



**NUCLEAR ENERGY AGENCY
COMMITTEE ON RADIATION PROTECTION AND PUBLIC HEALTH**

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ENHANCING PUBLIC HEALTH AND SAFETY

**Contributions of the OECD/NEA
Committee on Radiation Protection and Public Health (CRPPH)
2004 - 2005**

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**Mandate of the
Committee on Radiation Protection and Public Health (CRPPH)
(Last updated: October 2000)**

The general objective of the NEA in the field of radiation protection is to contribute to the adoption and the maintenance of high standards of protection for workers, members of the public, and the environment in all practices involving the use of ionising radiations, and particularly in the field of nuclear energy.

In this context, the mandate of the Committee on Radiation Protection and Public Health (CRPPH) shall be:

1. to provide a forum for the exchange of information and the transfer of experience between national radiation protection and public health authorities on radiation protection policies and approaches and their implementation in the various practices and situations involving radiation exposures;
2. to seek international understanding and guidance, in support of national authorities, on questions of common concern regarding the interpretation and implementation of the ICRP recommendations and other international standards in the various fields of application of radiation protection, and to contribute to the development of harmonised positions in this field;
3. to keep under review and contribute to the advancement of the state-of-the-art in the field of radiation protection at the scientific and technical level and promote the preparation of authoritative advice and reference documents for use by national authorities and policy makers in those areas where international consensus on radiation protection concepts and practices is required; and
4. to advance concepts and policies which make the system of radiation protection more simple, transparent and adaptable to the broader social dimensions of decision making in complex radiological situations.
5. to promote and initiate international co-operative activities on specific radiation protection and radiation-related public health topics of interest to the NEA's Member countries in the framework of the NEA's Strategic Plan.

In the fulfilment of its mandate, the CRPPH will work in close co-operation with other NEA Committees as appropriate, as well as with the competent bodies within relevant OECD Directorates and other international organisations active in the field.

Strategic Direction and Priorities of the CRPPH (2004-2007)

The NEA's Committee on Radiation Protection and Public Health (CRPPH) is a valuable resource for its Member countries. The Committee is made up of regulators and radiation protection experts, with the broad mission to provide timely identification of new and emerging issues, to analyse their possible implications and to recommend or take action to address these issues to further enhance radiation protection regulation and implementation. The regulatory and operational consensus developed by the CRPPH on these emerging issues supports policy and regulation development in Member countries, and disseminates good practice.

To proactively assure that emerging issues can be appropriately addressed, the CRPPH will begin, in 2004, the development of a new Collective Opinion. Similar to the report that was published in 1995, the new CRPPH Collective Opinion will document the Committee's consensus identification of the trends and emerging issues that will be the most significant over the next five years or so. Possible implications of these issues, and possible approaches to their handling, will also be discussed. This document will serve as a guide for the Committee's programme of work for the coming years.

As in the 1995 Collective Opinion, the new document will address such areas as advances in radiation health sciences (i.e. low-level doses, non-cancer effects), the radiological protection conceptual framework (i.e. the newly reformulated principles of radiological protection, the radiological protection of the environment, the evolving role of radiological protection professionals), infrastructure issues (i.e. facilities, professionals, professors, students, R&D), and technology and application issues (i.e. emergency management, post-accident rehabilitation, ALARA good practice, dose trends).

Some of these areas are currently in the Committee's programme of work and will continue. For example, the CRPPH has contributed actively to the modernisation of the system of radiological protection, with the goal of helping to assure that new ICRP recommendations better meet the modern needs of radiological protection policy makers, regulators and practitioners. The various concepts and approaches that the CRPPH has developed are reported later in this document. Keeping its goal for this work in mind, the CRPPH will build upon its developments, and will interpret the new recommendations of the ICRP for practical application in policy and regulation. The Expert Group on the Regulatory Application of Authorisation (EGRA) is an example of this work. In parallel, the Committee has, and will continue to analyse draft ICRP materials, as they become available, for the possible implications and effects they might have on policy, regulation and practice, and will communicate its views to the ICRP. The Expert Group on the Implications of ICRP Recommendations (EGIR) will take this work forward. High-level policy dialogue Fora (such as Taormina and Lanzarote), to help develop consensus on the way forward will also continue, in collaboration with the ICRP.

The practical, application oriented work of the NEA is also advancing. The strategy of the Working Party on Nuclear Emergency Matters (the INEX group) is now focused on mid-term emergency management issues, and towards the transition from urgent countermeasures towards the recovery phase. The Information System on Occupational Exposure (ISOE) will continue its work on the operational and analytical aspects of exposures at nuclear power plants. ISOE has just completed a broad self-evaluation, and will enhance its efficiency and user-value by implementing its findings.

This work is designed to assist CRPPH Members in addressing these issues within their own national context. Results will be offered to the international community as the consensus of the regulators and experts of the CRPPH, and include stakeholder input.

Foreword

During the 58th Meeting (April 2000) of the NEA's Radiation Protection and Public Health Committee (CRPPH), the Chairman proposed that an annual summary report presenting activities, accomplishments and plans would substantially increase the transparency of the Committee's work, and would facilitate the communication of accomplishments within Member country governments. The Committee agreed that such a document would be a valuable communication tool, and charged the Chairman and the Secretariat to provide the Committee with a draft CRPPH Annual Report for its next meeting. The first edition of this report, document NEA/CRPPH(2001)11/Rev1, was seen as very useful by the Committee, and the Secretariat was charged with producing annual updates.

This report is the result of the efforts by the Bureau and Secretariat, and will be approved by the CRPPH at its March 2004 meeting. It provides a snapshot of the Committee's accomplishments since its last meeting (March 2003), and its planned activities for the subsequent 12 months (March 2004-March 2005).

CRPPH Members are encouraged to use this document as a basis for national discussions of the results and directions of NEA work in the area of radiation protection. The annual CRPPH meeting will also use this document as its principal working paper.

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Summary of CRPPH Accomplishments and Planned Activities

The significance of CRPPH work

The accomplishments and plans of the CRPPH have had, and will increasingly have, a significant influence on radiological protection in NEA Member countries.

The CRPPH has effectively focused and voiced the views and issues of its members concerning the development of new ICRP recommendations. While being in favour of updating the ICRP recommended system of radiological protection to better address modern regulatory and practical challenges, the active involvement of the CRPPH has achieved a prudent pace of progress. New conceptual and regulatory views developed by the CRPPH (i.e. The Critical Review, The Way Forward, A New Approach to Authorisation) have led to consensus on the direction that the evolution of the system should take.

The CRPPH has developed a mutually fruitful relationship with the ICRP. Through the 1st NEA / ICRP Forum (Taormina, 2002), and the 2nd NEA / IAEA Forum (Lanzarote, 2003), the NEA has forged a productive relationship with the ICRP through which the Committee's practical and regulatory views on draft conceptual framework material have been transmitted. Many of these views have been adopted by the ICRP. This process has allowed CRPPH members to better understand the ICRP's proposed approaches, and has allowed the ICRP to interact with key stakeholders to tune its new recommendations and facilitate their application. For example, as a result of the Lanzarote Forum, the ICRP has kept the concepts of Dose Limits, ALARA and Collective Dose in its new recommendations.

In a related area, that of stakeholder involvement in decision making, the Villigen series of workshops, culminating with the 3rd Villigen Workshop in October 2003, have demonstrated the value of and need for stakeholder involvement to achieve accepted decisions in certain situations. Several policy-level implications, with almost universal applicability, have been identified. This has helped policy makers and regulators to better understand how stakeholder participation can lead to better decisions, the possible implications of such participation, and processes that can be used to implement stakeholder participation.

In another area, the NEA's work in nuclear emergency management has demonstrated the importance of quality communication, facilitating national and international improvements. The INEX 2 series of 4 exercises, and the INEX 2000 exercise served as vehicles to test the new communication strategies and approaches developed by the NEA's Working Party on Nuclear Emergency Matters. The implementation of these new communication strategies is now being addressed by national emergency response agencies and relevant international organisations. On this successful background, the Working Party is turning its attention to the later phases of a nuclear emergency, and will study agricultural issues, so-called soft countermeasures such as trade and tourism, and the transition from urgent response to recovery. Lessons and experience from these studies is relevant to addressing other situations, such as terrorist attacks with radiological materials.

Finally, the Information System on Occupational exposure, run by NEA jointly with the IAEA, continues to be a benchmark for dosimetric studies of nuclear power plant workers. Broad dose trends identify areas needing further focus, and detailed experience exchanges among operators assist in the wide implementation of the latest thinking in optimisation to achieve exposures that are truly ALARA.

Summary of Accomplishments for 2003 (March 2003 - March 2004)

The CRPPH continued to contribute to the advancement of radiation protection philosophy and application during the period from March 2003 to March 2004, its most significant accomplishments being:

- The development and presentation of a broad-based implications analysis of the draft ICRP framework for its new general recommendations, and for its new recommendations on the radiological protecting of non-human species. Views from all NEA Standing Technical Committees were represented.
- The achievement of broad stakeholder consensus, through the 2nd NEA/ICRP Forum on Future Policy for Radiological Protection: A stakeholder dialogue on the implications of ICRP proposals, on key regulatory concepts that should be kept and clearly articulated in new ICRP recommendations: Dose Limits, Collective Dose, Authorisation and ALARA.
- The demonstration, through the 3rd Villigen Workshop on Stakeholder Participation in Decision Making Involving Radiation: Exploring Processes and Implications, of the value of and need for stakeholder involvement to achieve accepted decisions in certain situations. Several policy-level implications, lessons and processes, with broad applicability, have been identified.
- The finalisation of an effluent management assessment, describing the current state-of-the-art practice, and identifying and discussing key policy issues.
- The development of detailed INEX 3 exercise concepts and materials, and the co-ordination of the exercise with other relevant international organisations.
- The promotion and consolidation of the ISOE system to facilitate data analysis and management, and the exchange of information, experience and lessons.

Summary of Planned Activities for 2004 (March 2004 - March 2005)

In line with the NEA Strategic Plan, each Group or project will address its own mandate, thus progressing each area and at the same time contributing to the current central theme of the CRPPH programme of work, the evolution of the system of radiation protection. Most significantly, the CRPPH will:

- Begin the development of a new CRPPH Collective Opinion, collecting broad stakeholder input to identify key emerging science, policy, regulation and application issues, in order to guide the work of the Committee for the next several years.
- Elaborate the practical process of Authorisation in a regulatory context.
- Develop decision-maker, regulator and practitioner views regarding the possible implications of new draft ICRP recommendations, co-ordinating for the NEA the collection of views from all interested NEA Standing Technical Committees.
- Explore policy and practical aspects of early- and mid-term agricultural and soft countermeasures, as well as the transition from the urgent to the recovery phase of a nuclear accident through the development of the INEX 3 exercise.
- Improve the sharing of worker dose management experience by facilitating and further encouraging the use of the ISOE system.

A detailed listing of recent accomplishments and future plans follows, organised by project. A summary list of all accomplishments and planned actions is provided in Annex 1. A bibliography of recent CRPPH publications is available in Annex 4, and documents are available for purchase or for downloading at www.nea.fr

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1. Historical Introduction

The use of radiation has contributed greatly to the enhancement of the quality of life and the human endeavour. The beneficial uses of radiation in medicine, industry and energy production have resulted in the advancement of our society. To capitalise and maximise the benefits to society of activities involving radiation, governments take action to establish regulatory programs that promote and assure the appropriate safeguards are in place for the protection of the public, workers and environment from the possible deleterious effects from inappropriate use or handling of sources of radiation. One of the foundations of these efforts is a thorough understanding of radiation risks, including how these risks are assessed and managed, and how these risks are addressed in a societal context. Radiation protection is a cross-cutting discipline that establishes programmes for the protection of workers, the public and environment from the possible hazards of ionising radiation that then allows for the development and use of nuclear power, and other uses of radiation. The Committee on Radiation Protection and Public Health (CRPPH) has, within the OECD Nuclear Energy Agency (NEA), the responsibility to study various aspects of these issues and take actions to support National authorities in adoption and maintenance of high standards of protection in the use of ionising radiation.

In July 1957, the Organisation for European Economic Co-operation (OEEC) established the Health and Safety Sub-Committee, which was charged with the implementation of a programme in the field of radiation protection. Following the establishment of the European Nuclear Energy Agency in 1958, the Sub-Committee was attached to the Steering Committee for Nuclear Energy, and in 1973 the mandate of the Sub-Committee was revised, establishing the Committee on Radiation Protection and Public Health (CRPPH). This mandate was updated in 1981 to provide more specific objectives and to focus the Committee's work, and again in 1993, to better reflect the Committee's relationship with the International Commission on Radiological Protection (ICRP), as well as its joint international project co-ordination work in such areas as occupational exposure (the ISOE programme) and nuclear emergency exercises (the INEX programme). The current version of the CRPPH Mandate was approved by the OECD Council in October 2000. This revision was implemented to bring the Committee's mandate into harmony with the NEA's Strategic Plan, which was approved in 1999. Under this new Mandate, CRPPH is responsible for radiation protection studies and experience exchange in the light of the following goals:

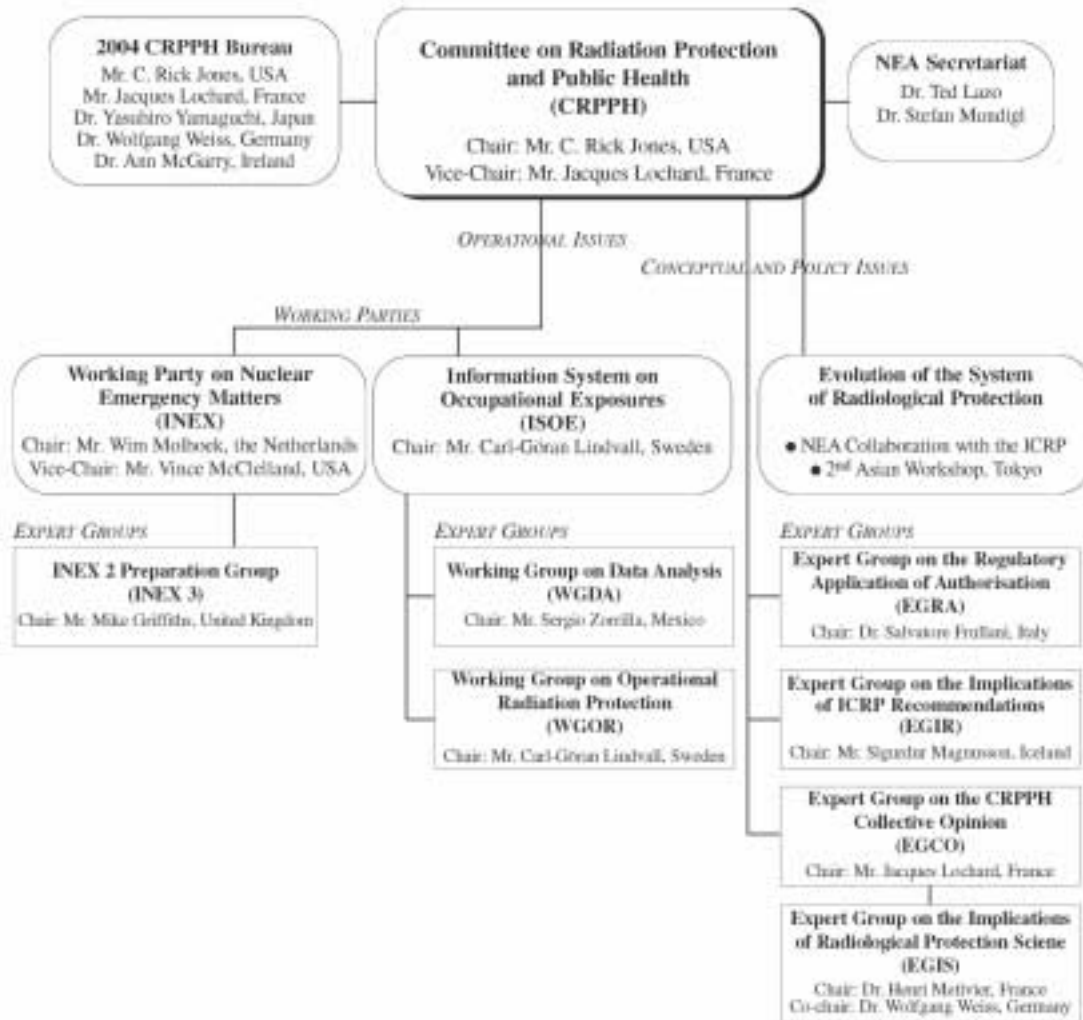
- to provide its Members with a high-level, visible forum for exchange and discussion;
- to seek common understanding of identified issues;
- to advance the "state-of-the-art" in radiation protection theory and practice;
- to advance policies that bring the system of radiation protection more in line with modern societal needs, and;
- to promote international co-operative projects.

By addressing these goals, the CRPPH is helping to establish a safe working environment for nuclear power and waste management operations, as well as for medical, research and other industrial uses of ionising radiation. This is accomplished, in part, through the application of the ALARA principle to effectively manage public and worker exposures.

Performing this work in close collaboration with other international organisations, particularly the International Atomic Energy Agency (IAEA), the European Commission (EC) and the International Commission on Radiological Protection (ICRP), the International Radiation Protection Association (IRPA), the International Labour Organisation (ILO), The United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), the World Health Organisation (WHO), the World Meteorological Organisation (WMO) and the United

Nations Office for the Co-ordination of Humanitarian Assistance (UN-OCHA) assures that efforts are complimentary. Performing this work at the level of an internationally recognised committee of radiation protection experts, the CRPPH is also helping to promote international co-operation and discussion leading to more efficient and cost-effective resolution of these important radiation protection issues. Within the NEA, this work has contributed significantly to maintaining the appropriate equilibrium among all concepts necessary for full-bodied and mature discussion of the regulation and research associated with nuclear power.

The work of the CRPPH is divided into two broad areas: conceptual and policy issues; and operational radiation protection topics. This Summary Report lists achievements during the period since the last meetings of the CRPPH [March 2003], and future plans for the period until the next CRPPH meeting [March 2004 to March 2005]. The structure of the CRPPH and its sub-groups for 2004 to 2005 is shown below.



2. Detailed Working Party and Expert Group Accomplishments in 2003 and Plans for 2004

Following the Statute of the OECD Nuclear Energy Agency, the CRPPH has focused its activities on radiation protection as it applies to nuclear fuel cycle installations. Because, however, radiation protection in all aspects (nuclear power, industrial, medical, research, etc.) is governed by the same philosophy, the work of the Committee is often equally applicable to many other radiation applications.

Within these bounds, in order to maximise the efficiency of its limited resources, the CRPPH has focused on only a few significant and specialised areas of work. In general, emerging issues in radiation protection are addressed, with the objective of achieving international understanding and, where possible and appropriate, consensus. To accomplish this, the CRPPH has established Working Parties, which address topical areas requiring a certain continuity of effort over time, and Expert Groups, which are very task oriented and term limited.

For the past several years, the Committee has spent considerable effort in discussing the internationally accepted system of radiation protection, as detailed in the recommendations of the ICRP, and its place and evolution in modern society. Various aspects of this broad topic have been addressed by the Committee's Expert Groups to enlighten and focus discussions and efforts to promote responsible evolution towards a new system of radiation protection. Close collaboration with the ICRP has facilitated this work, and heightened its effectiveness. In terms of more operational concerns, two Working Parties have been addressing the issues of occupational exposure at nuclear power plants, and nuclear emergency planning, preparation and management.

Summary of Accomplishments in 2003 and Plans for 2004

Working Party on Nuclear Emergency Matters (INEX)

Working Party Chair: Wim Molhoek, VROM, Netherlands

Background and Strategy

The NEA has for some time been interested in nuclear emergency matters, as demonstrated by the number of publications produced in this area. Following the Chernobyl accident, the NEA developed and held, in 1993, the first International Nuclear Emergency Exercise (INEX 1) to study various international aspects of emergency communication, co-ordination and response. The success of this table-top exercise led the CRPPH to develop a more ambitious and realistic exercise to study these international aspects in more depth. Four INEX 2 regional, command-post exercises were held between 1996 and 1999, each with 30 to 35 countries, and 3 to 5 international organisations participating simultaneously in real-time. Based on experience from the INEX 2 exercises, the INEX 2000 exercise was planned and held during 2001. A report summarising policy lessons from this exercise will be published in 2004. Analysis of these exercises has led to an agreement on the objectives and format of the Working Party's next project, the INEX 3 exercise. This new strategic direction has also been reflected in the latest version of the Working Party's Terms of Reference.

For 2004 – 2005 the Working Party will focus on the development of the INEX 3 exercise, with detailed documentation, and on the development of NEA member country objectives and assessment mechanisms for the next large-scale, communication exercise CONVEX2005, which will be organised by the IAEA.

Accomplishments and Products: 2003

- **The INEX 2000 nuclear emergency exercise**
An evaluation report of the INEX 2000 exercise, held in 2001, has been developed and approved. It will be published in spring 2004.

Products:

- The INEX 2000 Exercise Evaluation (publication in spring 2004)

- **Short-term countermeasures in case of a nuclear or radiological emergency**
The report Short-term Countermeasures in Case of a Nuclear or Radiological Emergency summarises information on national emergency preparedness and planning in NEA member countries for the implementation of short-term countermeasures such as evacuation, sheltering and iodine prophylaxis. The information collected may be used to better understand and to compare existing national approaches, procedures, practices, and decisions, which may vary among countries due to different national habits, cultural specificity and societal needs. This may also assist member countries interested in achieving international harmonisation of short-term countermeasures.

Products:

- Report: "Short-term countermeasures in case of a nuclear or radiological emergency", OECD/NEA (2003)

- **Updated Working Party Terms of Reference**
The Working Party performed a survey on NEA member countries key issues and interests, and based on the outcome of this survey updated its Terms of Reference for the time period 2003 - 2006. This was approved by the CRPPH at its March 2003 meeting.

Products:

- Terms of Reference for the NEA Working Party on Nuclear Emergency Matters, document NEA/CRPPH/INEX(2003)3;
- **INEX 3: The next generation of international nuclear emergency exercise**
Regarding the new generation of international nuclear emergency exercises INEX 3, the Working Party decided to create an INEX 3 Preparation Group to develop detailed exercise material for a consequence management exercise focusing on decision-making mechanisms in the medium and late phase after a nuclear or radiological accident with serious contamination. The objectives of this table-top exercise will cover agricultural countermeasures and food restriction, decisions on “soft/light” countermeasures, waste management, and public information. In 2003, the INEX 3 Preparation Group met two times and prepared draft scenarios, work plans, guidance documents for national exercise co-ordinators, exercise players and exercise controllers.

Products:

- Draft exercise objectives and support documents for the INEX 3 exercise (to be finalised in Summer 2004)
- **Working Party participation in CONVEX 2005**
The Interagency Committee on the Response to Nuclear Accidents (IACRNA), for which the IAEA acts as Secretariat, decided to launch a new large scale INEX-2 type communication exercise, called CONVEX2005, in order to test capabilities to fulfill obligations under the Early Notification and Assistance Conventions. The Working Party decided to take advantage of this exercise and to develop specific NEA objectives, which will then be played by individual member countries and evaluated by the Working Party through a detailed evaluation questionnaire and, if agreed, a follow-up workshop.

Products:

- Decision to prepare specific NEA objectives for CONVEX2005

Activities and Planned Products: 2004**1. Finalise the report INEX 2000 Exercise Evaluation**

The Working Party will finalise the report INEX 2000 Exercise Evaluation (spring 2004) in order to capture and summarise the exercise experience and lessons. In addition, the Working Party will present a summary of its lessons and experience in nuclear emergency exercises at the IRPA-11 Congress.

Products:

- Final Report on INEX 2000 Exercise Evaluation (spring 2004)
- Presentation of results at the IRPA-11 Congress, Madrid, Spain, May 2004

2. INEX 3 Exercise material

Prepare detailed exercise material to allow the conduct of INEX 3. The material will include exercise objectives, exercise scenarios, exercise documentation including general information on INEX 3; guidance for the exercise preparation on a national level; guidance on the expectations for national exercise organisers; guidance for exercise players; and guidance for exercise moderators/controllers, as well as an evaluation procedure.

Products

- Detailed INEX 3 Exercise Material (Summer 2004)

3. Preparation of NEA objectives for CONVEX 2005

The Working Party will develop specific NEA objectives and an evaluation procedure for these objectives for the CONVEX 2005 exercise.

Products:

- Specific NEA objectives and evaluation procedure for CONVEX 2005 (End 2004)

4. Implementation of the IAEA Safety Requirements on Preparedness and Response for a Nuclear or Radiological Emergency

The IAEA Safety Requirements on Preparedness and Response for a Nuclear or Radiological Emergency have been published in November 2002, jointly sponsored by the FAO, IAEA, ILO, OECD/NEA, PAJO, OCHA, and WHO. The Working Party is interested whether relevant national regulations in NEA member countries comply with these Safety Requirements, and to what extent they have already been implemented in NEA member countries. This activity is in close collaboration with the NEA Committee on Nuclear Regulatory Activities (CNRA).

Products:

- Status of implementation of the Safety Requirements in NEA member countries (Document end 2004)

5. Compensation issues in emergency preparedness and management

The NEA Nuclear Law Committee is currently preparing a Workshop on Indemnification of Damage in the Event of a Nuclear Accident, to be held in 2005 in Bratislava, Slovak Republic. The Working Party decided to establish a close working relationship between experts in emergency response represented in the Working Party and legal experts organising the Bratislava workshop.

Products:

- Close collaboration with the NEA Nuclear Law Committee in the preparation of the Bratislava workshop

Information System on Occupational Exposure (ISOE)

ISOE Steering Group Chair: Mr. Carl-Göran Lindvall, Barsebäck NPP, Sweden

Background and Strategy

In response to pressures from deregulation and from the ageing of the fleet of nuclear power plants, radiation protection personnel have found that occupational exposures will be reduced by properly planning, preparing, implementing, and reviewing jobs, while applying work management techniques such that the exposures become “as low as reasonably achievable”(ALARA). To facilitate this global approach to work through the exchange of techniques and experiences in occupational exposure reduction, the Nuclear Energy Agency (NEA) of the Organisation for Economic Co-operation and Development (OECD) launched the Information System on Occupational Exposure (ISOE) on 1 January 1992 after a two-year pilot programme. Participation in ISOE includes representatives from both utilities (public and private) and from national regulatory authorities. Since 1993, the International Atomic Energy Agency (IAEA) co-sponsors the ISOE Programme, thus allowing the participation of utilities and authorities from non-OECD/NEA member countries. The ISOE Programme includes the world’s largest occupational exposure database, and a network of utility and authority radiation protection experts for the exchange of experience, information and lessons learned. The ISOE Programme supplies data to the European Commission and to UNSCEAR.

For the 2004 to 2005 period, the ISOE Programme will concentrate on the dissemination of good practice and experience in the area of occupational exposure reduction at nuclear power plants, using the extensive ISOE database, including its analysis and communication capabilities. The group will also specifically address the issue of worker empowerment in terms of modern views of exposure optimisation.

Accomplishments and Products: 2003

- **The ISOE Programme**

As of the end of 2003, the ISOE Programme included occupational exposure data from a total of 407 operating commercial nuclear reactors, 93% of the World's 441 operating commercial nuclear reactors. In addition, 59 commercial nuclear reactors in cold-shutdown or some stage of decommissioning are included in the ISOE database. The reactors in the ISOE databases represent 68 utilities from 29 countries. Regulatory authorities from 26 countries participate in the ISOE Programme.

Products:

- Updated ISOEDAT database, distributed to all ISOE Participants (End 2003)

- **ISOE Analyses and Databases**

One of the most important aspects of the ISOE Programme is data analysis, such as the tracking of annual occupational exposure trends. The results of these data analyses are published in the ISOE Annual Reports. In addition, the ISOE Technical Centres performed various data analyses, data research and experience exchange that are published as ISOE Information Sheets. The ISOE Software package for data input, data handling, experience exchange and data analysis is now available in various languages, e.g. Japanese, Korean, Russian. An ISOE leaflet was developed to further promote the use of ISOE.

Products:

- Occupational Exposures at Nuclear Power Plants: Twelfth Annual Report of the ISOE Programme, 2002, OECD/NEA, 2004
- ISOE Information Sheets
- ISOE – Leaflet, OECD/NEA, 2003

• ISOE ALARA Symposia

The ISOE programme sponsors ALARA Symposia, alternating every other year between Europe (generally in the spring) and North America (generally in the winter). The objective of these symposia is to communicate experience in ALARA implementation and occupational exposure management issues, and to share lessons learned. The international and broad participation in these demonstrates the interest in ALARA and occupational exposure issues. The proceedings of the Third ISOE European Workshop on Occupational Exposure Management at Nuclear Power Plants have been published by the NEA. The Forth ISOE European Workshop on Occupational Exposure Management at Nuclear Power Plants, which will be held in Lyon, France 24 – 26 March 2004, is now being organised.

Products:

- Occupational Exposure Management at Nuclear Power Plants, Third ISOE European Workshop, Portoroz, Slovenia, 17 – 19 April 2002, OECD/NEA (2003)

• ISOE Working Group on Operational Radiation Protection (WGOR)

The ISOE Working Group on Operational Radiation Protection (WGOR) developed a draft document on Optimisation in Operational Radiological Protection with the aim to share practical aspects of radiological protection and experiences of operational radiation protection with the international radiological protection community.

Products:

- Draft report on Optimisation in Operational Radiological Protection;

• ISOE programme evaluation

After more than 10 years of experience within the ISOE System, it was recognised that it would be useful to rethink the strategy and to perform an in-depth evaluation of the system. A consultant, Thommy Godas from Sweden, who was an ISOE Steering Group member for many years, developed two questionnaires; one addressed to the management of nuclear power plants and regulatory authorities, and the other addressed to the radiation protection personnel. In addition, Mr Godas interviewed designated individuals in France, Slovenia and Sweden. The results of his evaluation of the ISOE System were presented to the ISOE Steering Group and summarised in the report In-depth evaluation of the ISOE System.

Products:

- Report on In-depth evaluation of the ISOE System, NEA/CRPPH/ISOE(2003)16

• Review of the ISOE Terms and Conditions

The validity of the ISOE Terms and Conditions ended 31st December 2003. In the light of the in-depth evaluation of the ISOE System which was performed in 2003, the ISOE Steering Group reviewed the Terms and Conditions, and found the main text still current and appropriate for the ISOE Programme. The annexes, however, were updated to reflect the current status of participation in ISOE. In 2003, the ISOE Steering Group re-approved its Terms and Conditions for another period of four years, ending 31st December 2007.

Products:

- Approved updated ISOE Terms and Conditions, document NEA/CRPPH/ISOE(2003)15.

Activities and Planned Products: 2004**1. Follow-up from the evaluation of the ISOE Programme**

The ISOE Steering Group decided to reinforce the role of nation co-ordinators, to promote the ISOE System in general and especially the ISOE 3 reporting system, to modify the ISOE meeting structure, to develop and install an ISOE web page, and develop additional easy to use, predefined analyses for the ISOE data analysis software.

Products:

- Document on role and responsibilities of national co-ordinators (Early 2004),
- Enhanced use of the ISOE System;
- ISOE on the web (end 2004);
- Additional easy to use, predefined analyses for the ISOE data analysis software (continuous).

2. Using ISOE databases

The Technical Centres and the Secretariat will collect data and perform data analyses to facilitate the sharing of benchmarking information and good practices.

Products:

- Occupational Exposures at Nuclear Power Plants: Thirteenth Annual Report of the ISOE Programme, 2003 (October 2004)
- Pilot project: Prepare a regularly issued information newsletter, ISOE News (continuous);
- Updated ISOE database, including ISOE 1 data, ISOE 2 data, and ISOE 3 reports (continuous)

3. ISOE ALARA Symposia: France (March 2004); United States (January 2005).

Prepare the next two ISOE ALARA Symposia, which will be held from 24 to 26 March, 2004, in the European region and hosted by France in Lyon, and in January 2005, in the North American region and hosted by the United States in Orlando, Florida.

Products:

- European Symposium proceedings (on the web in May 2004, published end 2004)
- North American Symposium proceedings (on the web in March 2005)

4. ISOE Working Group on Operational Radiation Protection

Finalise and publish the results from the ISOE Working Group on Operational Radiation Protection (WGOR). Forward the key findings to the International Commission on Radiological Protection (ICRP).

Products:

- Report on the Operational radiation protection views on the ICRP draft recommendations (mid 2004)
- Presentation of results at the IRPA-11 Congress, Madrid, Spain, May 2004

Expert Group on the Regulatory Application of Authorisation (EGRA)

Expert Group Chair: Dr. Salvatore Frullani, Istituto Superiore di Sanita, Italy

Background and Strategy

During the past several years, the CRPPH has been working to contribute its ideas and needs to the international dialogue regarding the development of new ICRP general recommendations. This has led to the publication of; *The Way Forward in Radiological Protection, An Expert Group Report* (late 2002).

A key concept that was developed in *The Way Forward* is that of Authorisation - an umbrella concept that provides a logical framework for all regulatory decision making. This concept is seen as a simple, consistent and coherent way of addressing all radiological protection regulatory decisions. It provides a practical regulatory interpretation of the concepts that are developed by the ICRP.

To test whether the ideas and concepts developed in *The Way Forward* would, if implemented, result in an improved system of radiological protection, the CRPPH Expert Group commissioned two consultants to “road test” these ideas. The results of this road test have been published in a separate report; *A New Approach to Authorisation: A Road Test of the Ideas of the CRPPH Expert Group on the Evolution of the System of Radiological Protection* (mid 2003).

The concept of Authorisation thus discussed by the NEA Expert Group has been transmitted to the ICRP, and to the broader radiation protection community, for consideration. As a result, Authorisation has been taken up by the ICRP in its latest draft document that provides a conceptual framework for the development of more detailed recommendations. The ICRP suggests that Authorisation is a regulatory tool that will not be extensively described by the Commission.

Given this presentation by the ICRP of Authorisation, a more detailed discussion of the concept of Authorisation would be useful. And given that the CRPPH has been in the forefront of developing this approach, it would be efficient and appropriate for the Committee to continue this work. This Group was thus created by the CRPPH during its March 2003 meeting to accomplish this task.

Accomplishments and Products: 2003

- **Development of Draft Report**

The EGRA held two meetings and discussed at length the concept of Regulatory Authorisation. Using the process set out in the EGRP road test report, the Group clarified the concept, and showed how existing ICRP concepts (i.e. dose limits, dose constraints, exclusion, exemption) could be interpreted in a regulatory environment.

Products:

- Draft Expert Group Report, submitted to the CRPPH for its 62nd Meeting, March 2004.

Activities and Planned Products: 2004

1. EGRA Final Report

The Expert Group will take comments from the CRPPH into account, and will review the new ICRP draft recommendations, due out in June 2004, to assure that their work is still consistent with the approach of the ICRP. Based on these inputs, the Group will finalise its report on the Regulatory Process of Authorisation for final submission to the CRPPH at its March 2005 meeting, and for publication upon approval. The work will be distributed widely to the international community for consideration.

Products:

- Presentation of results at the IRPA-11 Congress, Madrid, Spain, May 2004
- Final Draft Report to CRPPH for review and approval (early 2005)
- Publish Final Report (Spring 2005)

**Expert Group on the Implications of ICRP Recommendations
(EGIR)**

*Expert Group Chair: Mr. Sigurdur Magnusson,
Icelandic Radiation Protection Institute, Iceland*

Background and Strategy

Since 1990 when it issued its most recent general recommendations for a system of radiological protection its Publication 60, the International Commission on Radiological Protection (ICRP) has continued to clarify and update its position by issuing subsequent, subsidiary recommendations on specific topics. Approximately ten years after the issuing of Publication 60, a period during which the Commission has issued 25 subsidiary recommendations, the ICRP has launched a process of consolidating, and, more importantly, updating its recommendations to better reflect modern scientific and social views of risk and risk management.

The CRPPH has, throughout its existence, been interested in the development of recommendations by the ICRP. Recently, the work of several of the CRPPH Expert Groups (e.g. studying Controllable Dose, Stakeholder Involvement, Evolution of Radiation Protection, the Processes of Stakeholder Involvement, Implications of ICRP Recommendations) has been aimed at developing evolutionary ideas and suggestions that the ICRP can take into account in its work. Through this work, which has been sent directly to the ICRP for its consideration, the CRPPH has become an active partner with the ICRP, providing the views of regulators and experts from the NEA's 28 member countries. During 2002, the ICRP developed two significant draft recommendations, on a framework for the protection of non-human species, and on the Commission's general recommendations, which were sent to the NEA for comment as part of the active NEA/ICRP collaboration. The analysis of these drafts focused on the possible regulatory and applicational implications that would arise should ICRP draft recommendations be implemented.

The draft recommendations were widely distributed within the NEA family, and the EGIR acted on behalf of the CRPPH and the NEA to develop and consolidate views. This resulted in a summary report of the Group's thoughts, which was debated and approved during the 61st CRPPH meeting (March 2003), presented at the 2nd NEA / ICRP Forum in Lanzarote, and subsequently published (Fall 2003).

The EGIR is currently in standby, awaiting the arrival of a draft ICRP recommendation document, which is expected following the IRPA-11 Congress in May 2004. This ICRP draft recommendation will be analysed similarly to the previous ICRP drafts, and a draft report will be presented to the CRPPH for review and approval at its March 2005 meeting.

Accomplishments and Products: 2003

- **Finalise and publish report**

The report of the EGIR was finalised and published following input from the CRPPH at its 61st meeting, and from discussion during the 2nd NEA / ICRP Forum. The final report was submitted to the ICRP for consideration when finalising its recommendations.

Products:

- Possible Implications of Draft ICRP Recommendations, OECD/NEA, 2003
- Presented the EGIR findings during the 2nd NEA / ICRP Forum: Future Policy for Radiological Protection - A Stakeholder Dialogue on the Implications of the ICRP Proposals, 2 - 4 April 2003, Lanzarote, Canary Islands, Spain
- Presentation of results at the IRPA-11 Congress, Madrid, Spain, May 2004

Activities and Planned Products: 2004

1. **Analyse the next ICRP draft recommendations**

The ICRP is expected to present its draft general recommendations for the first time to the IRPA-11 Congress in Madrid, Spain, in May 2004. Following this, the ICRP will submit its draft recommendations to the NEA, and the EGIR will again perform an analysis, focusing on possible implications for policy, regulation and implementation. The Expert Group's report will be submitted to the CRPPH for review and approval. The published report will be submitted to the ICRP for its consideration.

Products:

- Final Report: Possible Implications of Draft ICRP Recommendations to be presented to the CRPPH at its March 2005 meeting.

**Expert Group on the CRPPH Collective Opinion
(EGCO)**

Expert Group Chair: Mr. Jacques Lochard, CEPN, France

Background and Strategy

In 1993, the CRPPH held a workshop titled, *Radiation Protection on the Threshold of the 21st Century*. This followed the development and issuing of ICRP Publication 60, and was at the beginning of a period of adaptation, implementation and change. As such, the CRPPH felt that it would be useful to scan the horizon and see what types of issues could arise in the near-term future, and to study their possible implications. The intention of this effort was to help member country governments to be better prepared to guide their national policy and application through this period of flux. As a result of this workshop, the CRPPH published, in 1994, a summary document titled, *Radiation Protection Today and Tomorrow: a collective opinion of the CRPPH*. In addition to the value that this work brought to member countries of the NEA, it also served as a list of issues and areas to be further studied by the CRPPH. The Collective Opinion, in effect, became the blueprint of the Committee's Programme of Work for almost 10 years. Since its publication, the CRPPH has worked to address the topics and areas that were identified, and has published reports and studies in all the major areas that were identified.

Today, in 2004, the NEA is in the process of updating its Strategic Plan, and as part of this effort all the NEA's Standing Technical Committees, including the CRPPH, are reviewing their Mandates for possible updating. Also importantly, the ICRP will issue new recommendations in 2005. In this context it is very appropriate for the CRPPH to once more begin to identify topics and areas that, in the mid- to long-term future, will or could have significant influence on radiological protection policy, regulation and application. Should the Committee agree, the ultimate objective of this work will be to develop a new CRPPH Collective Opinion that will provide the Committee with strategic direction for at least the coming five years.

Activities and Planned Products: 2004

1. Assessment of emerging challenges

Beginning with input from a Topical Session to be held during the 62nd CRPPH meeting, the CRPPH will organise a policy-level forum to identify and discuss key emerging radiological protection issues. In support of this, a preliminary "brainstorming" meeting will be held with a small, diverse stakeholder group, to scope the key areas of importance, and to develop a short document/questionnaire to be sent to a very large and diverse stakeholder audience to broadly survey views on areas and issues of importance for the future. The Expert Group will use the work of the small brainstorming meeting and of the CRPPH meeting to prepare the Forum, and will analyse and summarise these inputs and present them to the CRPPH in March 2005.

Products:

- CRPPH Topical Session discussion (March 2004 CRPPH Meeting)
- Brainstorming document/questionnaire to identify future issues and priorities, Summer 2004
- Programme for Policy-level Forum (Summer 2004)
- Policy-level Forum (December 2004)
- Presentation of the Forum analysis and summary to the CRPPH for discussion, March 2005
- Final CRPPH Collective Opinion to CRPPH: Fall 2005
- Review and Approval of final publication: March 2006

Expert Group on the Implications of Radiological Protection Science (EGIS)

Expert Group Chair: Prof. Henri Metivier, Retired IRSN, France

Background and Strategy

At the same time as national interest in radiological protection science seems to be growing, particularly in areas such as the effects of low-dose and chronic exposures, national scientific infrastructures necessary to address such questions seem to be shrinking. Preliminary discussion of the new CRPPH Collective Opinion identified that developments in these and other radiological protection science studies could potentially have key mid- and long-term influences on radiological protection policy, regulation and application. In order to most effectively utilise national and international resources, the Committee agreed to establish an Expert Group, under the direction of the EGCO, to focus on science at the service of mid- and long-term policy needs.

The CRPPH agreed that EGIS should survey currently ongoing projects in radiological protection science, and discuss the possible implications that their results could provoke. This should focus on projects expected to yield results in the short-term, the coming 3 to 10 years. Based on this survey, the Group should attempt to identify scientific questions that need to be answered in order to support the making or evolution of policy decisions. This should focus on longer-term projects, more in the 10 to 30 year time-frame. The 1998 publication of the Committee, "*Developments in Radiation Health Science and their Impact on Radiation Protection*", should be used as a starting point.

Activities and Planned Products: 2004

1. Presentation to EGCO Forum

Based on the 1998 CRPPH publication, and on the results of the Topical Session held during the 62nd CRPPH meeting in March 2004, the Group will collect relevant materials and develop the first draft of its report. This will be co-ordinated with the EGCO, and presented to the EGCO Policy Forum on Emerging RP Challenges in December 2004.

2. First Draft of the Group's Report

Based on the continuing work of the Group, discussions at the Policy Forum, and input from the EGCO, the Group will develop a draft report for submission to the CRPPH for its March 2005 meeting.

Products:

- Presentation to the EGCO Policy Forum on Emerging RP Challenges
- Draft of EGIS Report to EGCO (January 2005) and CRPPH (March 2005)

Evolution of the System of Radiological Protection NEA Collaboration with the ICRP

Background and Strategy

Particularly since the ICRP initiated the development of new recommendations beginning in 1999, the CRPPH has worked to actively engage with the ICRP on this important issue. Work has included CRPPH development of its own proposals for modernisation, through the contributions of several Expert Groups (WPCD, EGRP, WPSA, EGPSI, EGRA). It has also included constructive dialogue with the ICRP through Expert Group commentary on ICRP draft material (EGIR), direct discussions with the ICRP Chair, and co-sponsorship of fora and workshops to collect stakeholder views (Taromina 2002, Tokyo 2002, Lanzarote 2003). The objective of this work is to assist the ICRP to reflect the modern needs of policy makers, regulators and practitioners in their new recommendations.

Continuing the NEA / ICRP collaboration on stakeholder fora that began in 2002 (the February 2002 Taromina NEA/ICRP Forum on the *Radiological Protection of the Environment: The Path Forward to a New Policy?*; the October 2002 Tokyo meeting, the *1st Asian Regional Conference on the Evolution of the System of Radiological Protection*), the NEA and the ICRP organised the 2nd NEA/ICRP Forum, *The Future Policy for Radiological Protection: A stakeholder dialogue on the implications of the ICRP proposals*. This Forum was held 2nd to the 4th of April 2003, and was hosted by the Spanish Consejo de Seguridad Nuclear (CSN), in Lanzarote, Canary Islands, Spain.. Discussions focused on the possible implications of the most recent ICRP draft recommendations on the radiological protection of non-human species, and on the Commission's more general recommendations for a comprehensive system of radiological protection. The views of various stakeholders, including the views developed by the EGIR for the NEA, were discussed. The Forum has been described as "pivotal" by the ICRP Chair, and its results have been used by the ICRP in formulating its new recommendations to better address stakeholder needs and views. NEA member countries have, through the Forum, been able to better understand the details of the ICRP's intentions.

Because of the broad interest in the development of new ICRP recommendations, in May 2003 the NEA Steering Committee held a policy debate on the evolution of the system of radiological protection. This was preceded by a summary of the work of the CRPPH, presented by Mr. Jacques Lochard, the CRPPH Vice-Chair, and included presentations of the ICRP's views, presented by its Chair, Prof. Roger Clarke, of a view from the nuclear industry, presented by Mr. Masahito Kaneko from Japan, and a view from national regulatory authorities, presented by Ms. Dana Drábová, the President of the Czech Republic State Office of Nuclear Safety. As a result of discussions, the Steering Committee encouraged the NEA to pursue its work on the future evolution of the international radiological protection system and its co-operation with the International Commission on Radiological Protection (ICRP) in this area.

Finally, as a result of significant interest from NEA member countries in the Asian region, the NEA will organise, in July 2004, the 2nd *Asian Regional Conference on the Evolution of the System of Radiological Protection*. This meeting will take place shortly after the IRPA-11 Congress, at which the ICRP will unveil its new draft recommendations, and will be the first opportunity to discuss and debate these draft recommendations in Asia. The conference will also include discussion of experience in stakeholder involvement procedures, based on results from the 3rd Villigen Workshop.

Accomplishments and Products: 2003

- **The 2nd NEA/ICRP Forum, *The Future Policy for Radiological Protection: A stakeholder dialogue on the implications of the ICRP proposals***
The Forum was hosted by the Spanish Consejo de Seguridad Nuclear (CSN), and took place from the 2nd to the 4th of April 2003 in Lanzarote, the Canary Islands, Spain

Products:

- Future Policy for Radiological Protection: Workshop Proceedings, Lanzarote, Spain 2 – 4 April 2003, OECD/NEA 200
 - Future Policy for Radiological Protection: Summary Report of the Lanzarote Workshop, OECD/NEA 2003
- **NEA Steering Committee Policy Debate: Evolution of the System of Radiological Protection**
The policy debate took place at the May 2003, 106th meeting of the NEA Steering Committee. It was preceded by a summary of the work of the CRPPH, presented by Mr. Jacques Lochard, the CRPPH Vice-chair, and included presentations of the ICRP's views, presented by its Chair, Prof. Roger Clarke, of a view from the nuclear industry, presented by Mr. Masahito Kaneko from Japan, and a view from national regulatory authorities, presented by Ms. Dana Drábová, the President of the Czech Republic State Office of Nuclear Safety.

Products:

- The summary of the policy debate is included in the Summary Record of the 106th NEA Steering Committee Meeting, document NEA/NE/M(2003)1
- **Proceedings of the 1st Asian Regional Conference**
The 1st Asian Regional Conference was held in October 2002, in Tokyo. The proceedings of this conference were published in late 2003.

Products:

- Proceedings of the Asian Regional Conference on the Evolution of the System of Radiological Protection, Tokyo, 24 – 25 October 2002, OECD/NEA 2003

Activities and Planned Products: 2004

In continuing its broad collaboration with the ICRP, the CRPPH will also hold a second Asian Regional Conference on the Evolution of the System of Radiological Protection. The EGRA will co-ordinate the preparation of this workshop on behalf of the CRPPH.

1. Programme for the 2nd Asian Regional Conference (late 2003)

A programme committee, made up of representatives from the CRPPH Bureau, the EGRA, and the EGPSI will develop, in collaboration with the Asian Members of the CRPPH, a programme for the 2nd Asian Regional Conference to be held the 28th - 29th July, 2004, in Tokyo.

Products:

- Draft Conference Programme, submitted to the CRPPH for its 62nd Meeting, March 2004.
- Hold the 2nd Asian Regional Conference, 28 - 29 July, 2004, Tokyo
- Workshop Proceedings (Winter 2004)

Expert Group on the Evolution of the System of Radiation Protection (EGRP)

Expert Group Chair: Dr. Joe McHugh, Environment Agency, United Kingdom

Background and Strategy

Since the publication of the last recommendations of the International Commission on Radiological Protection (ICRP Publication 60, 1990) many areas have been identified that are somewhat unclear, or that are seemingly incoherent. While the CRPPH has, in general, found the ICRP system to be robust, the Committee has continued to focus its attention on those aspects of the system that it judges to need further refinement. Recognising the need for modernisation, Professor Roger Clarke, the Chair of the ICRP, has published several papers in the open literature (1999, 2001, 2003) suggesting an evolution that could be followed for the development of the next set of ICRP recommendations, due in the 2005 timeframe, and asking for comments. The CRPPH has been actively involved in developing its own consensus thoughts on how the system of radiation protection could be made more responsive to decision makers, regulators and practitioners, and has provided these directly to the ICRP and the international community for consideration. The Working Party on Controllable Dose and the Use of Collective Dose (WPCD) published the first reflections of the CRPPH on this subject in mid 2000. To further refine these thoughts, the CRPPH created the Expert Group on the Evolution of the System of Radiation Protection (EGRP) at its March 2000 annual meeting, and charged the Group with the development of some practical suggestions that could improve the clarity and coherence of the system of radiological protection.

During 2003 the EGRP published, *The Way Forward in Radiological Protection*, its reflection document, and *A New Approach to Authorisation in the Field of Radiological Protection: The Road Test Report*, to “validate” that its suggestions would result in practical improvements to the system.

Accomplishments and Products: 2003 - 2004

1. Publication of Final Expert Group Results

With the publication of its final report and its road-test, the EGRP completed its mandate and the Group disbanded following the 61st meeting of the CRPPH, March 2003. The results of the Expert Group’s work have been subsequently used as a starting point for the Expert Group on the Regulatory Application of Authorisation (EGRA).

Products:

- The Way Forward in Radiological Protection, An Expert Group Report, OECD/NEA, 2002
- A New Approach to Authorisation in the Field of Radiological Protection: The Road Test Report, prepared by R.V. Osborne and F.J. Turvey, OECD/NEA, 2003

2. Presentation of Final Expert Group Results

The final products of this work were seen as very innovative, and will be presented during the IRPA-11 Congress in Spain.

Products:

- Oral presentation at the IRPA-11 Congress, Madrid, Spain, May 2004.

Expert Group on the Process of Stakeholder Involvement in Radiation Protection Decision Making (EGPSI)

Expert Group Chair: Mr. Jacques Lochard, CEPN, France

Background and Strategy

In its 1994 Collective Opinion, the CRPPH identified the societal aspects of radiation protection, focusing at that time on post-accidental situations, as an important area to monitor. The growing area of comparative risk assessment and management, studying various risks to optimise resource allocation, was also identified. In 1996, the CRPPH created the Working Group on Risk Management (WGRM), and the Working Group on Societal Aspects of Radiation Protection (WGSAR) to investigate these important areas. The WGRM completed its work in 1998, but part of that group continued investigating the area independently, reporting its results to the CRPPH in 1999. The WGSAR organised the 1st Villigen Workshop, *Societal Aspects of Decision Making in Complex Radiological Situations*, in January 1998. As a follow-up to these two actions, the CRPPH created the Working Group on Stakeholder Involvement in 1999, which organised and held the 2nd Villigen Workshop, *Better Integration of Radiation Protection in Modern Society*, in January 2001. A policy-level summary analysis, *Policy Issues in Radiological Protection Decision Making*, was also published based on the Workshop's results. To carry this work forward, the CRPPH identified stakeholder involvement process aspects as key areas, and created the Expert Group on the Process of Stakeholder Involvement (EGPSI) to address these issues in March 2001.

Accomplishments and Products: 2003 -2004

The CRPPH agreed during its 61st meeting that, following the publication of the summary documents from the Third Villigen Workshop, the EGPSI should disband.

1. Case Studies of Processes of Stakeholder Involvement

The EGPSI, with the assistance of three consultants, developed case studies to illustrate some processes that have been used to involve stakeholders in radiological protection decision making. These were used as the primary input to the 3rd Villigen Workshop.

Products:

- Stakeholder participation case studies for the third Villigen Workshop (Spring 2004)

2. 3rd Villigen Workshop (21 - 23 October 2003).

Stakeholder Participation in Decision Making Involving Radiation: Exploring Processes and Implications, the Third Villigen Workshop, was organised by the EGPSI and hosted by the Swiss Federal Nuclear Safety Inspectorate (HSK).

Products:

- Proceedings of the 3rd Villigen Workshop (Spring 2004).
- 3rd Villigen Workshop analysis report on lessons and policy-level implications (Spring 2004)

3. Presentation of Final Expert Group Results

The final products of this work were seen as very innovative, and will be presented during the IRPA-11 Congress in Spain.

Products:

- Presentation of results at the IRPA-11 Congress, Madrid, Spain, May 2004

**Expert Group on the Implications of Effluent Release Options
(EGRO)**

Expert Group Chair: Mr. Olli Vilkamo, STUK, Finland

Background and Strategy

Radioactive effluent releases from nuclear installations, in normal operation, have been reduced in recent years, but are still subject to discussions. The demand for further reductions is generally driven by societal concerns about the protection of the environment. Regarding the optimisation of effluent releases, there are several different approaches, such as the concept of the “Best Available Technology (BAT)”, or the ALARA approach that is well known in radiation protection. The OSPAR Commission, a political body concerned with the pollution of the marine environment, introduced the *OSPAR Strategy with Regard to Radioactive Substances* (Sintra, July 1998), which calls for a reduction of radioactive emissions to a level that would result in concentrations of artificial radionuclides in the environment that are “close to zero”. In order to assist experts and decision makers to fully understand the technical implications and feasibility of the various effluent release options being discussed, the CRPPH agreed to launch an Expert Group on this subject. The results of this Group’s work will serve as decisional background information for CRPPH Members and other experts faced with such choices, as well as input to the CRPPH views on the evolution of the system of radiation protection.

Accomplishments and Products: 2003 - 2004

The Expert Group’s report was finalised and published at the end of 2003. At its 61st meeting, the CRPPH approved the EGRO’s draft report with some minor comments. With this completion of its mandate, the Group disbanded.

Products:

- Effluent Release Options from Nuclear Installations: Technical Background and Regulatory Aspects, published in Fall 2003
- Presentation of results at the IRPA-11 Congress, Madrid, Spain, May 2004

**Expert Group on Stakeholder Involvement in the Management of an
Urban Radiological Contamination
(EGUC)**

Expert Group Chair: Mr. Jacques Lochard, CEPN, France

Background and Strategy

Through the development of knowledge and exchange of experience made possible by the planing and holding of the Villigen Workshops, a more profound understanding of the national and international implications of stakeholder participation in radiological protection decision making has been gained. The extraction, from specific case studies, of experience and lessons that transcend case, geographic and, to a certain extent, cultural bounds has provided a philosophical foundation for better understanding of how stakeholder involvement can affect the bases, structures and processes of decision-making.

The knowledge developed by the CRPPH in this area has been most recently documented in the following reports:

- Policy Issues in Radiological Protection Decision Making: Summary of the 2nd Villigen (Switzerland) Workshop, January 2001, OECD/NEA 2001
- Better Integration of Radiation Protection in Modern Society: Workshop Proceedings, Villigen Switzerland, 23 - 25 January 2001, OECD/NEA, 2001

Similar documents will be published as a result of the 3rd Villigen Workshop, which took place from the 21st to the 23rd of October 2003.

To increase understanding of the complexities in this area, the particular situation of urban contamination provides a framework that is of great interest in today's world. This could serve as a vehicle for better understanding the magnitude and implications of the practical application of the philosophical knowledge that the CRPPH has developed so far. This Group was thus created by the CRPPH during its March 2003 meeting.

Activities in 2003

Subsequently to the Committee's decision to create this Expert Group, the CRPPH Vice-chair began investigating this area further. It was found that two other significant projects were also underway in this area. Specifically, the European Commission has started the URANUS project that will investigate, among other things, various aspects of managing urban contamination situations. In addition, a large group of countries and international organisations have begun the CORE project, which will develop specific projects to improve life in the contaminated territories in Belarus, while at the same time bringing value added to sponsoring countries and organisations in terms of post-accident management.

For these reasons, at its September 2003 meeting the CRPPH Bureau agreed that the work of the URANUS and CORE projects had overtaken the original role of the EGUC, that is, to investigate urban contamination events. As such, it was agreed that the EGUC should disband.

Other Work of the CRPPH

In addition to the work carried out by Working Parties and Expert Groups, the Bureau of the CRPPH works closely with the Secretariat to accomplish tasks agreed upon by the CRPPH, but not requiring development by a dedicated group. Several such actions were accomplished, are underway or are planned. Significant activities include:

CRPPH Participation in the NEA's Decommissioning Activities

Decommissioning is an issue of rising importance in many of the NEA's Member countries, and is being addressed in a broad sense within the NEA, with several of the NEA's Standing Technical Committees addressing decommissioning issues. In order to have a broad overview of the state of affairs in the decommissioning area, those Standing Technical Committees working in this area, notably the RWMC, the CNRA, the NDC, the CRPPH and the CSNI, have agreed to hold a stock-taking workshop in September 2004, in Rome. The themes of this workshop will be:

- Decommissioning policy and strategy
- Material management, disposal and release
- Funding and costs
- Safety and regulation
- Organisation and management
- Techniques and R&D

The CRPPH will participate in this work, focusing principally on the area of materials management from the radiological protection standpoint, and nominated Dr. Salvatore Frullani to represent the CRPPH on the workshop programme committee.

Collaboration with the OECD

- **Emerging Systemic Risks**

The OECD International Futures Project, which reports directly to the OECD Secretary General, identified that large-scale, systemic risks, stemming in large part from the technical and social complexity of our modern world, pose increasingly difficult policy questions. For this reason, a broad-based study of systemic risks was initiated, resulting in the publication of an OECD report, *Emerging Risks in the 21st Century: An Agenda for Action*. Because of the NEA's experience in risk assessment and management, both in the areas of radiological protection and nuclear safety, the NEA Secretariat contributed significantly to this work.

One of the actions proposed is a programme of OECD country reviews focusing on national approaches to risk assessment, planning, preparedness and management. Should such a programme develop, the NEA will participate as requested by the OECD.

- **Experience with Managing Large-scale Risks**

As a result of the Systemic Risk work, the U. S. Government asked the OECD Secretary General to develop a short assessment of experience in NEA member countries of dealing with large-scale risks. Again, because of the NEA's experience with nuclear emergencies, the NEA Secretariat contributed a significant chapter to this report. The OECD will publish this report in early 2004, and the NEA remains at the disposition of the OECD for any needed follow-up or related work.

Chernobyl

For some time, the CRPPH has been interested in the results of the Chernobyl accident, and has published two stock-taking reports on the situation: *Chernobyl 10-years on* (1996); and *Chernobyl: Assessment of Radiological and Health Consequences* (2002). Scientific and rehabilitation studies and work continue in Belarus, Ukraine and the Russian Federation, and the NEA and the CRPPH continue to follow these activities.

Concretely, the NEA Secretariat has followed two significant efforts in this area. The first is the International Chernobyl Research and Information Network (ICRIN), organised by the UN Office of for the Co-ordination of Humanitarian Affairs (OCHA) and the World Health Organisation (WHO). This network of governments, international organisations and non-governmental organisations has established a platform to catalogue relevant health, social administrative and scientific work, and to assess work to identify key issues and gaps that should be filled. The NEA Secretariat is an observer on the ICRIN organisation committee.

In addition to this work by the OCHA, the IAEA has established the Chernobyl Forum. This organisation is focusing uniquely on scientific research aspects of the rehabilitation of the Chernobyl-contaminated areas. Again, this project aims at consolidating research that has been performed, at identifying gaps in knowledge and, if possible, identifying approaches to filling these gaps. The NEA Secretariat also participates in the organisation committee for this project.

Given this involvement, and the Committee's previous reports in this area, it was agreed that the CRPPH will continue its work in this area, now joining its stakeholder involvement work with its Chernobyl work in the development of a new report for the 20th anniversary of the accident in April 2006.

The report should be prepared for the Committee by a consultant, and should address "the Human Face" of the Chernobyl accident. The guiding theme of the report will be a description of the scope and magnitude of such contamination situations, and the identification of challenges so that governments can be best prepared should such an accident occur. This should include:

- The positive aspects of what has been done and learned.
- The RP professional at the service of the populations living in a contaminated environment and facing continuous lifestyle challenges.
- RP technical aspects of living in a contaminated environment.
- How to scope needs to be best prepared for such an accident, and the consequences of insufficient preparations.
- The humanitarian aspects should be highlighted as possible.

The OECD Futures Programme (see previous topic) will be invited to participate in this work.

Products:

- Work Plan and Draft Report Outline to CRPPH for Review (March 2005)

Annex 1

Summary of CRPPH Accomplishments in 2003 and Planned Activities for 2004

Accomplishments in 2003 (March 2003 to March 2004)

The Working Party on Nuclear Emergency Matters (INEX) has:

1. Developed the INEX 2000 Exercise Evaluation (publication in spring 2004)
2. Published the report: Short-term countermeasures in case of a nuclear or radiological emergency, OECD/NEA (2003)
3. Approved new Terms of Reference for the NEA Working Party on Nuclear Emergency Matters, document NEA/CRPPH/INEX(2003)3;
4. Developed exercise objectives and draft support documents for the INEX 3 exercise (to be finalised in Summer 2004)
5. Taken the decision to prepare specific NEA objectives for CONVEX2005

The Information System on Occupational Exposure (ISOE) has:

6. Updated the ISOEDAT database, and distributed it to all ISOE Participants (End 2003)
7. Published Occupational Exposures at Nuclear Power Plants: Twelfth Annual Report of the ISOE Programme, 2002, OECD/NEA, 2004
8. Developed ISOE Information Sheets
9. Published an ISOE – Leaflet, OECD/NEA, 2003
10. Published Occupational Exposure Management at Nuclear Power Plants, Third ISOE European Workshop, Portoroz, Slovenia, 17 – 19 April 2002, OECD/NEA (2003)
11. Developed a draft report on Optimisation in Operational Radiological Protection;
12. Developed an In-depth evaluation of the ISOE System, document NEA/CRPPH/ISOE(2003)16
13. Updated and Approved the ISOE Terms and Conditions, document NEA/CRPPH/ISOE(2003)15.

The Expert Group on the Regulatory Application of Authorisation (EGRA) has:

14. Developed a draft Report for submission to the CRPPH for its 62nd Meeting, March 2004.

The Expert Group on the Implications of ICRP Recommendations (EGIR) has:

15. Presented the EGIR findings during the 2nd NEA / ICRP Forum: Future Policy for Radiological Protection - A Stakeholder Dialogue on the Implications of the ICRP Proposals, 2 - 4 April 2003, Lanzarote, Canary Islands, Spain
16. Published its report on the ICRP framework documents on its general recommendations and on its recommendations for the protection of non-human species, Possible Implications of Draft ICRP Recommendations, OECD/NEA, 2003

NEA Collaboration with the ICRP has resulted in:

17. Publishing Future Policy for Radiological Protection: Workshop Proceedings, Lanzarote, Spain 2 – 4 April 2003, OECD/NEA 200
18. Publishing Future Policy for Radiological Protection: Summary Report of the Lanzarote Workshop, OECD/NEA 2003
19. Finalising the summary of the radiological protection policy debate that took place during the 106th NEA Steering Committee Meeting, document NEA/NE/M(2003)1
20. Publishing the Proceedings of the Asian Regional Conference on the Evolution of the System of Radiological Protection, Tokyo, 24 – 25 October 2002, OECD/NEA 2003

The Expert Group on the Evolution of the System of Radiation Protection (EGRP) has:

21. Published The Way Forward in Radiological Protection, An Expert Group Report, OECD/NEA, 2002
22. Published A New Approach to Authorisation in the Field of Radiological Protection: The Road Test Report, prepared by R.V. Osborne and F.J. Turvey, OECD/NEA, 2003
23. Present the results of its work at the IRPA-11 Congress, Madrid, Spain, May 2004

The Expert Group on the Process of Stakeholder Involvement (EGPSI) has:

24. Published stakeholder participation case studies for the third Villigen Workshop (Spring 2004)
25. Published proceedings of the 3rd Villigen Workshop (Spring 2004).
26. Published the 3rd Villigen Workshop analysis report on lessons and policy-level implications (Spring 2004)
27. Present the results of its work at the IRPA-11 Congress, Madrid, Spain, May 2004

The Expert Group on the Implications of Effluent Release Options (EGRO) has:

28. Effluent Release Options from Nuclear Installations: Technical Background and Regulatory Aspects, published in Fall 2003

29. Present the results of its work at the IRPA-11 Congress, Madrid, Spain, May 2004

The Expert Group on Stakeholder Involvement in the Management of an Urban Radiological Contamination (EGUC) has:

30. Disbanded

The CRPPH, the Bureau and the Secretariat have:

31. Contributed to the NEA's cross-cutting activity in the area of decommissioning, developing work in the area of authorisation for the release of radioactive materials from regulatory control.

Planned Activities for 2004 (March 2004 to March 2005)

The Working Party on Nuclear Emergency Matters (INEX) will:

1. Publish the final report on INEX 2000 Exercise Evaluation (spring 2004)
2. Approve final detailed INEX 3 Exercise Material (Summer 2004)
3. Approve specific NEA objectives and evaluation procedure for CONVEX 2005 (End 2004)
4. Publish a document on the status of implementation of the Safety Requirements in NEA member countries (Document to be published at the end 2004)
5. Collaborate closely with the NEA Nuclear Law Committee in the preparation of the Bratislava workshop (Spring 2005)
6. Present a summary of its exercise lessons and experience at the IRPA-11 Congress, Madrid, Spain, May 2004

The Information System on Occupational Exposure (ISOE) will:

7. Document on role and responsibilities of national co-ordinators (Early 2004)
8. Enhance the use of the ISOE System (continuous)
9. Establish a specific, dedicated ISOE site on the web (end 2004)
10. Develop additional easy to use, predefined analyses for the ISOE data analysis software (continuous)
11. Publish Occupational Exposures at Nuclear Power Plants: Thirteenth Annual Report of the ISOE Programme, 2003 (October 2004)
12. Initiate a pilot project to prepare and regularly issue an information newsletter, ISOE News (continuous)
13. Update the ISOE database, including ISOE 1 data, ISOE 2 data, and ISOE 3 reports (continuous)
14. Finalise the European Symposium proceedings (on the web in May 2004, published end 2004)
15. Finalise the North American Symposium proceedings (on the web in March 2005)
16. Publish a report on the Operational radiation protection views on the ICRP draft recommendations (mid 2004)
17. Present the results of the WGOR work at the IRPA-11 Congress, Madrid, Spain, May 2004

The Expert Group on the Regulatory Aspects of Authorisation (EGRA) will:

18. Present the results at the IRPA-11 Congress, Madrid, Spain, May 2004
19. Final Draft Report to CRPPH for review and approval, early 2005
20. Publish Final Report, Spring 2005.

The Expert Group on the Implications of ICRP Recommendations (EGIR) will:

21. Present the results of its analysis of the ICRP framework documents at the IRPA-11 Congress, Madrid, Spain, May 2004
22. Prepare a draft analysis of possible implications of draft ICRP Recommendations, to be presented to the CRPPH at its March 2005 meeting.

The Expert Group on the CRPPH Collective Opinion (EGCO) will:

23. Hold a CRPPH Topical Session discussion, March 2004 CRPPH meeting
24. Hold a preliminary “brainstorming” meeting, with a small, diverse stakeholder group, to scope the key areas of importance, and to develop a short document/questionnaire to be sent to a very large and diverse stakeholder audience to broadly survey views on areas and issues of importance for the future.
25. Hold a Policy-level Forum, December 2004.
26. Analyse and summarise the results of the Policy-level Forum, and present this to the CRPPH at its March 2005 meeting.
27. Based on discussion by the CRPPH, the EGCO will develop a draft Collective Opinion that will be discussed and finalised by the CRPPH at its March 2006 meeting.

The Expert Group on the Implications of Radiological Protection Science (EGIS) will:

28. Prepare a draft report for submission to the EGCO, January 2005, and the March 2005 CRPPH meeting.
29. Finalise its report based on comments from the EGCO and the CRPPH, for approval by the March 2006 CRPPH meeting.

In the area of the Evolution of the System of Radiological Protection, the NEA will:

30. Develop a draft Conference Programme for the 2nd Asian Regional Conference, for submission to the CRPPH at its 62nd Meeting, March 2004.
31. Hold the 2nd Asian Regional Conference, 28 - 29 July 2004
32. Publish the Proceedings of the 2nd Asian Regional Conference, Winter 2004

In view of the upcoming 20th Anniversary of the Chernobyl Accident, the CRPPH will:

33. Prepare a Work Plan and Draft Report Outline on the Human Face of the Chernobyl Accident for the March 2005 CRPPH meeting

Annex 2

List of Members of the Committee on Radiation Protection and Public Health (CRPPH) And its Sub-Groups for the 2004 Programme of Work (March 2004)

NEA MEMBER COUNTRY LIST

COUNTRY	NAME	ORGANISATION	NEA GROUP
AUSTRALIA	Dr Ron CAMERON	ANSTO	CRPPH
	Mr. Allan MURRAY	ARPNSA	CRPPH
	Mr. Stuart PROSSER	ARPNSA	CRPPH
	Mr. David TREDINNICK	ARPNSA	CRPPH
AUSTRIA	Mr. Johann-Klaus HOHENBERG	Federal Ministry	CRPPH, EMEX
	Mr. Rainer SCHEFFENEGGER	Federal Ministry	CRPPH
BELGIUM	Mr. Christian BREESCH	S.A ELECTRABEL	ISOE
	Mr. Erik COTTENS	SPRI	CRPPH
	Mr. Jean-Marie LAMBOTTE	Agence Fédérale de Contrôle Nucléaire	EGRO
	Mr. Philippe LAURENT	S.A ELECTRABEL	ISOE
	Mr. Jean-Paul SAMAIN	Agence Fédérale de Contrôle	CRPPH
	Dr. Patrick SMEESTERS	SPRI	CRPPH
	Mr. Pierre STALLAERT	Ministère de l'Emploi et du SSTIN	CRPPH
	Dr. L.G. THIERS	Min. de la Santé Publique	CRPPH
CANADA	Mr. Jean Patrice AUCLAIR	Health Canada	EMEX
	Mr. Kevin BUNDY	CNSC	CRPPH
	Mr. Larry CHAMNEY	CNSC	EGRP
	Mr. Shek CHING	CNSC	ISOE
	Mr. Jean-Yves GAGNON	Gentilly Nuclear Power Plant	ISOE
	Ms. Helen GRIFFITHS	Health Canada	EMEX
	Ms. Jennifer NORONHA	Ontario Hydro Nuclear	ISOE
	Mr. R.W. POLLOCK	COGEMA	EGIR
	Mr. Francois RINFRET	CNSC	ISOE
	Mr. Mike SITTER	Whitby	ISOE
	Dr. Douglas UNDERHILL	Consultant	EGPSI
Dr. Anthony WAKER	AECL	CRPPH	
CZECH REPUBLIC	Ms. Dana DRABOVA	State Office for Nuclear Safety	CRPPH
	Mr. Jiri HULKA	SURO	EGRP
	Prof. Vladislav KLENER	State Office for Nuclear Safety	EGIR
	Mr. Josef KOC	Temelin NPP	ISOE
	Ms. Karla PETROVA	State Office for Nuclear Safety	ISOE, EGIR
	Mr. Zdenek PROUZA	State Office for Nuclear Safety	CRPPH, EGIR
	Dr. Jan SALAVA	SUJB	EGRA
Ms. Vera STAROSTOVA	State Office for Nuclear Safety	EMEX	
DENMARK	Mr. Per HEDEMANN JENSEN	RISO National Laboratory	CRPPH
	Mr. Steen HOE	DEMA, Nuclear Safety Division	EMEX
	Mr. Kaare ULBAK	National Institute of Radiation Hygiene	CRPPH
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	Mr. Eero KETTUNEN	STUK	EGPSI
	Mr. Kari KUKKONEN	Olkiluoto Power Plant	ISOE
	Mr. Jukka SOVIJARVI	Olkiluoto Power Plant	ISOE
	Mr. Olli VILKAMO	STUK	CRPPH, EGRO

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	Mr. Jean-Claude BARESCUT	IRSN	EGIR
	Mr. Dominique CALMET	CEA	EGRO
	Ms. Hélène CHARPENTIER	Ministry of Industry, DGEMP	EGRO
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	Mr. Olivier COUASNON	IRSN	ISOE
	Ms. Lucie D'ASCENZO	CEPN	ISOE
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	Dr. Pierre-Nöel LIRSAC	INSTN	CRPPH
	Mr. Jacques LOCHARD	CEPN	CRPPH, EGPSI
	Prof. Henri METIVIER	IRSN	EGIR
	Mr. George MONCHAUX	IRSN	CRPPH
	Mr. André OUDIZ	IRSN	CRPPH, EGRP, EGPSI
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	Mr. Peter KAPTEINAT	VGB	ISOE
	Dr. Gerald KIRCHNER	BfS	EGIR
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	Dr. Antonis MALTEZOS	Greek Atomic Energy Commission	EMEX
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Dr. Sang-Duk SA		MOST	ISOE	
Mr. Bo Kyun SEO	KINS	ISOE		
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	Mr. Vladimir SLADEK	Nuclear Regulatory Authority	EMEX
	Mr. Ondrej SLAVIK	Vuje Trnava	EGRO
	Mr. Dusan VIKTORY	National Public Health Institute	ISOE
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	Mr. Jonathan EDWARDS	EPA	EGPSI
	Mr. Tim HARRIS	NRC	EGIR
	Ms Ann HEINRICH	DOE	EMEX
	Mr. C. Rick JONES	DOE	CRPPH
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	Dr. David MILLER	North American Technical Centre	ISOE
	Ms. Patricia MILLIGAN	NRC	EMEX
	Ms. Madeleine NAWAR	EPA	EMEX
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Mr. Dick WARNOCK	San Onofre Nuclear Generating Station	ISOE	

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	Dr. Monica GUSTAFSSON	ISOE
	Mr. Ian FERRIS	EMEX
	Dr. Gordon LINSLEY	EGRO
	Dr. Khammar MRABIT	ISOE
	Dr. Carlos Alberto NOGUEIRA	EMEX
	Mr. Patricio O'DONNELL	EGIR, EGRO, EGRP
	Ms. Carol ROBINSON	EGRO
	Dr. Tony D. WRIXON	EGIR, EGRO, EGRP
EC	Dr. Augustin JANSSENS	EGRO, EGPSI
	Mr. Tom RYAN	EGRO
	Mr. Klaus SCHNUER	ISOE
	Dr. Vesa TANNER	EMEX
ICRP	Dr. Jack VALENTIN	CRPPH
ILO	Mr. Shengli NIU	CRPPH
UNSCEAR	Mr. Norman GENTNER	CRPPH
WHO	Dr. Mike REPACHOLI	CRPPH
WANO-Paris Centre	Dr. Yves CANAFF	ISOE
	Mr. Jürgen SCHLEGEL	ISOE

NON - NEA MEMBER COUNTRY LIST

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	Ms Aida AVETISYAN	ANRA	ISOE
BRAZIL	Mr. Nélio Viana MARIANO	Electronuclear	ISOE
BULGARIA	Ms. Lidia KATZARSKA	BNSA	ISOE
	Mr. Georgi VALTCHEV	Kozloduy NPP	ISOE
LITHUANIA	Mr Gintautas KLEVINSKAS	RSC	ISOE
	Mr Victor PLETNIOV	IAE	ISOE
PAKISTAN	Mr. Javaid AKRAM	CHASNUPP	ISOE
	Mr. Tariq BIN TAHIR	KNPC	ISOE
	Mr Bushra NASIM	Pakistan Atomic Energy Commission	ISOE
P.R. of CHINA	Mr. Zhang JINTAO	China National Nuclear Corporation	ISOE
	Mr Li RUIRONG	Daya Bay NPP	ISOE
	Mr Zhang YONG	Qinshan Nuclear Power Company	ISOE
ROMANIA	Mr. Alexandru RODNA	Romania National Commission	ISOE
	Mr. Vasile SIMIONOV	CNE	ISOE
RUSSIAN FEDERATION	BEZRUKOV, Boris	Concern ROSENERGOATOM	ISOE
SOUTH AFRICA	Mr. Kasturi JUTLE	NNR	ISOE
	Mr. Marc MAREE	Keoberg Nuclear Power Station	ISOE
UKRAINE	Ms. Tetyana LISOVA	MINTOP	ISOE
	Mr. Viktor RYAZANTSEV	SNRCU	ISOE

Annex 3
**Mandates
of Working Parties and Expert Groups**

The Working Party on Nuclear Emergency Matters (INEX)

Terms of Reference

Created: April 1993
Revised: May 2003
Next Review: March 2006

Chair: Mr. Wim Molhoek, The Netherlands
Vice-Chair: Mr. Vince McClelland, United States

The Terms of Reference of the Working Party on Nuclear Emergency Matters are as follows:

- To develop and organise the third generation of nuclear emergency exercises, INEX 3, including a detailed exercise documentation, an evaluation procedure, the publication of the post-exercise analysis, and the preparation of follow-up activities;
- To develop, co-ordinate and evaluate specific NEA objectives for the CONVEX2005 exercise, which will be organised, in 2005, under the auspices of the Interagency Committee on the Response to Nuclear Accidents (IACRNA); these NEA objectives should assist individual countries to play on a local, regional, national or multinational level;
- To organise workshops and working groups, as appropriate, to identify further advancements in nuclear emergency planning, preparedness and management. These activities could include the following topics:
 - International harmonisation of short-term countermeasures and intervention levels;
 - Criteria for terminating countermeasures;
 - Use of decision-support systems;
 - Efficient emergency communication (simplification, unification);
 - Long-term issues of emergency decision making;
 - Management of large-scale contamination of food and feeding stuff;
 - Possible implications of new ICRP recommendations.
- To discuss and evaluate the implementation of the jointly sponsored IAEA Safety Requirement on Preparedness and Response for a Nuclear or Radiological Emergency;
- To provide input, as appropriate, for the development of IAEA Safety Series documents such as Criteria for use in planning response to nuclear and radiological emergencies;
- To report periodically to the CRPPH on progress of the programme.

The Information System on Occupational Exposure (ISOE)

Terms and Conditions

Created: April 1992
Revised: December 2003
Next Review: December 2007

Chair: Mr. Carl-Göran Lindvall, Sweden
Chair Elect: Mr. Jean-Yves Gagnon, Canada
Past Chair: Mr. Borut Breznik, Slovenia
Regulator Vice-Chair: Dr. Seong Ho NA, Republic of Korea

At its 9th meeting on 27 - 29 October 1999, the ISOE Steering Group unanimously approved the ISOE Terms and Conditions as given in document NEA/CRPPH/ISOE(2000)4REV1. The adopted ISOE Terms and Conditions were valid for a period of four years, ending 31st December 2003.

In the light of the in-depth evaluation of the ISOE System which was performed in 2003, the ISOE Steering Group reviewed the Terms and Conditions, and found the main text still current and appropriate for the ISOE Programme. The annexes, however, were updated to reflect the current status of participation in ISOE.

At its 13th meeting 12 – 14 November 2003, the ISOE Steering Group **re-approved its Terms and Conditions** for another period of four years, ending **31st December 2007**. The modified Terms and Conditions are given in document NEA/CRPPH/ISOE(2003)15.

Expert Group on the Regulatory Application of Authorisation (EGRA)

Terms of Reference

Created: March 2003

Complete Terms: March 2005

Chair: Dr. Salvatore Frullani, Istituto Superiore di Sanita, Italy

The Terms of Reference of this Group are as follows:

The goal of the Expert Group is to develop a more detailed understanding of the regulatory concept of Authorisation, from a conceptual and practical standpoint, to clarify for radiological protection regulatory authorities and practitioners how such a concept could be applied, and to help to assure a harmony between ICRP recommendations and their practical application.

Within the context of the current CRPPH Programme of Work, the EGRA will study the concept of Authorisation in a practical context, investigating the scope of and approach to Authorisation, in order to assist regulators and practitioners in understanding how this concept could be implemented. The work of the Group will be provided to the international radiological protection community, and to the ICRP, for consideration. It is hoped that this work will help assure that the Commission's recommendations, and their regulatory and practical application, remain in harmony.

The following tasks will be carried out:

1. Using the relevant CRPPH publications, and the draft ICRP text as a starting point, the Expert Group will develop its views on how the concept of Authorisation could be more fully defined, understood and implemented.
2. The Expert Group will present its draft results to the CRPPH at its March 2004 meeting. The CRPPH will discuss this topic, and will instruct the Expert Group how to proceed to finalise its report.
3. The Expert Group will finalise its report, based on input from the CRPPH.

Deliverables

- Final Expert Group Terms of Reference: September 2003
- Report to CRPPH for Discussion: March 2004
- Propose Paper for presentation at IRPA-11 Meeting, May 2004
- Final Expert Group Report to CRPPH: End 2004
- Final Approval by CRPPH for publication: March 2005

Expert Group on the Implications of ICRP Recommendations (EGIR)

Terms of Reference

Re-mandated: March 2003

Complete Terms: March 2005

Chair: Mr. Sigurdur M. MAGNUSSON, Iceland

The Terms of Reference of this Group are as follows:

Within the context of the current CRPPH Programme of Work, the EGRP work will identify the possible implications of the ICRP's new draft recommendations. This Expert Group, which completed its previous mandate to analyse two ICRP framework documents, has been re-mandated by the CRPPH to analyse another new ICRP draft recommendation. The Group will also suggest ways that the final ICRP Recommendations could best serve the needs of national and international policy makers, regulators and implementers. The following tasks will be carried out:

1. The Expert Group will, following the release of the draft ICRP recommendations, analyse its possible implications to national and international level radiological protection policy, regulation, and implementation. The Group will also develop suggestions, if appropriate, as to how the draft recommendation could better address the needs of these affected groups.
2. The Expert Group will present its draft results to the CRPPH at its March 2005 meeting. The CRPPH will discuss this topic, and will instruct the Expert Group how to proceed to finalise its report.
3. The Expert Group will finalise its report, based on input from the CRPPH, and the published report will be submitted to the international community, and to the ICRP for consideration.

Deliverables

- Draft Report to CRPPH for Discussion: March 2005
- Final Expert Group Report: Summer 2005

Expert Group on the CRPPH Collective Opinion (EGCO)

Terms of Reference

Mandated: March 2004

Complete Terms: March 2006

Chair: Mr. Jacques Lochard, CEPN, France

The Terms of Reference of this Group are as follows:

In 1993, the CRPPH held a workshop titled, *Radiation Protection on the Threshold of the 21st Century*. This followed the development and issuing of ICRP Publication 60, and was at the beginning of a period of adaptation, implementation and change. As such, the CRPPH felt that it would be useful to scan the horizon and see what types of issues could arise in the near-term future, and to study their possible implications. The intention of this effort was to help member country governments to be better prepared to guide their national policy and application through this period of flux. As a result of this workshop, the CRPPH published, in 1994, a summary document titled, *Radiation Protection Today and Tomorrow: a collective opinion of the CRPPH*. In addition to the value that this work brought to member countries of the NEA, it also served as a list of issues and areas to be further studied by the CRPPH. The Collective Opinion, in effect, became the blueprint of the Committee's Programme of Work for almost 10 years. Since its publication, the CRPPH has worked to address the topics and areas that were identified, and has published reports and studies in all the major areas that were identified.

Today, in 2004, the NEA is in the process of updating its Strategic Plan, and as part of this effort all the NEA's Standing Technical Committees, including the CRPPH, are reviewing their Mandates for possible updating. In this context it is very appropriate for the CRPPH to once more begin to identify topics and areas that, in the mid- to long-term future, will or could have significant influence on radiological protection policy, regulation and application. Should the Committee agree, the ultimate objective of this work will be to develop a new CRPPH Collective Opinion that will provide the Committee with strategic direction for at least the coming five years. To accomplish this work the CRPPH held a Topical Session to develop preliminary thoughts on this subject, and created the Expert Group on the CRPPH Collective Opinion (EGCO) to carry the work forward. The EGCO is mandated to perform the following tasks:

1. Hold a preliminary "brainstorming" meeting, with a small, diverse stakeholder group, to scope the key areas of importance, and to develop a short document/questionnaire to be sent to a very large and diverse stakeholder audience to broadly survey views on areas and issues of importance for the future.
2. Develop the programme for a policy-level forum to identify and discuss key, known and emerging issues in radiological protection.
3. Using the results of the forum, develop a draft CRPPH Collective Opinion, and present this to the CRPPH for review, modification as necessary, and approval for publication.
4. Perform any modifications to the draft, as required by the CRPPH, and publish the final Collective Opinion document.

Deliverables

- Background paper to CRPPH for discussion: March 2004
- Brainstorming document/questionnaire to identify future issues and priorities, Summer 2004
- Programme for a policy-level forum: Summer 2004
- Hold the policy-level forum, December 2004
- Presentation of the Forum analysis and summary to the CRPPH for discussion, March 2005
- Final CRPPH Collective Opinion to CRPPH: Fall 2005
- Review and Approval of final publication: March 2006

Expert Group on the Implications of Radiological Protection Science (EGIS)

Terms of Reference

Mandated: March 2004
 Complete Terms: March 2006

Chair: Prof. Henri Metivier, Retired IRSN, France

The Terms of Reference of this Group are as follows:

At the same time as national interest in radiological protection science seems to be growing, particularly in areas such as the effects of low-dose and chronic exposures, national scientific infrastructures necessary to address such questions seem to be shrinking. Preliminary discussion of the new CRPPH Collective Opinion identified that developments in these and other radiological protection science studies could potentially have key mid- and long-term influences on radiological protection policy, regulation and application. In order to most effectively utilise national and international resources, the Committee agreed to establish the Expert Group on the Implications of Radiological Protection Science (EGIS) to focus on science at the service of mid- and long-term policy needs. To assure co-ordination of this important subject with the development of the Collective Opinion, the EGIS will be under the direction of the Expert Group on the CRPPH Collective Opinion (EGCO).

The CRPPH agreed that EGIS should survey currently ongoing projects in radiological protection science, and discuss the possible implications that their results could provoke. This should focus on projects expected to yield results in the short-term, the coming 3 to 10 years. Based on this survey, the Group should attempt to identify scientific questions that need to be answered in order to support the making or evolution of policy decisions. This should focus on longer-term projects, more in the 10 to 30 year time-frame.

Based on the 1998 CRPPH publication, “*Developments in Radiation Health Science and their Impact on Radiation Protection*”, and on the results of the Topical Session of the 62nd CRPPH meeting (March 2004) the EGIS will collect relevant materials and develop the first draft of its report. The Group will:

- Survey relevant scientific materials, and assess the possible implications of short-term scientific results likely to emerge from ongoing studies
- In co-ordination with the EGCO, assess possible long-term policy challenges and needs that could be informed through scientific research, and identify whether such research is or could be planned
- Present the preliminary results of the Group’s study to the EGCO Policy Forum on Emerging RP Challenges
- Using the results of the forum, and in co-ordination with the EGCO, develop a draft final report and present this to the CRPPH for review, modification as necessary, and approval for publication.
- Perform any modifications to the draft, as required by the CRPPH, and publish the final document.

Deliverables

- Present results of the 1st EGIS meeting to the first EGCO meeting: September 2004
- Present preliminary study results at the EGCO Policy Forum on Emerging RP Challenges: December 2004
- Discuss the draft report with the EGCO at its 2nd meeting: January 2005
- Draft Report to the CRPPH for Discussion and approval: March 2005
- Finalise Draft Report: during Summer and Fall 2005
- Final Draft Report to the CRPPH for review and approval: March 2006

The Expert Group on the Evolution of the System of Radiation Protection (EGRP)

Terms of Reference

Created: April 2000
Next Review: Mandate Completed, Group Disbanded March 2003

Chair: Dr. Joe McHugh, United Kingdom

The Terms of Reference of this Group are as follows:

1. The Expert Group should identify the areas of the current system of radiation protection that are, in the Group's opinion, most in need of further elaboration. The starting point for this work should be the CRPPH report, "A Critical Review of the System of Radiation Protection: First Reflections by the OECD Nuclear Energy Agency's Committee on Radiation Protection and Public Health". A prioritised list of areas should be developed.
2. The Expert Group should develop more detailed discussions of the top five priority issues, and prepare a report for the CRPPH with suggestions as to what changes should be made, or which direction discussions should be pursued.
3. The Expert Group should engage with Professor Clarke and others to participate at meetings and fora, on behalf of the CRPPH, that discuss and further activities to address and advance this dialogue.
4. The Expert Group should use a case-study approach to "road test" its proposed changes, to assure that the changes move the system of radiation protection towards a more understandable, easy to apply, and acceptable system.
5. The Expert Group should report on its progress during the March 2001 meeting of the CRPPH, and should submit a summary report of its recommendations to the CRPPH for review and approval at the latest during the 2002 meeting of the CRPPH. The report should include recommendations as to where further work could be usefully pursued by the CRPPH.

The resulting CRPPH issues paper should be submitted to the international community, and particularly to the ICRP, as a contribution to the debate to advance the future evolution of the system of radiation protection.

The Expert Group on the Process of Stakeholder Involvement (EGPSI)

Terms of Reference

Created: March 2001
 Next Review: Mandate Completed, Group Disbanded March 2003
 Chair: Mr. Jacques Lochard, France

The Terms of Reference of this Group are as follows:

1. The Expert Group will develop a document summarising the policy-relevant aspects of the process of stakeholder involvement. This document should be presented during the 3rd Villigen Workshop and, based on discussions there, be finalised for review and approval by the CRPPH no later than the 2004 CRPPH meeting.
2. In support of this first task, the Expert Group will analyse, with the help of consultants, good practice in stakeholder involvement in radiological protection decision making and resulting policy implications based on recent national experiences, such as those presented during Villigen 1 and Villigen 2 workshops. A report of this work should be completed by early 2003 and presented at the 3rd Villigen Workshop.
3. The Expert Group will be responsible for the development of the programme for the 3rd Villigen Workshop based on an enlarged meeting of the EGPSI that will include relevant stakeholders. This programme will be submitted to the CRPPH for review and approval during the Committee's March 2002 meeting. The 3rd Villigen Workshop should take place in the late Spring or early Summer of 2003.

The Expert Group will be responsible for the preparation of Workshop proceedings that will be published, after approval by the CRPPH, within approximately 6 months following the workshop.

4. The results of this CRPPH Expert Group should be presented to the international community, including timely submittal of a paper for the IRPA-11 Congress, and particularly to the ICRP so that the policy-relevant aspects of stakeholder involvement will be considered as the Commission develops new recommendations.
5. The Expert Group should report on its progress during the 2002 and 2003 meetings of the CRPPH, and should plan to complete its mandate no later than the 2004 meeting of the CRPPH.

Expert Group on the Implications of Effluent Release Options (EGRO)

Terms of Reference

Created: March 2001
Next Review: Mandate Completed, Group Disbanded March 2003

Chair: Mr. Olli Vilkamo, Finland

The Terms of Reference of this Group are as follows:

1. Identify various options for the routine release of low-level radioactive substances from nuclear installations, including the option of “close to zero” gaseous and liquid releases.
2. Discuss the technical implications of the options identified.
3. Compare the concepts of “Best Available Technology (BAT)” and “As Low As Reasonable Achievable (ALARA)” as underlying principles for the optimisation process regarding radioactive effluent releases. Investigate whether these approaches lead to the same result.
4. Based on this work, develop a draft document with factual information on various effluent release options, in co-operation with other NEA committees such as the CNRA, NDC and RWMC. The document may be used to assist future discussions, nationally and internationally. Submit the draft document to CRPPH members for review and comment, with the aim of publication by the end of 2002.

Expert Group on Stakeholder Involvement in the Management of an Urban Radiological Contamination (EGUC)

Terms of Reference

Created: March 2003
 Complete Terms: No work performed, Group Disbanded
 Chair: Mr. Jacques Lochard, France

NOTE: Because of other work being performed by other organisations, and identified by the CRPPH Bureau in September 2003, the work of this Group was judged to be redundant, and the Group was never constituted.

The Terms of Reference of this Group are as follows:

The Goal of this Expert Group will be to explore real world, technical, organisational, policy and other aspects of stakeholder participation, including the possibility of developing hands-on work in an actual contaminated urban environment to provide an opportunity for CRPPH member countries to gain actual experience engaging with impacted stakeholders.

Within the context of the current CRPPH Programme of Work, the EGUE will study the practical aspects of the long-term management of contamination in an urban environment. Feedback from this experience to the policy and structural aspects of long-term management issues will also be developed. The work of the Group will be provided to the international radiological protection community for consideration.

Using the relevant CRPPH publications as a starting point, the Expert Group will develop its views on how the key aspects of stakeholder participation in the management of long-term contamination in an urban environment could be considered. The work will include a literature search of relevant experience, including the experience at Goiāna, in the Chernobyl contaminated territories and in European cities affected by the Chernobyl accident, and in current levels of knowledge in the Civil Protection area. This work will be provided to the CRPPH membership for their use and reference. The Group will also communicate and catalogue the activities in this area (e.g., IAEA, UNSCEAR, etc...) to identify a unique contribution the CRPPH can make to advance our knowledge in this area. Based on this study, the Expert Group will attempt to identify areas where the CRPPH could meaningfully contribute to this area, and will propose this to the CRPPH at its March 2004 meeting.

In addition, the Working Party on Nuclear Emergency Matters will develop a short report on those aspects of early response to a dirty bomb explosion in an urban environment would differ from those of response to a more conventional nuclear accident. This report will be presented to the CRPPH at its 2004 meeting.

Deliverables

- Final Expert Group Terms of Reference
- Literature Search Summary Report
- Catalogue of Activities
- Proposal for possible further work to the CRPPH for consideration at its March 2004 meeting.

*Annex 4***Bibliography of Recent CRPPH Publications**

1. *Stakeholder Participation in Decision Making Involving Radiation: Exploring Processes and Implications, 21 - 23 October 2003, Villigen, Switzerland, Workshop Proceedings, OECD/NEA 2004*
2. *Summary of the findings of the Third Villigen Workshop - Stakeholder Participation in Decision Making Involving Radiation: Exploring Processes and Implications, OECD/NEA 2004*
3. *Case Studies in stakeholder participation for the third Villigen Workshop - Stakeholder Participation in Decision Making Involving Radiation: Exploring Processes and Implications, OECD/NEA 2004*
4. *Future Policy for Radiological Protection: Workshop Proceedings, Lanzarote, Spain 2 – 4 April 2003, OECD/NEA 2003*
5. *Future Policy for Radiological Protection: Summary Report of the Lanzarote Workshop, OECD/NEA 2003*
6. *ISOE Leaflet, OECD/NEA 2003*
7. *Short-term Countermeasures in Case of a Nuclear or Radiological Emergency, OECD/NEA 2003*
8. *Occupational Exposure Management at Nuclear Power Plants: Third ISOE European Workshop, Portoroz, Slovenia, 17 – 19 April 2002, OECD/NEA 2003*
9. *Possible Implications of Draft ICRP Recommendations, OECD/NEA, 2003*
10. *Effluent Release Options from Nuclear Installations: Technical Background and Regulatory Aspects, OECD/NEA, 2003*
11. *Proceedings of the Asian Regional Conference on the Evolution of the System of Radiological Protection, Tokyo, 24 – 25 October 2002, OECD/NEA 2003*
12. *A New Approach to Authorisation in the Field of Radiological Protection: The Road Test Report, prepared by R.V. Osborne and F.J. Turvey, OECD/NEA, 2003*
13. *Radiological Protection of the Environment: Summary Report of the Issues, OECD/NEA, 2003*
14. *Radiological Protection of the Environment: The Path Forward to a New Policy? – Workshop Proceedings Taormina, Sicily, Italy, 12 – 14 February 2002, OECD/NEA, 2003*
15. *Chernobyl: Assessment of Radiological and Health Consequences, 2002 Update of Chernobyl: Ten Years On, OECD/NEA, 2002*
16. *The Way Forward in Radiological Protection, An Expert Group Report, OECD/NEA, 2002*
17. *ISOE - Information System on Occupational Exposure: Ten Years of Experience, OECD/NEA, 2002*

18. Occupational Exposures at Nuclear Power Plants – Eleventh Annual Report of the Programme ISOE OECD/NEA, 2002
19. Policy Issues in Radiological Protection Decision Making: Summary of the 2nd Villigen (Switzerland) Workshop, January 2001, OECD/NEA 2001
20. Better Integration of Radiation Protection in Modern Society: Workshop Proceedings, Villigen Switzerland, 23 - 25 January 2001, OECD/NEA, 2001
21. CRPPH Sponsored Survey of University-Level Education Programmes in Radiation Protection, NEA/CRPPH(2001)8, OECD/NEA, 2001
22. Experience from International Nuclear Emergency Exercises: The INEX 2 Series, OECD/NEA, 2001
23. Second International Nuclear Emergency Exercise INEX 2: Final Report of the Canadian Regional Exercise, OECD/NEA 2001
24. Occupational Exposures at Nuclear Power Plants - ISOE Tenth Annual Report, 2000, OECD/NEA, 2001
25. Second International Nuclear Emergency Exercise INEX 2: Final Report of the Finnish Regional Exercise, OECD/NEA 2000
26. Second International Nuclear Emergency Exercise INEX 2: Final Report of the Hungarian Regional Exercise, OECD/NEA 2000
27. A Critical Review of the System of Radiation Protection: First Reflections of the OECD Nuclear Energy Agency's Committee on Radiation Protection and Public Health, OECD/NEA, 2000
28. A Comparison of the Carcinogenic Risk Assessment and Management of Asbestos, Nickel and Ionising Radiation, NEA/CRPPH(2000)11, OECD/NEA, 2000
29. Monitoring and Data Management Strategies for Nuclear Emergencies, OECD/NEA, 2000
30. Methodologies for Assessing the Economic Consequences of Nuclear Reactor Accidents, OECD/NEA, 2000
31. Radiological Impacts of Spent Nuclear Fuel Management Options: A Comparative Study, OECD/NEA, 2000
32. Occupational Exposures at Nuclear Power Plants - ISOE Ninth Annual Report, 1999, OECD/NEA, 2000
33. Occupational Exposures at Nuclear Power Plants - ISOE Eighth Annual Report, 1998, OECD/NEA, 1999
34. Occupational Exposures at Nuclear Power Plants - ISOE Seventh Annual Report, 1997, OECD/NEA, 1999

35. Developments in Radiation Health Science and their Impact on Radiation Protection, OECD/NEA, 1998
36. The Societal Aspects of Decision Making in Complex Radiological Situations, Proceedings of an International Workshop, Villigen, Switzerland, 13 - 15 January 1998, OECD/NEA, 1998
37. ISOE Sixth Annual Report, Occupational Exposures at Nuclear Power Plants - 1986 - 1996, OECD/NEA, 1998
38. Second International Nuclear Emergency Exercise, INEX 2: Final Report of the Swiss Regional INEX 2 Exercise, OECD/NEA, 1998
39. Nuclear Emergency Data Management, Proceedings of an International Workshop, Zurich, Switzerland, 13 - 14 September 1995, OECD/NEA, 1998.
40. ISOE Fifth Annual Report, Occupational Exposures at Nuclear Power Plants - 1969 - 1995, OECD/NEA, 1997.
41. Work Management in the Nuclear Power Industry, A Manual prepared for the NEA Committee on Radiation Protection and Public Health by the ISOE Expert Group on the Impact of Work Management on Occupational Exposure, OECD/NEA, 1997.
42. Agricultural Aspects of Nuclear and/or Radiological Emergency Situations, Proceedings of an OECD/NEA Workshop, Fontenay-aux-Roses, France, 12 - 14 June 1995, OECD/NEA, 1997.
43. ISOE Fourth Annual Report, Occupational Exposures at Nuclear Power Plants - 1969 - 1994, OECD/NEA, 1996.
44. Chernobyl Ten Years On - Radiological and Health Impact, An appraisal by the NEA Committee on Radiation Protection and Public health, November 1995, OECD/NEA, 1996.
45. ISOE Third Annual Report, Occupational Exposures at Nuclear Power Plants - 1969 - 1993, OECD/NEA, 1995.
46. INEX 1 - An International Nuclear Emergency Exercise, OECD/NEA, 1995.
47. The Implementation of Short-term Countermeasures After a Nuclear Accident (Stable Iodine, Sheltering and Evacuation), Proceedings of a NEA Workshop, Stockholm, Sweden, 1 - 3 June 1994, OECD/NEA, 1995.
48. Probabilistic Accident Consequences Assessment Code - Second International Comparison - Overview Report, A Joint Report by the OECD Nuclear Energy Agency and the Commission of the European Communities, OECD/NEA, 1994.
49. ISOE Second Annual Report, Nuclear Power Plant Occupational Exposures in OECD Countries - 1969 - 1992, OECD/NEA, 1994.
50. Radiation Protection Today and Tomorrow, A Collective Opinion of the Committee on Radiation Protection and Public Health of the OECD Nuclear Energy Agency, OECD/NEA, 1994.

51. ISOE First Annual Report, Nuclear Power Plant Occupational Exposures in OECD Countries - 1969 - 1991, OECD/NEA, 1993.
52. Work Management to Reduce Occupational Doses, Proceedings of a NEA Workshop, Paris, 4 - 6 February 1992, OECD/NEA, 1993.
53. Radiation Protection on the Threshold of the 21st Century, Proceedings of a NEA Workshop, Paris, 11 - 13 January 1993, OECD/NEA, 1993.
54. Off-Site Nuclear Exercises, Proceedings of an NEA Workshop, The Hague, Netherlands, 12 -15 November 1991, OECD/NEA, 1993.
55. Protection of the Population in the Event of a Nuclear Accident, OECD/NEA, 1990.