative criteria to limit the areas around nuclear power plants in which it is considered necessary to have to implement different protective measures

² The Rules of Procedure are published on <http://ec.europa.eu/energy/node/1183>

following a severe accident. Considering off-site protective measures such as sheltering, iodine prophylaxis, and evacuation, it is possible to use international standards and guidance for the implementation of such emergency actions and the related action levels to develop a link between semi-quantitative definitions of 'early' and 'large' releases and dose criteria. However, it is noted that the criteria for introducing protective measures (previously called intervention levels) in international guidance have changed recently, and that practices regarding their implementation are not harmonised in Europe. Nevertheless, it is possible to develop a set of quantitative acceptance criteria in the form of acceptable doses to the public in different zones around a nuclear installation, which can be applied to the design of new nuclear installations that would meet the intent of limiting the radioactive releases in case of a severe accident. Other definitions exist in different countries which are often used in the scope of probabilistic risk assessments, which aim to estimate the large release frequency. Evaluation of these definitions shows that a release of 100TBq Cs-137 and/or 1000TBq I-131 has been used as a limit of acceptable release by certain Member States. The JRC study also includes an assessment of some recent studies which calculate the off-site consequences of such releases. Based on data from the US on estimated evacuation times in case of an emergency under different local conditions, the study indicates that whilst estimated times are not strongly dependent on population sizes, the typical range is between 6 hours in normal weather conditions, extending to 15 hours in bad weather and if the transport network is not well adapted to the population size. In any case, the evacuation times depend on local conditions in the vicinity of the plant, and it needs to be demonstrated that the time needed to implement off-site protective actions is less than the time used to define an 'early' release.

In the discussion with Members of the Group, it was highlighted that given that the national criteria for taking protective actions is not harmonised in Europe, there exists risks of disparate actions at a cross border level in cases of a real emergency. As well as defining reference levels for public exposure, the BSS Directive also requires pre-defined generic criteria for particular protective measures, and therefore the Commission could continue discussions with EU MSs on a more harmonised implementation of the requirements in the BSS. It was mentioned that whilst the study focuses on the effects of a core melt in a nuclear power reactor, large releases could occur from spent fuel storages which do not have the same level of containment. The Directive applies to all nuclear installations including spent fuel storage facilities. Greater attention is also warranted for non-power nuclear facilities. It was noted that the HERCA-WENRA Approach proposes emergency planning zones for severe accidents, starting at 5km for evacuation. The study recommends that time estimates should be made for European nuclear power plants, taking account of the different planning zones, the population sizes and weather and local infrastructure conditions.

Other activities related to the transposition and implementation of the new Basic Safety Standards Directive

The Secretariat presented a brief overview of the European Commission activities related to the transposition and implementation of the new BSS. The Secretariat summarised the ongoing activities to support the transposition of the Directive and reported on projects planned to check compliance with the Directive after the transposition deadline.

7. RADON DOSE COEFFICIENTS

The current Chair of ICRP Committee 2 presented the latest developments with regard to "ICRP Radon Dose Coefficients" and reported on the ICRP recommended dose coefficients for inhaled radon and progeny. ICRP Publication 137: Occupational Intakes of Radionuclides: Part 3, which will contain these coefficients is currently in press and will be published in January 2018.

The European Commission asked ICRP to consider sending a letter to the EC confirming these coefficients well before the foreseen publication date in January 2018 to give European Union Member States a chance to include these coefficients still in their legislation transposing the BSS.

The Group of Experts thanked the Chair of ICRP Committee 2 for the clear and informative presentation and expressed its support for the above mentioned written confirmation of the new radon dose coefficients.

Further to this, the Group of Experts discussed the practical implementation of these new ICRP dose coefficients for inhaled radon and progeny, in particular the issue of implementing the second value for specific workplaces, and the need for (European) guidance to facilitate a harmonised approach within Europe. Any guidance will have to include a discussion on which workplaces would be concerned, how to identify these and how to regulate them. The Group of Experts decided to ask the WP NAT to examine this issue in more detail when discussing radon in workplaces (see agenda item 8.1).

8. REVIEW AND PRIORITISATION OF THE ACTIVITIES OF THE WORKING PARTIES AND RELATED PROJECTS

8.1 Natural Radiation Sources (WP NAT)

The Chair of the Working Party on exposure to natural sources of ionising radiations (WP NAT) reported on progress made since the last Group of Experts' meeting. The WP NAT held its second meeting 3 – 4 October 2017 to further elaborate the material for the two priority issues chosen:

- Radon in workplaces
- Building materials

The next meeting of the WP NAT is scheduled for 6 – 7 March 2018.

The Group of Experts noted the progress made in this working party and is looking forward to receiving first results for discussion in the Group.

8.2. Medical Exposures (WP MED)

The Chair of WP MED reported on the progress of tasks falling within the scope of this group. WP MED held a meeting on 7 November 2017 covering the main topics as described below.

WP MED has reviewed updated information (May 2017) presented by the Commission on the BSS Directive transposition in the medical areas. Data submitted showed a large variation in the transposition progress among Member States. Some common areas of difficulty emerged, particularly relating to new requirements for non-medical imaging and accidental and unintended exposures. At some stage, it may be helpful for the group to provide advice regarding areas of difficulty, while not attempting to interpret the Directive.

WP MED will continue to assist the Commission regarding implementation of the BSS Directive.

The recently launched EUCLID project will focus on development of DRLs based on clinical indications rather than anatomical locations (e.g. CT for stroke rather than CT Head). The intention is to provide a clear example of approach rather than the production of a comprehensive list of DRLs. The project tendering is complete and a consortium led by ESR was successful. WP MED has been updated on participating centres, methodology and initial survey work demonstrating that: good agreement has been reached on common CT examinations; further work may be needed on interventional and conventional radiology; cardiac examinations are outside the scope of the project. WP MED will continue to monitor progress with this project. The project is due for completion in 2020 and will involve a workshop.

WPMED welcomes the SAMIRA project and recognises its potential in the field of medical exposures. Members highlighted the value of cross-Commission activities in areas such as education and emphasised the value of discussions with colleagues in Medical Devices on dose saving tools becoming standard components of imaging systems (rather than as expensive options). It is however important to focus on optimisation rather than dose reduction alone. This project should be developed with due consideration given to other initiatives – e.g. MEDIRAD – in order that its activities can be maximised. WP MED will continue to advise Commission officials on the development of SAMIRA.

The IAEA will host an International Conference on Radiation Protection in Medicine from 11 to 15 December 2017 in Vienna. This is intended as a follow up to the Bonn conference in 2012 and provides an opportunity to assess progress with the outputs of this event – the so-called “Bonn Call for Action”. The Commission will run a one hour breakout session on 12 December which will involve key talks from the Commission and HERCA and a panel and discussion session. This award of this session highlights the progress made in Europe and its potential value in other parts of the world.

Implementation of the BSS Directive regarding medical exposures will present challenges for Member States and WP MED has identified key areas that may benefit from EC funded and co-ordinated activities. These include clinical audit, optimisation in nuclear medicine and further discussions of doses from cardiac procedures. WP MED will monitor progress in these areas of HERCA initiatives and contact specialist societies involved in cardiac imaging procedures.

The next meeting of WP MED will be held on 11 June 2018 in Luxembourg. Following this meeting of the Article 31 Group of Experts, the current Chair of WP MED will stand down but continue as a member for the immediate future. The Commission will organise the process of nomination and election of new Chair for the June 2018 meeting. It was agreed that the membership of WP MED should be expanded – members of the Group of Experts who want to join should inform the Commission before March 2018.

8.3. Research Implications on Health and Safety Standards (WP RIHSS)

a. EU Scientific Seminar May 2017 on Emerging Issues with regard to Organ Doses

The *EU Scientific Seminar on Emerging Issues with regard to Organ Doses* took place in the afternoon of 17 May 2017. The presentations given at the seminar together with a short

introductory text and the programme are available on the Europa Website. The draft proceedings are currently being prepared.

WP RIHSS will finalise the draft proceedings of the seminar at its next meeting in March 2018 and will send it to the Group of Experts for approval for publication at the meeting in June 2018.

b. EU Scientific Seminar November 2017 on Epigenetic effects – potential impact on radiation protection

The EU Scientific Seminar November 2017 on *Epigenetic effects – potential impact on radiation protection* took place in the afternoon of 8 November 2017. Internationally renowned scientists presented the following issues with regard to epigenetics:

- General introduction to epigenetics
- Introduction to epigenetic effects and ionising radiation
- Trans-generational effects
- Non coding RNAs: a new mechanism to regulate sensitivity to ionizing radiation?

The presentations were followed by a round table discussion, in which the speakers, invited additional experts and the Group of Experts discussed potential policy implications and research needs.

Summaries of the presentations and the round-table discussion will be published together with the conclusions the Group of Experts drew after the seminar as proceedings in the Radiation Protection Series of the European Commission.

The Chair of WP RIHSS presented the main issues of and preliminary draft conclusions from the EU Scientific Seminar November 2017.

The Group of Experts congratulated the WP RIHSS for the organisation of this interesting EU Scientific Seminar November 2017.

c. EU Scientific Seminar 2018 on Management of long-term exposure after a nuclear or radiological accident

WP RIHSS will prepare the draft programme of the EU Scientific Seminar 2018 on *Management of long-term exposure after a nuclear or radiological accident* to be held 14 November 2018, and present it to the Group of Experts at the meeting in June 2018.

d. Topics for upcoming EU Scientific Seminar

The Group of Experts proposed the following topics for future scientific seminars:

- Health screening programmes, e.g. mammography screening
- New ICRP dose coefficients – main changes
- Combined effects of ionising radiation and other environmental stressors
- Radiation protection issues in proton and hadron therapy
- Identification of research needs in areas important for the implementation of the BSS
- Radiation risks for children

WP RIHSS will discuss these suggestions and prepare a list of topics for discussion at the next meeting of the Group of Experts.

9. EMERGING ISSUES IN MEMBER STATES WITH POTENTIAL IMPLICATIONS ON A EUROPEAN

Individual members of the Article 31 Group of Experts offered the following presentations:

- An expert from France presented expertise carried out by the IRSN following the spike in ruthenium-106 detected in the atmosphere in Europe
- Related to the previous presentation, an expert from Czech Republic reported on ruthenium-106 measurements and dispersion calculations carried out in the Czech Republic
- An expert from Czech Republic presented a national case of buildings built of slag concrete panels with a high content of radium-226 of up to 3 kBq/kg, a source of radon and gamma dose rate indoors
- An expert from the United Kingdom presented requirements and approaches to inspection for justification of individual medical exposures

Each of the presentations triggered lively discussions and stimulated an exchange of experience. The Group of Experts thanked the experts for their interesting presentations.

The Group of Experts welcomed the contributions to this section on the agenda of the Group and encouraged other members to embark on this initiative.

10. OTHER BUSINESS

No other business has been raised.

11. DATES OF THE NEXT MEETINGS

June 2018

The **June 2018 meeting** of the Group of Experts is scheduled for **12 – 13 June 2018**, in meeting room EUFO 0001, **European Commission – Euroforum Building, 10, rue Robert Stumper – L-2557 Luxembourg – Gasperich.**

November 2018

The **November 2018 meeting** of the Group of Experts will be held on **14 – 15 November 2018** in Luxembourg, in Room E, **European Convention Center Luxembourg, 1, rue du Fort Thüngen, L-1499 Luxembourg (Kirchberg)**