

Radiological Protection

Committee on Radiation Protection and Public Health (CRPPH)

The objective of the CRPPH is to facilitate the understanding and implementation of a system of radiological protection that will address regulator and practitioner needs, and that more appropriately positions scientific radiological protection considerations within the broader context of social judgement and risk governance.

Highlights

- In-depth discussions of how science and social values are taken into account in the formation of policy and regulatory judgements took place at a workshop in Finland in January.
- The CRPPH participated actively in the development of draft text for the new international Basic Safety Standards, which are being developed under the auspices of the IAEA and co-sponsored by the NEA and several other international organisations.
- In follow-up to the INEX-3 emergency exercise, reports on recovery, countermeasures and decision making were drafted.
- Under the auspices of the Information System on Occupational Exposure (ISOE), a report on modern approaches to work management in the nuclear power industry was completed.

Evolution of the international system of radiological protection

Following active CRPPH participation in providing input to the International Commission on Radiological Protection (ICRP) for the completion of its new general recommendations (Publication 103), during 2008 the committee reviewed three draft "building block" documents explaining the ICRP's new philosophy in specific applications. The documents included new ICRP recommendations on emergency preparedness and management, post-emergency rehabilitation and radiological protection of the environment. Assessing and commenting on these documents has assisted the CRPPH membership in better understanding the details of the new ICRP recommendations. In particular, it has provided significant insight into how the new recommendations should be implemented.

This developing knowledge has been particularly useful in the preparation of new draft text for the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (BSS). The NEA, as a co-sponsoring organisation, has very actively contributed to this work, with 50 experts from 20 countries participating in 20 drafting meetings during 2007 and 2008 as part of the preparation and finalisation of Revision 1.0. In addition, over 100 experts from 25 NEA member countries have participated in the assessment of the first full draft of the revised BSS. The CRPPH will continue to lead the NEA's efforts in this work, which should result in a new international BSS in the near future.

Radiological protection science and policy judgement

One of the most significant aspects of the new ICRP recommendations is their focus on the importance of optimisation

in the application of radiological protection. This focus places significant emphasis on the judgemental aspects of decision making, strongly suggesting the need to be clear and transparent with respect to what judgements are being made and on what basis.

In January, the CRPPH, in co-operation with the Finnish Radiation and Nuclear Safety Authority (STUK) held the 1st Workshop on Science and Values in Radiological Protection to investigate how societal values, scientific knowledge and uncertainties are combined when making decisions regarding the optimisation of protection. Key aspects of emerging radiological protection science (e.g. non-targeted effects, individual sensitivity and circulatory diseases) were discussed among researchers, regulators and civil-society stakeholders. The result of this workshop showed the value of this type of dialogue, and resulted in the CRPPH approving the organisation of the 2nd Workshop on Science and Values in Radiological Protection, to be held in France at the end of 2009. The second workshop will focus on value-judgement aspects of decisions.

Radiological protection and public health

A CRPPH expert group has been exploring how radiological protection decision making might be affected if taken more from a public health perspective. Four case studies have been used to identify possible effects, and to explore how the national organisations responsible are addressing them. The cases being studied are: radon; justification of medical exposure; public health judgement in decision making based on new scientific evidence; and management of individual differences. The results of these case studies will be published in 2009 and will serve as key input to the second science and values workshop.

Stakeholders and radiological protection

CRPPH work in this area has shown that the involvement of stakeholders in decision-making processes can significantly improve the quality and sustainability of radiological protection decisions, and in some cases is the only approach that can successfully be used to reach an acceptable decision. While stakeholder involvement is now broadly accepted, the CRPPH has been exploring how governmental radiological protection organisations have reacted to these challenges and have adapted. A short report on this subject will be published in 2009 based on the work of an expert group.

The CRPPH also began planning a workshop to explore stakeholder involvement aspects of post-emergency consequence management. This work is partly based on the results of the 3rd International Nuclear Emergency Exercise (INEX-3), which identified stakeholder participation as a key element in the later phases of post-accident consequence management. This new workshop will focus on how governments and emergency response organisations might better incorporate stakeholders into the management of emergency consequences, and on the exchange of experience in this area. The workshop will be supported by a case study focusing on response organisations and how they have structurally and procedurally evolved to best incorporate stakeholder input into their decision-making processes.

Operational radiological protection from a policy perspective

An area of increasing interest concerns radiological protection needs in the context of possible significant new build over the next 10 to 20 years. A CRPPH expert group is looking into possible radiological protection criteria for new build, the implication of new ICRP recommendations on operational radiological protection, and experience related to operational radiological protection. The expert group is addressing these questions in three, separate case studies. The first, on radiological protection criteria for new build, examines not only the types of criteria that regulatory bodies could use to assess new license applications, but also suggests areas where good practice has demonstrated significant dose-management effectiveness. The second case study, addressing the implications of new ICRP recommendations, is focusing in particular on the use of dose constraints and reference levels in operation. The third case study will investigate operational issues affecting radiological protection policy, for example regulatory assessment of optimisation programmes. Industry input will be sought to ensure that practical operational experience is taken into account. The CRPPH also continued its work on the concept of best available techniques (BAT), what this would mean in the context of possible new build, and what types of criteria regulatory authorities could use when assessing applications claiming to use BAT.

Radiological protection of the environment

The CRPPH organised a session on this important topic of interest at the Bergen International Conference on Radioecology and Environmental Radioactivity in 2008. The session concluded that, in general, NEA member country

governments rely on their environmental impact assessment approaches to determine what actions are needed for environmental protection. However, the tools being developed, by the ICRP and others, for impact assessment may usefully aid in these determinations. The CRPPH agreed to continue to monitor developments and to investigate under what circumstances the ICRP position according to which, if man is protected then the environment will also be protected, might be challenged.



Recording radiation measurements with an *in situ* gamma ray spectroscopy (ISGRS).

Nuclear emergency and recovery management

Decision-making processes as part of consequence management were investigated in the 3rd International Nuclear Emergency Exercise series (INEX-3). Based on the outcomes of the post-exercise evaluation workshop, the CRPPH Working Party on Nuclear Emergency Matters (WPNEM) created expert groups to address key needs in consequence management in the areas of post-emergency countermeasures, good practices in decision making and possible implications of nuclear indemnification. Reports from these activities will be finalised in early 2009. The INEX-4 exercise is planned to take place in the 2010 time frame and to focus on the transition to recovery.

Occupational exposure at nuclear plants

Occupational exposure at nuclear power plants continues to be an important issue for the CRPPH. The sharing of operational lessons and experience, as well as the collection, analysis and exchange of occupational exposure data continues to be addressed by the NEA joint project: the Information System on Occupational Exposure (ISOE). In support of CRPPH efforts to facilitate improvement of members' operational radiological protection capabilities, ISOE completed a report on modern approaches to work management to optimise radiological protection in the nuclear power industry, updating a landmark 1997 publication on this topic. Further details on the ISOE programme are provided on page 36.

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