Table of Contents

R1 - Opening of the Meeting ......................................................................................... 3
R2 - Chairman’s Remarks ............................................................................................. 3
R3 - Adoption of the Agenda .......................................................................................... 3
R4 - Administrative Arrangements ................................................................................ 3
R5 - Chairman’s Report of RASSC 35 ........................................................................ 3
R6 - Actions arising from RASSC 35 .......................................................................... 3
R7 - General Safety Standards Issues .......................................................................... 4
R8 - Reports relating to the Fukushima Daiichi Accident ............................................ 6
R9 - Topical Session: The Russian Health Studies ....................................................... 9
R10 - Topical Session: Control of Foodstuffs and Drinking Water Contaminated as a Result of a Nuclear or Radiological Emergency ......................................................... 11
R11 - Request from the Commission on Safety Standards ........................................ 14
R12 - Safety Standards for Approval .......................................................................... 14
R13 - Safety Standards for Review ............................................................................. 15
R14 - Vienna Conventions on Nuclear Liability .......................................................... 16
R15 - Reports from International Organizations .......................................................... 17
R16 - Any Other Business ......................................................................................... 17
R17 - Closing of the Meeting ..................................................................................... 17
MINUTES OF THE JOINT RASSC/NSGC SESSION ............................................. 19
ANNEX I List of Actions ............................................................................................... 20
ANNEX II Agenda ....................................................................................................... 21
Annex III List of Participants ....................................................................................... 25
R1 - Opening of the Meeting

The meeting was opened by Mr. M. Pinak (SH-RSM), who welcomed all participants to the first meeting of the seventh term of RASSC and reminded the Committee of the high importance placed on its advice in relation to the development and implementation of safety standards. Mr Pinak highlighted the long term ambition of the Agency to develop internationally-accepted standards that address both safety and security issues, and the interface between them, in the same document and welcomed the joint session that would be held between RASSC and the Nuclear Security Guidance Committee.

Mr Pinak reminded members that RASSC is the lead Committee in relation to emergency preparedness and response and underlined the added importance of this responsibility following the Fukushima Daiichi accident. Another issue highlighted as a result of the Fukushima Daiichi accident is the control of foodstuffs and drinking water in the recovery phase after the emergency has ended. Prior to finalizing a TECDOC on this issue, the Agency is hosting a technical meeting of representatives of Member States during the week 8 to 12 September 2014. Mr Pinak also referred to the priority issues for the seventh term that had been identified by the outgoing Committee and indicated that this list should be reviewed and updated at regular intervals. Finally, the upcoming International Conference on Occupational Radiation Protection to be held in Vienna from 1 to 5 December was noted.

R2 - Chairman’s Remarks

Mr G. Massera thanked Mr Pinak for his introductory comments. He expressed a particular welcome to new members and urged them to play an active role in the work of the Committee. Apologies were received from Austria, Burkina Faso, Canada, Egypt, Greece, Indonesia, Ireland, Kenya, Libya, Malaysia, Netherlands and the Pan American Health Organization.

R3 - Adoption of the Agenda

The agenda was adopted without any change.

R4 - Administrative Arrangements

Mr T. Colgan drew attention to the location of the emergency exits, introduced the administrative support staff for the meeting and summarized the administrative arrangements.

R5 - Chairman’s Report of RASSC 35

No written comments were received on the draft Chairman’s report of the previous RASSC meeting. The Chairman’s Report was approved. The Chairman’s report of the RASSC 34 meeting was also approved.

R6 - Actions arising from RASSC 35

Mr Colgan reported that all action items arising from the RASSC 35 meeting had been addressed. The RASSC Three Year Report for the Sixth Term (2011-2013) was finalized and posted on the website. The draft safety guide “Occupational Radiation Protection” (DS453) had been amended in line with
comments received and discussions at the last meeting and the document was issued to Member States for comment. Similarly, the draft safety guides “Radiation Protection and Safety in Well Logging” (DS419) and “Radiation Safety for Nuclear Gauges” (DS420) had been issued to Member States for comment following resolution of the text addressing the interface between safety and security. The four DPPs and the safety guide “Radiation Safety for Consumer Products” (DS458) approved at the last meeting were endorsed by the Commission on Safety Standards. Four nuclear security documents that were cleared were proceeding for development or publication, as agreed. Action items for further discussion at this meeting were the proposals for the development of new guidance material submitted by the Russian Federation, the control of foodstuffs and drinking water in the recovery phase after a nuclear or radiological emergency and exclusion of small quantities of nuclear material from the application of the Vienna Conventions. Mr Colgan also reported that, as requested by the Committee, the dates of the next RASSC meeting had been changed to the week of 24 to 28 November 2014.

R7 - General Safety Standards Issues

R7.1 Strategies and Processes for the Establishment of IAEA Safety Standards (SPESS)

Mr D. Delattre summarized the role of the IAEA safety standards as part of the Global Nuclear Safety and Security Regime. He noted that the mandate for the development of safety standards comes directly from the IAEA Statutes and he reviewed the history of the development of safety standards since the establishment of the IAEA in 1957. Currently there are approximately 120 safety standards published, from a maximum envisaged number of around 130. At any one time there are 30 to 40 safety standards under development, representing both new safety standards and existing safety standards under revision.

The SPESS lays down the procedures in the form of a step-by-step guide to be followed by Agency staff in developing safety standards. SPESS covers aspects such as the development of the Document Preparation Profile (DPP), preparation of the draft text using external consultants, review by the Committees and by Member States, and endorsement by the Commission on Safety Standards and the Board of Governors. Mr Delattre highlighted the points at which feedback and decisions are requested from the four Safety Standards Committees and the Nuclear Security Guidance Committee and underlined the importance of the lead Committee for each safety standard being aware of the comments from the other Committees.

In response to a question from the floor, it was noted that both the DPP and the name of the Technical Officer can be found on the Committees’ website.


Mr T. Colgan summarized the role and responsibilities of RASSC in relation to the development and implementation of safety standards. A recent addition to the tasks of all four Safety Standards Committees is the clearance of nuclear security documents and consideration of the interface between safety and security. The safety requirements underpinning the work of RASSC are the International Basic Safety Standards (GSR Part 3) and “Preparedness and Response for a Nuclear or Radiological Emergency” currently under revision as DS457. Important safety guides to be finalized during the seventh term are “Occupational Radiation Protection” (DS453); “Radiation Safety in Medical Uses of Ionizing Radiation” (DS399); and “Radiation Protection of the Public and the Environment” (DS432).

The 11 key issues identified by the outgoing Committee to be addressed during the seventh term are

- Increase MS participation in the work of RASSC;
- Review and revision of safety standards in the light of the Fukushima accident;
• Implementation of the International Basic Safety Standards;
• Development of a roadmap to better integrate safety and security;
• Control of non-food commodities contaminated as a result of a nuclear or radiological emergency;
• Transition from an emergency exposure situation;
• Application of the principle of optimization to remediation;
• Management of finished products manufactured from contaminated scrap metal;
• Radiation protection in medicine;
• Emerging scientific data and possible implications on the system of radiation protection; and
• Protection of the environment.

Mr Colgan noted that several of these issues were already being addressed through the development of safety guides and would come before the Committee in due course, while discussion on others would be initiated through the use of “Topical Sessions” where international experts are invited to provide an overview of the topic in question for further discussion by the Committee. In line with the comments made by Mr Pinak under item R1, this listing will be regularly reviewed and updated by the Committee.

**R7.3 Use of the RASSC website**

Mr A. Funnell demonstrated the functionality of the RASSC website, including the procedures for obtaining password access, accessing documents and preparing, uploading and deleting comments.

**R7.4 Response to the Russian Federation Proposal on the Development of Safety Standards**

Mr T. Colgan reviewed the proposals received from the Russian Federation on the development of additional guidance material which had been introduced at the joint RASSC/WASSC session in November 2013. At that time the Secretariat undertook to consider the request from the Russian Federation and to provide a formal response. In addition, a submission had been received from the United States and this, together with the initial submission from the Russian Federation and the response from the Secretariat had been posted on the RASSC website one week previously.

The main points in the response from the Secretariat are:

• Technical guidance, including operational intervention levels, already exists with regard to the management (including decontamination) of contaminated people and other items in the aftermath of an emergency;

• Extensive guidance exists in relation to radioactive waste management. These apply to radioactive waste irrespective of the fact how the radioactive waste was generated. Waste generated during decontamination activities that fulfils the criteria for clearance is to be managed through conventional waste streams, according to national regulations. Transboundary issues involving radioactive waste or contaminated materials are most appropriately dealt with in the framework of existing conventions, treaties and bilateral agreements;

• Management of clean-up following an accident at a non-radiation facility is addressed in the safety guides *Control of Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries* (SSG-17) and *Remediation Process for Areas Affected by Past Activities and Accidents* (GS-G-3.1). While the radionuclides involved may be different, the philosophy and approach is the same;

• The regulation of such justified practices for non-medical imaging will be addressed in the safety guide *Radiation Safety of X-ray Generators and Radiation Sources Used for Inspection Purposes*
and for Non-Medical Imaging (DS471). The DPP for this safety guide was approved by the Safety Standards Committees in 2013;

- Requirement 5.22 of the BSS requires Member States to “establish specific reference levels for exposure due to radionuclides in commodities…….which shall typically be expressed as, or based on, an annual effective dose to the representative person generally that does not exceed a value of about 1 mSv”. However, no supporting guidance material has been developed in relation to the control of contaminated non-food commodities in existing exposure situations.

RASSC agreed that a discussion document should be prepared, reviewing existing IAEA documents in order to identify the extent to which these may be applicable and, consequently, the additional specific topics on which further guidance is required in relation to the control of contaminated non-food commodities in existing exposure situations. This document should be discussed at a future RASSC meeting before any additional work is undertaken.

**Action:** The Secretariat to develop a discussion document reviewing existing IAEA documents in order to identify the extent to which these may be applicable and, consequently, the additional specific topics on which further guidance is required in relation to the control of contaminated non-food commodities in existing exposure situations.

**R8 - Reports relating to the Fukushima Daiichi Accident**

**R8.1 The UNSCEAR Report “Levels and Effects of Radiation Exposure due to the Nuclear Accident after the 2011 Great East-Japan Earthquake and Tsunami”**

Mr M. Crick presented the report of UNSCEAR on the radiological impact of the Fukushima Daiichi accident that was published in April 2014. The evaluation of effects and risks was completed by over 80 cost-free international experts in cooperation with five International Organizations.

The atmospheric releases were of the order of 10-20% of those from Chernobyl and the releases to the marine environment were 10% and 50% of those to the atmosphere for 131I and 137Cs respectively. The release pattern from both accidents was very different and discharges to the marine environment were still continuing. The UNSCEAR review focused on the two radionuclides of most significance, namely 131I and 137Cs, and considered in detail the three principal exposure pathways of external exposure, ingestion and inhalation. Few direct measurements of internal exposures were available for the general public and the assessment undertaken relied on environmental measurements and various models to estimate doses. All input data were subject to quality criteria.

Based on 18 evacuation scenarios, the settlement-average effective doses for evacuees were less than 10 mSv for adults and up to 20 mSv for infants. For absorbed doses to the thyroid, the corresponding values for adults and infants were 35 mGy and 80 mGy respectively. These values were calculated for settlements and a wider range extending to higher values would be expected for individuals. External exposure was the dominant exposure pathway and, mainly as a result of food restrictions imposed by the Japanese authorities in the immediate aftermath of the accident, doses from food consumption were considerably less than after the Chernobyl accident.

An evaluation of reported doses was also carried out for approximately 25,000 workers involved in mitigation and other activities. The average effective dose was about 10 mSv, but a “high dose population” of about 170 workers received doses above 100 mSv, with a highest reported value of 679 mSv. Regarding the absorbed dose to thyroid, 13 workers received doses between 2 and 12 Gy, mostly from 131I, although there was considerable uncertainty in these estimates.

In terms of health effects, no radiation-related deaths or acute disease had been observed and a discernible increase in cancer rates among the general population was not expected. Models imply a small increased cancer risk, but increases in incidence were generally expected not to be discernible
against background rates and natural variability. An increased risk of cancer for the 170+ workers with doses over 100 mSv was inferred, though any change in cancer incidence due to the exposure was also not expected to be discernible. The UNSCEAR evaluation also noted a significant impact on mental and social well-being with depression and post-traumatic stress symptoms identified in the affected population.

In terms of impact on the environment, exposures were in general too low for observable acute effects. Effects in the marine environment were confined to radioactivity release points and while biomarker changes for terrestrial species could not be ruled out, the possible significance for populations was unclear.

During discussions, it was noted that protective actions and remediation had a very significant effect in reducing radiation doses. One contributory factor is the high iodine content of the Japanese diet, which was expected to have reduced radioactive iodine accumulation in the thyroid. RASSC also noted the importance of correct terminology when explaining to the public the differences between an inferred increased individual risk based on the LNT and the ability to observe this in an exposed population against a background natural incidence of the same effect.

R8.2 International Experts Meeting “Radiation Protection following the Fukushima Daiichi Accident: Promoting Confidence and Understanding” (IEM6)

Mr T. Colgan summarized the outcome of IEM6, which was attended by 220 participants from 68 Member States and 10 International Organizations. The meeting was chaired by Mr Sigurdur Magnusson, Director of the Icelandic Radiation Safety Authority. The IEM prioritized the participation of young professionals, many of whom were used as chairs, co-chairs or rapporteurs for the technical sessions. The IEM was organized into 15 technical sessions, comprising 14 keynote addresses, 36 presentations, posters and discussion periods. Each of the sessions was summarized and an IEM Chairperson’s Summary was produced at the end of the meeting.

One recurring theme throughout the IEM was the importance of communication in terms of explaining radiation protection concepts to the public, highlighting uncertainties in environmental measurements and risk estimates, involving affected communities in remediation decisions and learning from past accidents. The IEM also noted the effective cooperation between International Organizations in responding to the Fukushima Daiichi accident and urged that this be extended to other areas of mutual interest in the future.

The main conclusions from IEM6 are

- Early real-time sampling and personnel monitoring is important to improve the source term estimation and reduce the uncertainty in estimated values;
- Because of the uncertainty in the currently available dose estimates, it is important that work continues both to better establish the range of individual doses received and also to determine if there are any identifiable health consequences in terms of late effects, including non-cancer effects, in the exposed populations;
- The relevant international organizations need to prioritize work to develop a harmonized approach to the control of foodstuffs and drinking water contaminated as a result of a nuclear or radiological accident. This needs to be simple to implement and take fully into account the issues that apply in the Accident State, other affected States and non-affected States. Similarly, guidance needs to be developed on the international trade in, and the control of, contaminated non-food commodities;
- The ultimate success of remediation programmes depends on the combined efforts of actions by the local authorities, affected communities, and individual citizens;
- The development of social media brings challenges in terms of the increase in the sources and the amount of information, even contradictory information, that is available and the difficulty in
identifying credible sources. This is a challenge for national authorities, but can also be used to their benefit as social media provides a much more efficient outlet for dissemination;

- The need for better communication falls on the radiation protection community as a whole. We need to dedicate resources to ensure we adequately inform decision-makers and the general public about radiation, radiation risks and the underlying philosophy and ethics of the System of Radiation Protection. If people don't understand our advice, it is unreasonable to expect them to implement it;
- While the System of Radiation Protection is, generally, fit for purpose, it should be modified and improved in line with the lessons from the Fukushima Daiichi accident;
- All States should develop and implement a national strategy in relation to building and maintaining competence in radiation protection; and
- Many of the lessons learnt from previous accidents have not been fully implemented and similar issues and concerns have been raised following the Fukushima Daiichi accident. One of the lessons learnt is that lessons must be addressed and not ignored.

A summary of the meeting is presently being prepared and will be published in due course.

R8.3 Summary of the NEA Workshop on Radiation and Thyroid Cancer

Mr E. Lazo reviewed the discussions and conclusions of the NEA Workshop on Radiation and Thyroid Cancer that was held in Japan in February 2014. The impetus for the workshop was a reported increase in thyroid cancer in children in the aftermath of the Fukushima Daiichi accident and the need to consider if these were radiation-induced. About 170 attendees from 11 countries participated in the workshop. A spectrum of stakeholders, including local Fukushima prefecture residents and local leaders, about 30 journalists, physicians, as well as radiological protection professionals, took part.

As of 31 December 2013, 270,000 children had undergone thyroid ultrasound examinations, 1,490 secondary examinations were carried out and 33 cases of thyroid cancer have been diagnosed. The meeting considered the distribution of doses within, and age distribution of, the exposed population, as well as the latency period for thyroid cancer.

Based on the initial WHO evaluation, equivalent doses to the thyroid were of the order of 10-100 mSv for adults and children and 100-200 mSv for infants. An independent evaluation by the National Institute for Radiological Science (NIRS) estimated that 99% of thyroid doses were below 30 mSv. Another study by Hirosaki University estimated even lower thyroid doses. The thyroid doses reported by all three studies are well below those received by the exposed population in the immediate aftermath of the Chernobyl accident. Using data from the Life Span Study of atomic bomb survivors, the excess thyroid cancer following the Fukushima Daiichi accident (assuming a 20 mGy dose), was estimated to be 0.006 in 10 years and 0.13 in 50 years. Any small increase in incidence is expected to be so small as to not be discernable from background rates and natural variability.

The workshop also concluded that ultrasound screening identifies more thyroid cancers than national incidence statistics; many “lumps”, even if carcinogenic, will not express themselves as cancers in future years. Parallel ultrasonography studies have been carried out in Aomori, Yamanashi and Nagasaki by the Japan Association of Breast and Thyroid Sonology using the same methodology as the Fukushima Thyroid Ultrasound Examination (TUE). These studies have shown a similar incidence as in the TUE study. Current scientific knowledge indicates that radiation induced thyroid cancer begins to appear only after a latent period of four to five years whereas at the time of the workshop it was still a little less than three years after the Fukushima Daiichi accident. The meeting concluded that the reported increase in thyroid cancers is unlikely to be due to radiation exposure following the Fukushima Daiichi accident.
Mr B. Fountos introduced the Russian Health Studies Program that was established to assess worker and public health risks from radiation exposure resulting from nuclear weapons production activities in the former Soviet Union. Specifically, the programme has sought to better understand the relationship between health effects and chronic, low-to-medium dose rate radiation exposures, to estimate cancer risks from exposure to gamma, neutron, and alpha radiation and to provide information to the national and international organizations that determine radiation protection standards and practices. There was a particular interest in determining whether there were quantifiable risks at annual exposures of up to 50 mSv, the occupational dose limit that applies in the United States.

The work programme is overseen by the Joint Coordinating Committee for Radiation Effects Research (JCCRER), a bilateral Government committee representing agencies from the United States and the Russian Federation. A critical and vital element of the programme is the External Scientific Review Group (SRG) consisting of eminent US and Russian radiation effects research scientists with expertise in radiation epidemiology and dosimetry, historical dose reconstruction, radiation measurements and shielding, health physics, medicine, public health, and biostatistics. The SRG meets every six months to review technical progress reports and proposals and previously developed three 5-year plans containing a detailed research agenda.

The populations who worked at the Mayak nuclear facility and who lived along the Techa River consisted of both males and females who received a wide range of doses over a period of up to 50 years. These cohorts were subject to both external and internal exposures from a range of different nuclides and had well-maintained health and radiation exposure records. Given the stability of the population, the long period over which exposure took place and the quality of the available information, these formed an ideal study group. The Mayak worker cohort is a unique resource for evaluating the risk of cancer from exposure to plutonium and from extended external exposure while the Techa River cohort is a unique resource for evaluating long-term environmental exposures. Many of the individuals received multiple medical investigations and the associated doses were also taken into consideration in the evaluations carried out.

Mr Fountos described the ongoing projects addressing research priorities in epidemiology, dosimetry and environmental effects. Work is also continuing to evaluate thyroid cancer in the so-called Ozersk Children Cohort where some individual doses are up to 10 Gy. Preliminary work focused on assessing individual doses based on residence, and consumption rates of both milk and leafy vegetables as the primary source of $^{131}$I. In addition, thyroid cancer cases were confirmed by histopathological examination.

Assessment of cancer mortality in the Mayak workers is also ongoing. In the early period up to about 1970, external doses approached 1 Sv per year in some cases, but since then no worker received more than 50 mSv per year. A subset of the cohort has extensive Pu exposure of many Sv per year. The goal is to compute quantitative cancer risk estimates for site-specific cancers such as those of the bone, lung and liver. Confounding factors, such as smoking for lung cancer and alcohol consumption for liver cancer, are being taken fully into account in the analysis.

One of the most important observations to date is that there is no significant difference between the Techa River cohort and the Japanese Atomic Bomb Survivor cohort in relation to excess relative risk (ERR) per gray for solid cancer morbidity or mortality. This suggests that the risks for solid cancer are similar for either acute or chronic exposure to gamma radiation. This implies that doses delivered at low dose rates appear to be as effective in producing cancer as doses delivered at high dose rates.
Consequently, the dose and dose-rate effectiveness factor is about 1, and this was not widely anticipated when the work commenced.

*R9.2 Russian Health Studies: Mayak Worker Cohort*

Mr S. Romanov provided more detailed information on the Mayak worker cohort. The highest doses were received in the years 1949 to 1958 when individuals received 5 to 10 Sv each. These high doses were as a result of poor design of the radiochemical plant, insufficient storage time to allow dose rates to reduce, poor protective equipment, poor staff training and the prevalence of manual work. The alpha aerosol air concentrations were up to five thousand times higher than current standards and 5% of workers received more than 1 Gy lung dose as a result of plutonium inhalation.

Many of the workers suffered deterministic effects in the form of acute radiation syndrome (59), chronic radiation disease (2,161), plutonium pneumosclerosis (123) and radiation cataracts (5). In terms of long term health effects, 884 cases of lung cancer were diagnosed (of which 729 were smokers). Of the 8,665 workers at all plants, about 20% are still alive.

The relative risks for solid cancers and for leukaemia are significant, but in later years (for those exposed from 1959 onwards), the relative risk is less than the national average. Studies of non-cancer effects show that the excess relative risk (ERR) is significant for both external and internal exposures, but the large number of confounding factors makes it difficult to assess the implications for radiation protection standards. Mr Romanov also indicated that the annual limit of intake for plutonium is currently too high in terms of the associated lifetime risk. He also referred to the problem of intake of plutonium through contaminated skin and the need for better management approaches to reducing such exposures.

*R9.3 Cancer Risk Assessment for the Population Exposed to Radiation on the Techa River*

Ms L. Krestinina provided an overview of the cancer risk assessment for the population exposed to radiation on the Techa river. The source of exposure was releases from the Mayak plutonium production plant into the Techa River between 1949 and 1956. The local population was exposed to external gamma radiation from shoreline and flood plain contamination and internal exposures from water, milk, and food contaminated with $^{89}$Sr, $^{90}$Sr, $^{137}$Cs and other radionuclides. The predominant source of exposure was radioactive strontium. The exposed population resided in 41 riverside villages in the Chelyabinsk and Kurgan oblasts and involved men and women of all ages.

The cohort includes over 17,000 individuals, of which approximately 58% are women of various ethnic characteristics. Complex retrospective dose assessment has been carried out, including detailed characterization of the nature and timing of the releases, direct measurements of radionuclide burdens in many cohort members, external dose rate measurements in affected villages and the development of river transport and intake models. Some members of the cohort were also exposed as a result of the 1957 East Urals Radioactive Trace (the Kyshtym accident) for which cerium, ruthenium, strontium and zirconium/nioibium were the principal dose-delivering radionuclides, and these exposures also had to be accounted for. For solid cancer mortality the period of follow-up was from 1950 to 2007 and, for leukaemia incidence, from 1953 to 2007.

For solid cancers, the most recent estimate of the ERR/Gy is 0.61, with no evidence of non-linearity. For leukaemia incidence, the ERR/Gy is 2.2. For both solid cancer mortality and leukaemia incidence, there is no evidence of ERR modification by sex, ethnicity, attained age, age at exposure or time since exposure. For all circulatory system diseases the ERR/Gy is 0.36 and for ischemic heart disease alone ERR/Gy is 0.56.
It can be concluded that the Techa River Cohort provides clear and compelling evidence of long-term effects of low dose rate exposures on the risks of solid cancer, non-CLL leukaemia and possibly some non-cancer outcomes. The risk estimates similar to those seen in the atomic bomb survivors but the studies have limited power to characterize site- or cause-specific risks.

R9.4 Discussion

RASSC noted that the ICRP currently uses a DDREF of 2, but that if this were to change to 1, there would be important implications, for example in the case of worker compensation schemes. However, the data from the Mayak Workers and Techa River cohorts are not clear-cut and there are still large uncertainties in the estimates. In the case of any future revision of the ALI for plutonium, RASSC advised that the implementation implications should be carefully considered and appropriate guidance developed.

There was considerable interest in the data on non-cancer effects, and it was noted that the “baseline” for observation of such effects is high, making determination of a radiation-induced increase even more difficult to identify. Dr Krestinina stated that, in the case of non-cancer effects, it was possible only to study mortality and not incidence, making it even more difficult to reach definitive conclusions. She also noted that the indications are of a linear relationship with no evidence of a threshold value below which there is no effect. The issue was raised as to why we do not adopt a similar approach as in the case of cancer effects i.e. assume linearity from high doses to low and very low doses, even though it is not proven, as part of a precautionary approach.

Mr Fountos confirmed that the programme has not considered psycho-social factors, but acknowledged that these could be important, particularly in relation to non-cancer effects. In response to a number of questions, Mr Fountos also explained how the different confounding factors were considered and taken into account in the analyses. Concerning any relationship between radiation exposure and hereditary effects, Mr Romanov stated that a new study of radiation exposure to pregnant women was being considered.

RASSC noted that the Mayak Workers and Techa River cohorts represent a unique dataset that will be impossible to replicate in the future. RASSC complemented all three speakers on the quality of the work being undertaken and the clarity of their presentations. RASSC underlined that the emerging data could have important implications for risk estimates and the overall System of Radiological Protection.

R10 - Topical Session: Control of Foodstuffs and Drinking Water Contaminated as a Result of a Nuclear or Radiological Emergency

R10.1 Report of the RASSC Working Group

Mr I. Gusev summarized the work undertaken since the establishment of the RASSC Working Group in January 2013. The work is focused on the control of foodstuffs and drinking water in the recovery phase after the emergency has ended. The Working Group has met on three occasions and Mr Gusev underlined the close working relationship that had been developed with other international organizations, namely EC, FAO, WHO and the Codex Alimentarius.

As agreed at the last meeting (RASSC 35), the Secretariat has commenced work on the development of a TECDOC that summarizes the various international standards that exist and the circumstances to which they apply, identifies any gaps and inconsistencies in these standards and proposes how such gaps and inconsistencies should be addressed. As requested by RASSC, the TECDOC will also include a framework to assist Member States to develop maximum activity concentrations for use at national level. Regional food consumption patterns have been well documented by the WHO and these will be used to identify the range of individual doses likely to be received under different scenarios.
A Technical Meeting to discuss these issues will be held in Vienna from 8 to 12 September 2014. In advance of the Technical Meeting, a questionnaire on current national policies and national standards in relation to the control of foodstuffs and drinking water will be circulated to all participants. The draft TECDOC will also be made available in advance of the meeting (see also agenda item R10.3).

RASSC advised that both the affected population and the affected area would need to be clearly defined in establishing national values.

R10.2 NEA Framework for the Control of Contaminated Foodstuffs

Mr E. Lazo summarized the work that has carried out by the NEA through a Task Group on Trade in Contaminated Commodities and Food. The Group was mandated to develop a framework rather than the radiation protection criteria themselves. The starting point for the evaluation was that accidents are rare, a limited number of food products are likely to be exported from any affected area and export criteria are a matter of national choice and will evolve with the situation circumstances.

The key elements of the framework are

- Food should be restricted during the emergency phase, and trade will be resumed only after a measurement/certification process has been established. As such, there will be time to develop criteria;
- National criteria should be situation-based to protect the most exposed group i.e. those living in the affected area;
- It will be socially, politically and perhaps ethically difficult for a country to use different criteria for its own population and for exports; and
- Criteria should be situation-specific, developed at the time of an accident.

Mr Lazo noted that both the Codex Alimentarius agreement, which provides radiological criteria for imported food, and the European Commission Directives, which provide guidance and criteria for consumption of contaminated food from accident-affected territories, are based on an annual dose criterion of 1 mSv. The IAEA Safety Requirements “Preparedness and Response for a Nuclear or Radiological Emergency”, which establishes criteria for the consumption of food in contaminated areas, are based on an annual dose of 10 mSv.

The Sanitary and Phytosanitary (SPS) Agreement of the World Trade Organization (WTO) emerged in 1994 as part of the outcome of the Uruguay Round of multilateral trade negotiations. The SPS Agreement, and explicit reference to standards, is designed to facilitate cooperation and trade by improving transparency, promoting harmonization, and by preventing the imposition of arbitrary trade restrictions for hidden protection purposes. The main goal of application of the Codex, through the SPS Agreement, is to promote a more systematic effort to streamline national food safety standards. To date, no strong pressure for harmonization has emerged. In effect, the expectations that various national governments hold for food safety vary wildly. This causes increased trade friction, particularly in post-nuclear disaster situations, and can lead to greater trade protection.

Under the framework being developed by the NEA, national criteria will be established on assuring that internal exposures to those living in affected areas would not exceed 1 mSv of internal exposure in a year. Dose assessment for this purpose will not take into account any exposures that took place as part of an emergency exposure situation. This set of criteria will be implemented once the accident situation is under control, when capabilities are put in place to monitor foods, and when enough scientific information, such as extent and concentrations of contamination, is well
characterised. If the criteria are derived in this manner, the criteria are likely to be the same or lower than the Codex, and similar to the national criteria set by importing countries. National criteria set by the accident country will be used for their domestic population and for export.

A number of RASSC members and observers thanked NEA for initiating this work and underlined the importance of trade issues in the recovery phase of a nuclear accident. There was general support for the framework proposed. The WHO indicated that it intended to consider the implications of adopting the Codex Alimentarius values as national values by applying them to standard regional diets.

A number of comments were made to the effect that the acceptability of contaminated food will be set by the market. Importers may choose not to import contaminated food, even though it complies with national and international standards and consumers may choose not to purchase it, especially if other options are available. On the other hand, it is important to maintain the economy in the contaminated area. All of these considerations indicate that some compromise will be necessary. France commented that it intends to organize a workshop to discuss trade in contaminated food and related issues.

The Secretariat raised the issue of the extent to which the Agency can address consumer acceptability issues in the development of safety standards. While these issues are clearly important and should be referred to, there was general agreement that safety standards should be built on accepted radiation protection principles.

**R10.3 Key Issues for Discussion at the Technical Meeting**

Mr I. Gusev listed the key issues, as identified by the Working Group, for discussion at the forthcoming Technical Meeting as follows:

- what advice needs to be developed to assist States who are neighbours to, or far distant from, the accident State;
- should standards be developed for foodstuffs and drinking water separately, or jointly;
- there are many different types of “water” – drinking water, bottled water, mineral water etc. – and these are often treated differently in national standards. Should the same criteria be applied to water that is consumed, or is it appropriate to continue to differentiate between the different types;
- what criteria should apply to water used for reconstitution of dried foods;
- What advice should be given to foodstuff importing/exporting countries applying values that are different to the Codex guideline levels;
- Should WHO guideline levels (based on 0.1 mSv/year) or some other values be applied for international trade of drinking water;
- Is there a need to define the stage of food production to which the Codex Alimentarius guideline levels apply;
- Is it realistic to determine in advance the time period after an accident over which operational levels will apply;
- Is it necessary to identify validated methods of analysis of radionuclides in food that can be used internationally?
- Is it necessary to develop sampling plans (i.e. for foodstuffs) to enhance the implementation of controls, for example when implementing the Codex Alimentarius guideline levels;
- What factors need to be taken into account in the development and implementation of criteria; and
- should operational intervention levels, as applied in emergency exposure situations, be developed for use at the national level.
RASSC advised that the development of an appropriate methodology was more important than the development of criteria and that this needs to take into account the specificity of the accident. It was noted that most States have a strong food safety infrastructure and the framework for radiation protection needs to be consistent with that. It was pointed out that the age distribution of the population and the iodine status of the diet were important considerations in setting national standards for contaminated foodstuffs. The approach also needs to be flexible and adaptable so that stakeholder views can be accommodated.

In relation to foodstuffs and drinking water, it was stressed that these are of concern in different timeframes after an accident. Water is normally of concern only for the first few weeks; it is normally not exported in bulk amounts and so is primarily an issue for the accident State. On the other hand, concerns about contaminated food can last for a much longer time and affect several States.

**R11 - Request from the Commission on Safety Standards**

**R11.1 RASSC to prepare a policy/position paper on the UN General Assembly deliberation on the attribution of radiation effects and inference of risk and possible implications for the safety standards**

Mr G. Massera introduced the background paper prepared by Argentina on this issue, which summarizes the current state of knowledge regarding the risks following radiation exposure and the difficulty in attributing health effects to radiation exposure against a background of natural incidence. While a linear relationship has been established at moderate doses above about 100 mSv, there is much less certainty at lower doses where we apply the linear-not-threshold approach as part of a precautionary approach. This creates challenges in risk communication in that we assume that every exposure due to radiation, no matter how small, has an associated risk but it is not always possible to identify this through a discernable increase in national cancer rates. The use of collective dose in situations where large populations are subject to very low individual doses is also controversial.

RASSC noted that, while UNSCEAR has reported a summary of its findings to the UN General Assembly, its scientific report on the attribution of radiation effects has not yet been published. Without reading the report, it would be difficult to identify any immediate issues to be taken into account in developing safety standards. RASSC therefore agreed to return to this issue once the UNSCEAR report is available. RASSC also agreed that it was inappropriate for it to consider any issues related to compensation.

In the meantime, the Secretariat will invite members and observers of RASSC to provide written submissions on the attribution of radiation effects and inference of risk and possible implications for the safety standards.

**Action:** The Secretariat to invite members and observers of RASSC to provide written submissions on the attribution of radiation effects and inference of risk and possible implications for the safety standards.

**R12 - Safety Standards for Approval**

**R12.1 Draft Safety Requirements: Revision by amendment of GSR Part 1, NS-R-3, SSR-2/1, SSR-2/2 and GSR Part 4 (DS462)**

Mr D. Delattre reviewed the history of the development of the document, which updates and strengthens a number of safety requirements in the light of lessons learnt following the Fukushima Daiichi accident. Member States consultation took place between August and December 2013. In total, 400 comments were received from 13 Member States and three International Organizations. Over half of these related to SSR 2/1 on the design aspects of NPPs. After review and posting on the Committees’ website, a further 114 comments were received and these have now been addressed.
RASSC had no comment and DS462 was approved for submission to the CSS for endorsement.

**Action:** The Secretariat to submit DS462 to the CSS for endorsement

### R13 - Safety Standards for Review


Mr T. Boal introduced the draft safety guide which is intended to provide generic guidance on the application of the requirements for the protection of members of the public and the environment against radiation exposure given in the International Basic Safety Standards (BSS) (GSR Part 3). Such guidance is intended to underpin the development of facility and activity in specific safety guides dealing with this area of protection and, by so doing, ensure a consistent approach.

The safety guide will address the three exposure situations – planned, existing and emergency – and the three categories of exposure – occupational, medical and public. The safety guide will also consider normal and potential exposures as well as the development and application of reference levels and dose constraints.

Protection of the environment, which is included in the BSS for the first time, is also addressed. Issues to be covered include the reference approach for radiation protection of flora and fauna, the derivation and use of reference levels, representative organisms and protection of humans and the environment in an integrated manner.

It is anticipated that the draft safety guide will be submitted to the next RASSC meeting in November 2014 with a view to submission to Member States for review.


Mr D. Telleria reminded the Committee of the current status of the development of the document, which was also discussed at the previous meeting in the joint session with WASSC. The safety guide supports the safety requirements in GSR Part 3 (BSS) and there is also a direct link with the safety guides Radiation Protection of the Public and the Environment (DS432) and Regulatory Control of Radioactive Releases to the Environment from Facilities and Activities (DS442). The document aims to integrate the radiological assessment undertaken as part of the authorization process with that part of the Environmental Impact Assessment process related to radiological matters.

At the previous meeting, RASSC and WASSC discussed the consideration of “flora and fauna” and “potential exposures”. The meeting also noted that NUSSC did not support the inclusion of potential exposures in the scope of the document but was not in agreement with this position. Based on the comments received, a new version was developed and uploaded on the Committees’ website in April 2014. A total of 267 comments were received from 10 Member States and two International Organizations.

The principal changes proposed are the following

- The title is changed to “Assessment of facilities and activities for protection of the public and protection of the environment”;
- Flora and fauna is now fully separated as an optional choice by national regulators and only a generic practical proposal, based on ICRP, is proposed;
- More options for the selection of accidents to be included for consideration of potential exposures have been added.

Mr Telleria explained the background and rationale behind each of these three proposed changes.
The ICRP approach to protection of flora and fauna uses Reference Animals and Plants (RAPs) and Derived Reference Consideration Levels” (DRCLs) and the IAEA Coordination Group on Protection of the Environment considers this a suitable approach. The 1 mSv dose limit for members of the public effectively controls radionuclide concentrations in air, water and soil, which in turn can be compared with the DRCLs for flora and fauna using RAPs. This approach allows for easy monitoring and control and does not add an additional burden on operators.

Potential exposures are mentioned in requirements 7, 9, 11 and 12 in the BSS and, from the comments received, there is strong support for the inclusion of potential exposures in the safety guide. The concept of potential exposures in planned exposure situations is different, but related to consideration of accidents for emergency preparedness and response. There is a need for input on possible source terms from the nuclear safety community, but otherwise it is primarily a radiation protection issue.

RASSC supported the approach and content of the safety guide, noting that the increased flexibility being proposed is welcome. RASSC accepted that the need to protect the environment is now well accepted internationally. A number of documents have been published by the ICRP, USDOE and the EC so that consideration of the topic is sufficiently mature. It is therefore appropriate for the Agency to provide guidance at this stage.

It is anticipated that the draft safety guide will be submitted to the next RASSC meeting in November 2014 with a view to submission to Member States for review.

R13.3 Draft Safety Guide: Regulatory Control of Radioactive Releases to the Environment from Facilities and Activities (DS442)

The draft safety guide was introduced by Mr D. Telleria, who outlined the development process to date. The document, which provides guidance on establishing discharge authorizations and on demonstrating compliance with them, has strong links to the two safety guides Radiation Protection of the Public and the Environment (DS432) and Radiological Environmental Impact Analysis for Facilities and Activities (DS427). The safety guide is intended to provide governments, regulatory bodies, applicants, and registrants and licensees with a structured approach to limit the radiation exposures to the public resulting from discharges and for the optimization of their protection. It is applicable to both new and existing facilities and will cover discharges from mining activities and NORM industries that are controllable. Discharges as a result of accidents are outside the scope of the document.

Mr Telleria noted that it is intended to make the safety guide as practical as possible and the challenges in developing the document relate to the concept of representative person, the use of collective dose to control discharges, cost-benefit analysis in relation to Best Applicable Technology (BAT) and the use of dose constraints, among others. Flora and fauna should not be used for defining discharge limits, which should be based only on the optimization of the protection of humans.

R14 - Vienna Conventions on Nuclear Liability

R14.1 The Establishment of Maximum Limits for the Exclusion of Small Quantities of Nuclear Material from the Application of the Vienna Conventions on Nuclear Liability - update of 2007 Decision of the IAEA Board of Governors and opinion of TRANSSC

The Vienna Conventions on Nuclear Liability provide for the possibility for a Contracting Party to exclude small quantities of nuclear material from their scope of application provided that maximum limits for the exclusion of such quantities are established by the IAEA Board of Governors and that the exclusion by a Contracting Party is within such limits. The first resolution on setting maximum limits was adopted in September 1964 and subsequently revised in 1978 and 2007. The current resolution is based on the 2005 edition of the IAEA Regulations for the Safe Transport of Radioactive
Material. Following the publication of the 2012 edition of the Transport Regulations, based on advice from NSRW, the International Expert Group on Nuclear Liability (INLEX) decided that the 2007 Board Resolution should be updated and initiated a consultation with RASSC and TRANSSC on the revised text.

This item was initially discussed at the previous RASSC meeting in November 2013. At that time, RASSC deferred a decision pending confirmation of an opinion from TRANSSC. TRANSSC in turn deferred a final decision to its subsequent meeting in June 2014.

Ms N. Capadona noted that the wording of the Vienna Conventions needs to be reviewed in light of the 2102 Edition of the Transport Regulations (SSR 6). This was discussed by TRANSSC, who noted that consignments under paragraph 417 (a) to (f) are classified as “non-fissile or fissile excepted” and that no administrative control is necessary to ensure safety i.e. such transport is intrinsically safe. Consignments under paragraphs 674 and 675 are classified as “fissile” and safety depends on operational restrictions being applied. TRANSSC approved an amended text to the Vienna Conventions as follows

“Consignments of fissile material excepted from classification as “FISSILE” pursuant to the provisions of paragraphs 417 (a) to (f) of the 2012 Edition of the Agency’s Transport Regulations, are excluded from the application of the Vienna Conventions on nuclear liability”.

RASSC agreed with the proposal from TRANSSC and authorized the Secretariat to submit the proposed amended text to the Board of Governors for approval.

In response to a question from the NEA, Ms Capadona confirmed that the Paris Convention on Nuclear Third Party Liability does not have a limit included in the exclusion, but the Steering Committee decides on a case-by-case basis on the exclusion of small quantities of nuclear material from its scope.

Action: The Secretariat to submit the proposed amended text to the Board of Governors for approval.

R15 - Reports from International Organizations

Written submissions were received from International Organizations in advance of the meeting and were made available on the RASSC website. No oral presentations were made and there were no specific questions on the available reports.

R16 - Any Other Business

R16.1 Draft Safety Requirements: Preparedness and Response for a Nuclear or Radiological Emergency (DS457)

RASSC reviewed the previous decisions on the safety requirements “Preparedness and Response for a Nuclear or Radiological Emergency” (DS457). In allowing this discussion to take place, the Chairman emphasized that matters already agreed could not be reopened and that no new issues could be raised. RASSC confirmed its opinion on the changes necessary to the document, as detailed in the minutes of the joint session with the Nuclear Security Guidance Committee.

RASSC agreed to provide comments on the revised text of DS457 by e-mail, subject to the period for review being a minimum of four weeks. Taking into account the dates of the next CSS meeting on 3-5 November 2014, the deadline for the Secretariat to provide the revised text to RASSC members for review is 18 July 2014.
RASSC asked the Scientific Secretary to also provide members and observers with a summary of comments on DS457 from the forthcoming meetings of NUSSC and WASSC.

RASSC authorized the Chair of RASSC to discuss and agree changes to the document in consultation with the Chairs of the other Committees.

R16.2 The Concept of ‘Safe’ in Relation to Exposure due to Radiation

RASSC considered the use of the term ‘safe’ as used in relation to exposure due to radiation and noted that this issue was discussed at the most recent meeting of the Inter Agency Committee on Radiation Safety (IACRS). RASSC concluded that

1. Criteria need to be developed to explain the concept of ‘safe’ in relation to all exposure situations.
2. The concept of ‘safe’ needs to account for societal considerations as well as radiation protection criteria.
3. Other relevant International Organizations should be actively involved in any future work on defining the concept of ‘safe’.

R17 - Closing of the Meeting

R17.1 Dates of Future Meetings

The next RASSC meeting (RASSC 37), which will include a joint session with WASSC, will take place during the week 24-28 November 2014.

R17.2 Conclusions of the Meeting

The Chairman Mr Massera thanked RASSC members and observers for their active involvement in the meeting. He highlighted the important issues that had been discussed, many of which were directly related to experiences gained following the Fukushima Daiichi accident. The joint meeting with the NSGC had provided both Committees with a better understanding of each other’s viewpoint and will assist in the development of a coordinated approach to managing the interface between safety and security in Agency documents. Finally, Mr Massera underlined the importance of the draft safety requirements Preparedness and Response for a Nuclear or Radiological Emergency (DS457) and asked the Secretariat to ensure that RASSC was provided with the requisite amount of time to review changes to the document.

R17.3 Closing

The meeting was closed by the Chairman, Mr G. Massera.
MINUTES OF THE JOINT RASSC/NSGC SESSION

Radiation Safety Standards Committee (RASSC) – Thirty-sixth Meeting

and

Nuclear Security Guidance Committee (NSGC) - Fifth Meeting

Boardroom A, M Building

18-19 June 2014

Will be submitted as a separate report.
ANNEX I
List of Actions

RASSC

Action: The Secretariat to develop a discussion document reviewing existing IAEA documents in order to identify the extent to which these may be applicable and, consequently, the additional specific topics on which further guidance is required in relation to the control of contaminated non-food commodities in existing exposure situations.

Action: The Secretariat to invite members and observers of RASSC to provide written submissions on the attribution of radiation effects and inference of risk and possible implications for the safety standards.

Action: The Secretariat to submit DS462 to the CSS for endorsement

Action: The Secretariat to submit the proposed amended text to the Board of Governors for approval (Vienna Convention on Nuclear Liability).
ANNEX II

Agenda

Radiation Safety Standards Committee (RASSC) – Thirty-sixth Meeting
Press Room – M Building
18-20 June 2014

09:30 – Wednesday 18 June 2014

R1. Opening of Meeting M. Pinak, SH-RSM
R2. Chairman’s Comments G. Massera
R3. Adoption of the Agenda G. Massera
R4. Administrative Arrangements T. Colgan
R5. Chairman’s Report of RASSC 35 G. Massera
R6. Actions Arising from RASSC 35 T. Colgan

R7. General Safety Standards Issues

<table>
<thead>
<tr>
<th>R7.</th>
<th>Strategies and Processes for the Establishment of IAEA Safety Standards (SPESS)</th>
<th>For information</th>
<th>D. Delattre</th>
</tr>
</thead>
<tbody>
<tr>
<td>R7.</td>
<td>Outline Work Plan for the Seventh Term</td>
<td>For information</td>
<td>T. Colgan</td>
</tr>
<tr>
<td>R7.</td>
<td>Use of the RASSC website</td>
<td>For information</td>
<td>A. Funnell</td>
</tr>
</tbody>
</table>

R8. Reports relating to the Fukushima Daiichi Accident

<table>
<thead>
<tr>
<th>R8.</th>
<th>The UNSCEAR Report “Levels and Effects of Radiation Exposure to the Nuclear Accident after the 2011 Great East-Japan Earthquake and Tsunami”</th>
<th>For information</th>
<th>M. Crick</th>
</tr>
</thead>
<tbody>
<tr>
<td>R8.</td>
<td>International Experts Meeting “Radiation Protection following the Fukushima Daiichi Accident: Promoting Confidence and Understanding” (IEM6)</td>
<td>For information</td>
<td>T. Colgan</td>
</tr>
<tr>
<td>R8.</td>
<td>Summary of the NEA Workshop on Radiation and Thyroid Cancer</td>
<td></td>
<td>E. Lazo</td>
</tr>
</tbody>
</table>
### R9. Topical Session: The Russian Health Studies (Thursday 14:00 – 17:30)

Following the presentations, RASSC will be asked to discuss the implications of the emerging scientific results for existing radiation risk estimates and to advise the Agency on any necessary actions.

**R9.1 Highlights of the Russian Health Studies Program and Updated Research Findings**  For information  B. Fountos

**R9.2 Russian Health Studies: Mayak Worker Cohort**  For information  S. Romanov

**R9.3 Cancer Risk Assessment for the Population Exposed to Radiation on the Techa River**  For information  L. Krestinina

**R9.4 Discussion**  G. Massera

### R10. Topical Session: Control of Foodstuffs and Drinking Water Contaminated as a Result of a Nuclear or Radiological Emergency (Friday 09:00 -10:30)

Following the presentations, RASSC will be asked to discuss the proposals brought forward by the International Organizations as an input into the Technical Meeting to be held in September 2014.

**R10.1 Report of the RASSC Working Group**  For information  I. Gusev

**R10.2 NEA Framework for the Control of Contaminated Foodstuffs**  For information  E. Lazo

**R10.3 Key Issues for Discussion at the Technical Meeting**  For information  I. Gusev

**R10.3 Discussion**  G. Massera

### R11. Request from the Commission on Safety Standards

**R11.1 RASSC to prepare a policy/position paper on the UN General Assembly deliberation on the attribution of radiation effects and inference of risk and possible implications for the safety standards**  For discussion and approval  G. Massera

### R12. Safety Standards for Approval

**R12.1 DS462 Draft Safety Requirements: Revision by amendment of GSR Part 1, NS-R-3, SSR-2/1, SSR-2/2 and GSR Part 4 (also to NUSSC, TRANSSC and WASSC)**  For approval for submission to the CSS for endorsement  D. Delattre

### R13. Safety Standards for Review

**R13.1 DS432 Draft Safety Guide: Radiation Protection of the Public and the Environment (also to NUSSC, TRANSSC and WASSC)**  For review  T. Boal
**Draft Safety Guide: Radiological Environmental Impact Analysis for Facilities and Activities**

For review

D. Telleria

**Draft Safety Guide: Regulatory Control of Radioactive Releases to the Environment from Facilities and Activities**

For review

D. Telleria

---

### Vienna Conventions on Nuclear Liability

**R14.1** The Establishment of Maximum Limits for the Exclusion of Small Quantities of Nuclear Material from the Application of the Vienna Conventions on Nuclear Liability - update of 2007 Decision of the IAEA Board of Governors and opinion of TRANSSC

For approval

S. Whittingham

---

### Reports from International Organizations

**R15.1** Food and Agriculture Organization of the United Nations (FAO)

C. Blackburn

**R15.2** International Labour Organization (ILO)

S. Niu

**R15.3** Pan American Health Organization (PAHO)

P. Jimenez

**R15.4** United Nations Environment Program (UNEP)

M. Crick

**R15.5** United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)

M. Crick

**R15.6** World Health Organization (WHO)

M. Perez

**R15.7** European Commission (EC)

S. Mundigl

**R15.8** Nuclear Energy Agency / Organization for Economic Co-operation and Development (NEA/OECD)

E. Lazo

**R15.9** European Nuclear Installation Safety Standards Initiative (ENISS)

B. Lorenz

**R15.10** International Commission on Radiological Protection (ICRP)

C. Clement/J-F. Lecomte

**R15.11** International Radiation Protection Association (IRPA)

R. Czarwinski

**R15.12** International Source Suppliers and Producers Association (ISSPA)

W. Fasten

**R15.13** International Standards Organization (ISO)

A. Rannou

**R15.14** World Nuclear Association (WNA)

B. Shah

**R15.15** International Electrotechnical Commission (IEC)

P. Chiaro
R16. Closing of the Meeting

R16.1 Any other business  
G. Massera

R16.2 Dates of Future Meetings  
T. Colgan

R16.3 Conclusions of the Meeting  
G. Massera

R16.4 Closing  
M. Pinak

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 36</td>
<td>3-5 November 2014</td>
</tr>
<tr>
<td>NSGC 6</td>
<td>10-14 November 2014</td>
</tr>
<tr>
<td>TRANSSC 29</td>
<td>10-14 November 2014</td>
</tr>
<tr>
<td>RASSC 37</td>
<td>24-28 November 2014</td>
</tr>
<tr>
<td>NUSSC 38</td>
<td>24-28 November 2014</td>
</tr>
<tr>
<td>WASSC 38</td>
<td>24-28 November 2014</td>
</tr>
</tbody>
</table>

Proposed Timetable

Wednesday 18 June: RASSC only (09:30 – 12:30)
RASSC/NSGC (14:00 – 17:30)

Thursday 19 June: RASSC/NSGC (09:00 – 12:30)
RASSC only (14:00 – 17:30) – later end, if necessary

Friday 20 June: RASSC only (09:00 – 17:00) – earlier start, if necessary
Annex III

List of Participants

The Committee

Algeria  Mr Kamel Bouzegzi
Argentina  Mr Gustavo Massera (Chair)
Australia  Mr Paul Marks
Belgium  Mr Lodewijk Van Bladel
Brazil  Ms Maria Helena Da Hora Marechal
Bulgaria  Mr Nikolay Todorov
China  Mr Huating Yang
Croatia  Ms Ivana Kralik
Czech Republic  Ms Karla Petrova
Denmark  Ms Mette Oehlenschlaeger
Finland  Ms Ritva Bly
France  Mr Philippe Bérard (alternate)
         Mr Jean-François Lecomte (alternate)
Germany  Mr Manfred Helming
Hungary  Mr Arpad Vincze
India  Mr Rajvir Singh
Iran  Mr Mohammad Kardan
Israel  Mr Tuvia Kravchik
Italy  Mr Luciano Bologna
Japan  Ms Naoko Ishikawa
Korea, Republic of  Mr Sae-Yul Lee
Lithuania  Mr Albinas Mastauskas
Norway  Mr Gunnar Saxebo
Pakistan  Ms Ameena Bano
Poland  Ms Agnieszka Jaworska-Sobczak
Romania  Mr Sorin Mancas
Russian Federation  Mr Sergey Mikheenko
Slovakia  Mr Vladimir Jurina
Slovenia  Ms Nina Jug
South Africa  Mr John Pule
Spain  Ms Carmen Alvarez
Sweden  Ms Ann-Christin Haegg
Switzerland  Mr Andreas Leupin
Syrian Arab Republic  Mr Ibrahim Othman
United Arab Emirates  Ms Aayda Al Shehhi
United Kingdom  Ms Susan McCready-Shea
United States of America  Ms Laura Dudes

Advisors

Germany  Ms Annemarie Schmitt-Hannig
Japan  Mr Isao Kawaguchi
         Mr Nobuyuki Sugiura
         Mr Hirokazu Tachikawa
Poland  Ms Katarzyna Doner
<table>
<thead>
<tr>
<th>Country</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russian Federation</td>
<td>Mr Sergey Chekin</td>
</tr>
<tr>
<td>Sweden</td>
<td>Mr Jan Johansson</td>
</tr>
<tr>
<td>United States of America</td>
<td>Mr Vincent Holahan</td>
</tr>
<tr>
<td>United Nations Organizations</td>
<td></td>
</tr>
<tr>
<td>FAO</td>
<td>Mr Carl Michael Blackburn</td>
</tr>
<tr>
<td>ILO</td>
<td>Mr Mike R Gaunt</td>
</tr>
<tr>
<td></td>
<td>Mr Tasos Zodiatas</td>
</tr>
<tr>
<td>ISO</td>
<td>Mr Yann Billarand</td>
</tr>
<tr>
<td>UNSCER</td>
<td>Mr Malcolm Crick</td>
</tr>
<tr>
<td></td>
<td>Mr Ferid Shannoun</td>
</tr>
<tr>
<td>WHO</td>
<td>Ms Maria del Rosario Perez</td>
</tr>
<tr>
<td>International Organizations</td>
<td></td>
</tr>
<tr>
<td>EC</td>
<td>Mr Stefan Mundigl</td>
</tr>
<tr>
<td>NEA/OECD</td>
<td>Mr Edward Lazo</td>
</tr>
<tr>
<td>Other Organizations</td>
<td></td>
</tr>
<tr>
<td>ENISS</td>
<td>Mr Bernd Lorenz</td>
</tr>
<tr>
<td>ICRP</td>
<td>Mr Christopher Clement</td>
</tr>
<tr>
<td></td>
<td>Mr Jean-Francois Lecomte</td>
</tr>
<tr>
<td>IEC</td>
<td>Mr Miroslav Voytchev</td>
</tr>
<tr>
<td>IRPA</td>
<td>Ms Renate Czarwinski</td>
</tr>
<tr>
<td>ISSPA</td>
<td>Mr Wolfgang Fasten</td>
</tr>
<tr>
<td>WNA</td>
<td>Ms Binika Shah</td>
</tr>
</tbody>
</table>