R8. Topical Session: Implementation of the International Basic Safety Standards

ILO Activities to support Implementation of the BSS

Shengli Niu
International Labour Office, Geneva, Switzerland

Radiation Safety Standards Committee (RASSC) – 41st Meeting
21-23 November 2016, Board Room M1, M-building, IAEA Vienna, Austria
• 34........In addition, given the recurring loss to human life and assets across the world on account of unsafe working places, we direct the Task Force to partner with ILO in consultation with countries, and to consider how the G20 might contribute to safer workplaces........
10. We are strongly committed to reducing youth unemployment, which is unacceptably high, by acting to ensure young people are in education, training or employment. Our Employment Plans include investments in apprenticeships, education and training, and incentives for hiring young people and encouraging entrepreneurship. We remain focussed on addressing informality, as well as structural and long-term unemployment, by strengthening labour markets and having appropriate social protection systems. Improving workplace safety and health is a priority. We ask our labour and employment ministers, supported by an Employment Working Group, to report to us in 2015.
7. Unemployment, underemployment and informal jobs are significant sources of inequality in many countries and can undermine the future growth prospects of our economies. We are focused on promoting more and better quality jobs in line with our G20 Framework on Promoting Quality Jobs and on improving and investing in skills through our G20 Skills Strategy. We are determined to support the better integration of our young people into the labour market including through the promotion of entrepreneurship. Building on our previous commitments and taking into account our national circumstances, we agree to the G20 goal of reducing the share of young people who are most at risk of being permanently left behind in the labour market by 15% by 2025 in G20 countries. We ask the OECD and the ILO to assist us in monitoring progress in achieving this goal. We will continue monitoring the implementation of our Employment Plans as well as our goals to reduce gender participation gap and to foster safer and healthier workplaces also within sustainable global supply chains.
40. Generating quality employment is indispensable for sustainable development and is at the center of the G20’s domestic and global agenda. We will work to ensure the benefits from economic growth, globalization and technological innovation are widely shared, creating more and better jobs, reducing inequalities and promoting inclusive labor force participation. We endorse the strategies, action plans and initiatives developed by G20 labor and employment ministers to enhance the growth and development agenda by taking effective actions to address changes in skill needs, support entrepreneurship and employability, foster decent work, ensure safer workplaces including within global supply chains and strengthen social protection systems. We endorse Sustainable Wage Policy Principles. We recognize entrepreneurship is an important driver for job creation and economic growth, reinforce our commitments in the G20 Entrepreneurship Action Plan, and welcome China’s contribution in the establishment of an Entrepreneurship Research Center on G20 Economies. We also endorse the G20 Initiative to Promote Quality Apprenticeship with policy priorities of increasing the quantity, quality and diversity of apprenticeships. We will further develop the G20 employment plans in 2017 to address these commitments and monitor progress in a systemic and transparent manner in achieving the G20 goals especially on youth employment and female labor participation. We recognize strengthened labor market institutions and policies can support productivity and promote decent work, and therefore higher, sustainable wage growth, in particular for the low-income workers. We recognize the importance of addressing opportunities and challenges brought into the labor market through labor migration as well-managed migration can bring potential benefits to economies and societies.
The ILO is a *tripartite* organization with *worker* and *employer* representatives taking part in its work on equal status with those of *governments*.

The number of the ILO *member countries* now stands at 187.

In 1969 the ILO was awarded the Nobel Peace Prize.
Standard-setting is one of the ILO’s major means of action to improve conditions of life and work worldwide. ILO standards are Conventions and Recommendations adopted by the International Labour Conference.
Between 1919 and 2016, 189 Conventions, 6 protocols and 204 Recommendations were adopted.

Many of these instruments relate to occupational safety and health.
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Many of these instruments relate to occupational safety and health.
Total number of ratifications registered since 1919

As of Today 21 Nov 2016

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<th>ILO member States: 187</th>
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<td>ILO instruments adopted: 399</td>
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- Conventions: 189
- Protocols: 6
- Recommendations: 204

Latest Ratifications

November 2016

- Lithuania - **C188** - Work in Fishing Convention, 2007 (No. 188) - 16 Nov 2016
- Montenegro - **C171** - Night Work Convention, 1990 (No. 171) - 08 Nov 2016

October 2016

- Angola - **C188** - Work in Fishing Convention, 2007 (No. 188) - 11 Oct 2016
Supervision of the Radiation Protection Convention (No. 115) - the ILO Supervisory System and the new General Observation on Convention No. 115
Radiation Protection Convention, 1960 (No. 115)

Number of Ratifications: 50

The countries that have ratified Convention No. 115:
Argentina, Azerbaijan, Barbados, Belarus, Belgium, Belize, Brazil, Chile, Czech Republic, Denmark, Djibouti, Ecuador, Egypt, Finland, France, Germany, Ghana, Greece, Guinea, Guyana, Hungary, India, Iraq, Italy, Japan, Republic of Korea, Kyrgyzstan, Latvia, Lebanon, Lithuania, Luxembourg, Mexico, Netherlands, Nicaragua, Norway, Paraguay, Poland, Portugal, Russian Federation, Slovakia, Spain, Sri Lanka, Sweden, Switzerland, Syrian Arab Republic, Tajikistan, Turkey, Ukraine, United Kingdom, and Uruguay.
Under Article 19 of the ILO Constitution member States are required to report at appropriate intervals, as requested by the Governing Body, on non-ratified Conventions and on Recommendations, indicating in their reports the extent to which effect has been given or is proposed to be given to those instruments.

Under Article 22, reports are periodically requested from States which have ratified ILO Conventions. The report form to which each State is to conform their reports are approved by the Governing Body. On the left is the approved reporting form for C.115.
• Convention No. 115 aims at ensuring effective protection of workers, as regards their health and safety, against ionising radiations. For this, all appropriate steps shall be taken “in the light of knowledge available at the time.” (Article 3)
• Convention No. 115 also requires keeping dose limits for various categories of workers under constant review in the light of current knowledge (Article 6).
General Observation of 2015

Developed with the support and collaboration of the IAEA

Adopted by the CEACR in December 2015

- Presentation by the IAEA on radiation protection at the CEACR's session

Published in February 2016 in the Committee of Experts' report.
OCCUPATIONAL SAFETY AND HEALTH

Occupational safety and health

General observation

Radiation Protection Convention, 1960 (No. 115)

Introduction

Background

1. At its November-December 2014 session, the Committee deferred commenting on the application of the Radiation Protection Convention, 1960 (No. 115), in view of the preparation of a new general observation on the Convention. The general observation updates the Committee’s previous general observation on the subject published in 1993, under the publication of the 2007 Recommendations of the International Commission on Radiological Protection (ICRP) issued in ICRP Publication 103 (hereinafter ICRP Recommendations of 2007 (Publication 103)).

Statement on Time-Related/Early and Late Effects of Radiation in Normal Tissues and Organs - TI Group for Tissue Equivalents in a Radiation Protection Context, issued in ICRP Publication 118 in 2012, publication of a revised Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards: Part 3 (General Safety Requirements Part 3) (hereinafter BSS 2014), issued in July 2014 by the International Atomic Energy Agency (IAEA), which takes into account the ICRP recommendations. The recommendations contain these documents and a bearing on the application of the Convention, in view of the references to “best available at the time” and “current knowledge” in Articles 5(1) and 6(6) of the Convention. This observation is organized in two parts. The first part (paragraphs 4–29) is a summary of the recommendations of the IAEA and the ICRP. The second part, the conclusions (paragraphs 30–44), contains a specific reference to the application of the Convention.

Reference to available knowledge – Articles 3(1) and 6(6) of the Convention

2. Under Article 3(1) of the Convention, “in the light of knowledge available at the time, all appropriate steps... work” to ensure effective protection of workers, as regards their health and safety, against ionizing radiations. Article 6(6) of the Convention states that “rules and measures necessary for this purpose shall be adopted.” Paragraph 5 of the Radiation Protection Recommendation, 1990 (No. 114), states that for the purpose of effect of Article 5(1), “every Member should have due regard to the recommendations made from time to time by the International Commission on Radiological Protection and standards adopted by other competent organizations, adapting the protective steps that have to be taken under Article 5(1), Article 6(6), provides for the following categories of workers... on exposure to ionizing radiations which may be received external from or internal to the body and maximum permissible amounts of radioactive substances which may be taken into the body”, and Article 6(6) specifies that “such maximum permissible doses... under constant review in the light of current knowledge”. In assessing compliance with these requirements, the practice of the Committee to refer to the current knowledge as embodied in the recommendations, ICRP and other international reference sources, as same recommendations, such as the BSS (copy by a number of international organizations, including the ILO from 1982 onwards), as well as the ILO practice on radiation protection of workers (ionizing radiations) approved by the Governing Body of the ILO 35th Session (November 1985).

Scope of the concept of occupational exposure

3. Article 2(1) of the Convention states that the Convention applies to all activities involving exposure of persons to ionizing radiations in the course of their work. Similarly, the BSS 2014 defines occupational exposure as exposure to ionizing radiations occurring in the course of the work and the ILO code of practice on radiation protection of workers: the exposure of a worker received or committed during a period of work.

OCCUPATIONAL SAFETY AND HEALTH

Part I – Overview of the recommendations and norms of the IAEA and the ICRP

System of protection of workers against ionizing radiations

General principles of the system of protection

4. The fundamental objectives of the system of radiation protection is to protect people and the environment from harmful effects of ionizing radiations. This objective must be achieved by minimally limiting the operations of facilities on the condition that if the benefits that they yield outweight the radiological risks to which they give rise. While emphasis has previously been put primarily on limitation of individual dose, this limitation is now seen as contributing only one of the safety principles of a system of radiological protection that is to apply to any exposure situation. The three general principles of radiation protection are justification of exposure, optimization of radiological protection and application of dose limits.

(a) The justification of an action or activity. For any exposure situation, the amount of benefit that is derived from exposure is taken into account. If sufficient information is available from reference information for a proposed action or activity should include that from potential exposures as well as from exposures occurs. The process of justification needs to consider available scientific information about efficacy or consequences of actions or activities. If the action or activity could no longer be considered as producing sufficient benefit to offset the total detriment, measures must be envisaged including prohibition or withdrawal.

(b) The optimization of protection. The optimization of protection is a process of ensuring that the likelihood and magnitude of exposure and the number of individuals exposed are as low as reasonably achievable, economic and social factors being taken into account. In the optimization process, dose constraints are used.

(c) The maximization of permissible limits within the system of protection against ionizing radiations

5. The Committee recalls that over the last few decades, there have been significant changes in the understanding of radiation effects. These concern both the levels of the dose limits recommended and their purposes and functions within the ICRP recommendations. The dose limits recommended by the ICRP have been progressively lowered over the years to reflect the avoidance of directly observable, non-malignant effects. subsequently, the incidence of cancer and hereditary effects caused by radiation was taken into account, and the annual limit for occupational exposure of the whole body was reduced several times in the light of new scientific findings.

6. The ICRP position is that at low radiation doses (below around 100 mSv in a year) the increase in the incidence of “stochastic” effects may occur with a small probability and in proportion to the increase in radiation dose over the background. These stochastic effects include randomly occurring ones, such as cancer or genetic damage. At the current stage of scientific knowledge, these stochastic effects cannot be completely avoided and no dose threshold is known for them. Thus, the setting of dose limits cannot be based on health considerations.

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1. According to the BSS 2014, a radiation protection system is based on the safety principles: responsibility for safety; role of government; protection of workers; protection of the environment; protection of patients; protection of the general public; protection of pregnant women; protection of children; protection of pregnant women; protection of persons; protection of the environment; and protection of the general public.

2. Article 5 of the ICRP Recommendations of 2007 (Publication 103), and page 4 of the BSS 2014.

3. In the ICRP recommendations of 2007 (Publication 103), the ICRP states that the “dose limit” for the maximum amount of exposure to the individual with exposure to the individuals in the form of constraint in reference levels to ensure appropriate levels of protection under the prevailing circumstances.

4. Dose constraint is a prospective and source-related value of dose that is used in planned exposure situations as a parameter for the optimization of protection and safety for the source, and that serves as a boundary in defining the range of optimization.

5. Reference level is the level of dose, risk or activity concentration above which it is not appropriate to plan to allow exposures to fall and below which optimization of protection and safety would continue to be implemented. It is used for emergency exposure situations or an existing exposure situation.

6. In the ICRP Recommendations of 2007 (Publication 103) and the BSS 2014, the concept of maximum permissible limits is expressed in terms of dose level reference level.

7. Stochastic effects relate to a radiation-induced health effect, the probability of occurrence of which is greater for a higher radiation dose and the severity of which (if it occurs) is independent of dose (page 42 of the BSS 2014).
occupational safety and health

as well as need to involve economic and societal considerations. On the other side, health effects associated with higher doses are termed as "deterministic" effects 13 (or "tissue reactions"), where the severity of the effect is proportional to the dose above a given level. The deterministic effects can be avoided by restricting the doses below a certain level of dose to which individuals are exposed.

7. In planned exposure situations, exposure is not to exceed dose limits and for exposure below dose limits, protection is normal. If it is recommended to involve all concerned parties in the optimization process.

8. Accordingly, compliance with the limits on individual doses is not the sole measure of satisfactory radiation protection, and it is stressed that it is required to optimize protection, keeping all exposures as low as reasonably achievable, economic and societal factors being taken into account. This approach is reflected in Article 7 of the Convention, which states that: “Every effort shall be made to restrict the exposure of workers toionizing radiation to the lowest practicable level, and any unnecessary exposure shall be avoided by all parties concerned.”

Dose limits in occupational exposure

Limits on intake 14

9. Under Article 7(1) of the Convention, maximum permissible doses which may be received from sources external to or internal to the body and maximum permissible amounts of radioactive substances which can be taken into the body shall be fixed for various categories of workers. The concept of the effective dose provides the mechanism to include the sum of exposures from external and internal sources, and it is to this quantity that the dose limits apply.

Previous recommendations on dose limits

10. The 1990 Recommendations of the ICRP (Publication 60, Annex B) provided a detailed discussion of the biological effects of ionizing radiation. On the basis of the information contained in this publication, the ICRP concluded in 1990 that dose limits should be fixed in such a way that at each level that the total effective dose 15 received in a full working life would be prevented from exceeding about 1 Sv received more or less uniformly, at an annual average of 20 mSv, the ICRP however stated that the application of its system of radiological protection should be such that this figure would only rarely be approached. The ICRP recommended a limit on the effective dose of 20 mSv per year, averaged over five years, (100 mSv in five years), with the further provision that the effective dose would not exceed 50 mSv in any single year. It was indicated that if the circumstances were such that a cumulative dose approaching 1 Sv was reached, then consideration needs to be given to the opportunity to reduce future exposures. The 1 Sv value is not a limit, and this is not a demarcation at which an individual cannot work with ionizing radiation, whether the cumulative dose is fixed to standard limits, or to the dose in an emergency situation. The ICRP also recommended separate annual dose limits, expressed in equivalent dose, for the lens of the eye (150 mSv per year) and for the skin (500 mSv over any 1 cm² per year) to prevent deterministic effects.

Current recommendations for dose limits

11. The dose limits in the ICRP Recommendations of 2007 (Publication 103) reflect significant continuity with the Recommendations of 1990, but were calculated on the basis of updated risk estimates. The ICRP, in its 2007 Recommendations (Publication 103), reaffirms the dose limits recommended previously in Publication 60. These limits are based on a definition of five year periods, with a maximum of 50 mSv effective dose in any one year. Separate values of equivalent dose for skin and the hands and feet are specified at 500 mSv per year. In ICRP Publication 118, Part I (2012), the ICRP provides a statement on tissue reactions, and modifies the radiation dose limits for the lens of the eye to the limits of 150 mSv per year, averaged over defined periods of five years, with no single year exceeding 50 mSv per year. This superseded the limit contained in both the ICRP Recommendations of 1990 and of 2007, and reflects the only change with respect to the limitation of dose between the 1990 Recommendations and current recommendations. These dose limits recommended by the ICRP and endorsed by the IAEA 2004 serve governments and the regulatory bodies in their establishment of the control for occupational exposure. 16

Protection for pregnant and breastfeeding workers

12. In the ICRP Recommendations of 2007 (Publication 103), the ICRP states a policy that the methods of protection at work for women who are pregnant should provide a level of protection for the embryo/fetus, broadly similar to that provided for members of the public (as indicated in paragraph 1 below, the annual effective dose limit for members of the public is 1 mSv). In that regard, once an employee has been notified of a pregnancy, additional controls have to be considered in order to attain this level of protection. According to Article 7 of the ICRP 2004, the working conditions of a pregnant woman, or of a worker who is breastfeeding, should be such as to ensure that the embryo or fetus is affected to the same extent as the non-pregnant, non-breastfeeding worker. For the sake of clarity, the ICRP 2004 recommends that the same protection is afforded to pregnant women as to non-pregnant women.
**OCCUPATIONAL SAFETY AND HEALTH**

exposure, in order to ensure that the residual dose is reduced as low as reasonably achievable. The optimised protective strategies [as implemented when generic systems, for use in protection strategies that are compatible with reference levels, are exceed, to provide for rapid action. Such actions are often needed in the absence of detailed radiological information that is usually associated with planned exposure situations in which the source is under consideration, and where reference levels should be assessed to be violated, or if possible below, the 20–100 mSv range recommended in the ICRP Recommendations of 2007 (Publication 103).

18. Occupational exposures to an emergency and existing exposure situations are to be subject to the available operational and procedural arrangements, including assessment, monitoring, engagement and training. Individual exposure should be optimised, with appropriate boundaries of reference levels. Depending on the prevailing circumstances, these reference levels may be greater than the recommended values of dose limits that are applicable to planned exposure situations. In emergency or existing exposure situations, the reference levels represent the level of dose or rate, above which it is judged to be inappropriate to plan to allow exposures to occur, and for which therefore protective actions should be planned and optimised. The initial intention would be to be not exceed, or to remain at, these levels.

19. The higher levels of exposure in an emergency may be necessary and appropriate over a short period of time, given the prevailing circumstances, and subject to optimisation of protection. Such levels would not be expected to continue for extended periods because reductions in exposure can be achieved as additional information becomes available, and some measure of control over the source and the exposure situation is achieved. The relevant recommendations of the ICRP are set to prevent tissue reactions and the ambition is to reduce all doses to levels that are as low as reasonably achievable, economic and social factors being taken into account.

20. In exceptional situations, authorised emergency workers may volunteer to take actions where there is a probability of receiving doses that might exceed 50 mSv (the occupational dose limit for workers in a single year). The only situations in which this is applicable are listed in paragraph 21 below.

21. According to paragraph 4.17 of the BSS 2014, response organisations and employers should ensure that no emergency workers is subject to an exposure in an emergency in excess of 50 mSv or other than (a) for the purposes of saving life or preventing serious injury (b) when undertaking actions to prevent severe determinate effects or actions to prevent the development of catastrophic conditions that could significantly affect people and the environment or (c) when undertaking actions to assist a large population.

22. Furthermore, employers should ensure that emergency workers who undertake actions in which the doses received might exceed 50 mSv do so voluntarily that they have been clearly and comprehensively informed in advance of the associated health risks, as well as of available measures for protection and safety, and that they are, to the utmost possible, trained in the actions that they may be required to take in the recovery period, including the recovery period in which such response actions should be taken

During the recovery period

24. The ICRP Recommendations of 2007 (Publication 103) states that workers undertaking recovery and restoration operations in a low- or emergency situation should be considered as occupationally exposed workers, and should be protected according to normal occupational radiological protection standards, and their exposure should not exceed the occupational dose limits recommended by the ICRP, Werks undertaking work such as repairs to plants and buildings or activities for radioactive waste management or undertaking remedial actions for the decontamination of the site and surrounding areas, should be subject to the relevant requirements for occupational exposure to planned exposure situations as outlined in section 3 of the BSS 2014.

**Monitoring of the workplace**

25. Article 11 of the Convention states that appropriate monitoring of workers and places of work shall be carried out in order to measure the exposure of workers to ionising radiations and radioactive substances, with a view to ascertaining that the applicable levels are respected. In this connection, paragraph 5.37 of the BSS 2014 provides that the regulatory body should establish requirements that monitoring and measurements be performed to verify compliance with the requirements for protection and safety. The regulatory body should be responsible for review and approval of the monitoring and measurement programmes of registrants and licences. In addition, paragraph 5.96 of the BSS 2014 provides that registrants and licences, in cooperation with employers where appropriate, should establish, maintain and keep under review programmes for workplace monitoring under the supervision of a radiation protection officer or qualified expert. According to paragraph 5.97, the type and frequency of workplace monitoring should be sufficient to enable (a) the evaluation of the radiological conditions in all workplaces, (b) assessment of exposures in controlled areas and supervised areas, and (c) review of the classification of controlled areas and supervised areas. This monitoring should be based on dose rate, activity concentration in air and surface contamination, and their expected fluctuations, and on the likelihood and magnitude of exposure in anticipated operational occurrences and accident conditions.

**Workers’ health surveillance**

26. Article 12 of the Convention states that “All workers directly engaged in radiation work shall undergo an appropriate medical examination prior to or shortly after taking up such work and subsequently undergo further medical examinations at appropriate intervals.” Article 13 provides that circumstances shall be specified, in which because of the nature or degree of exposure or a combination of both, the following action shall be taken promptly: (a) the worker shall undergo an appropriate medical examination; (b) the employer shall notify the competent authority in accordance with its requirements; (c) persons competent in radiation protection shall examine the conditions in which the worker’s duties are performed; and (d) the employer shall take any necessary remedial action on the basis of the technical findings and the medical advice. In this regard, paragraph 5.106 of the BSS 2014 provides that employers, registrants and licence holders shall ensure, for all workers engaged in activities in which they are or could be subject to occupational exposure, that necessary workers’ health surveillance and healthcare services for workers are provided. According to paragraph 5.108 of the BSS 2014, these programmes for workers’ health surveillance should be based on the general principles of occupational health and should be designed to assess the initial fitness and continuing fitness of workers for their intended task.

Discontinuation of assignment to work involving exposure to ionizing radiation pursuant to medical advice and alternative employment

27. Article 14 of the Convention provides that “No worker shall be employed or shall continue to be employed in work by reason of which the worker could be subject to exposure to ionizing radiation contrary to qualified medical advice.” The key here is the provision of qualified medical advice, upon which a decision should be taken.

28. Paragraph 27 of Recommendation No. 114 provides that if as a result of such medical advice as is envisaged in the Convention, it is undesirable to subject a worker to further exposure to ionizing radiation in that undertaking, the employer shall make all reasonable efforts to provide worker with suitable alternative employment in circumstances for which it has been determined, either by the regulatory body or in the framework of the programme for workers’ health surveillance, in accordance with the requirements of the BSS 2014, that workers, for health reasons, may no longer continue in employment in which they are or could be subject to occupational exposure. In addition, it may be noted that some of the recent recommendations on occupational health and safety instruments (the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148) and the Asbestos Convention, 1986 (No. 167)) indicates that where continued assignment to activities covered by these instruments is found to be medically unsuitable, every effort shall be made, consistent with national practices and conditions, to provide the worker concerned with other means of maintaining their income.

Records of individual doses

29. Paragraph 26 of Recommendation No. 114 provides that, so far as is practicable, a complete record of all doses received in the course of work by every worker should be kept so that the cumulative dose may be taken into account for employment purposes. Paragraph 2 of the BSS 2014 confines that workers shall provide to the...
Part II - Conclusions

30. Recalling that, pursuant to Article 31(1) of the Convention, all appropriate steps shall be taken to ensure effective protection of workers, as regards their health and safety, against ionizing radiations, in the light of knowledge available at the time, and, pursuant to Article 6(2), maximum permissible doses and amounts shall be kept under constant review in the light of the current knowledge, the Committee invites governments to review their system of protection of workers against ionizing radiations in the light of the findings set out in the ICRP Recommendation of 2012 (Publication 102) and the BSS 2014 that are summarized in paragraphs 2–29 above. In particular, the Committee trusts that laws, regulations, directives, codes of practice and other instruments in this field will be re-examined with a view to ensuring, in law and in practice, the effective protection of workers, as regards their health and safety. The Committee requests governments to indicate, in future reports, the steps that may have been taken or that are under consideration in relation to the following matters.

System of radiation protection (paragraphs 4–8)

31. In giving effect to Article 3 of the Convention, the Committee considers that governments should ensure the establishment and maintenance of a system of radiation protection, in light of the safety principles, and, in particular, the three general principles of radiation protection: justification of exposure, optimization of radiological protection and application of dose limits.

Current recommendations for dose limits (paragraphs 9 and 11)

32. When fixing maximum permissible doses of ionizing radiations in accordance with Article 6 of the Convention, the Committee considers that governments should note that the dose limit recommended for occupational exposure are:

- 20 mSv per year averaged over defined five-year periods, with a maximum of 50 mSv effective dose in any one year;
- equivalent dose for skin and the hands and feet of 500 mSv per year;
- equivalent dose to the lens of the eye of 20 mSv per year, averaged over defined periods of five years, with no single year exceeding 50 mSv per year.

Protection for pregnant and breastfeeding workers (paragraph 12)

33. The Committee considers that the means of protection at work for women who are pregnant or working should provide a level of protection for the embryo/fetus broadly similar to that provided for members of the public (the annual effective dose limit for members of the public is 2 mSv). In order to ensure the same level of protection for breastfed infants, the same principle applies to breastfeeding workers.

Dose limits for persons between 16 and 18 years (paragraph 13)

34. In giving effect to Article 7(1) of the Convention, for occupational exposure of apprentices aged 16 to 18 years of age who are being trained for employment involving radiation and for exposure of students aged 16 to 18 who use sources in the course of their studies, the dose limits are: (a) an effective dose of 6 mSv in a year; (b) an equivalent dose to the lens of the eye of 20 mSv in a year; and (c) an equivalent dose to the extremities (hands and feet) or to the skin of 150 mSv in a year. The Committee recalls that, pursuant to Article 7(2) of the Convention, no worker under the age of 16 shall be engaged in work involving ionizing radiations. The Committee also recalls that, with reference to Articles 1, 3(6) and 4 of the Worst Forms of Child Labour Convention, 1999 (No. 182), in so far as work involving occupational exposure to ionizing radiation has been determined by national laws or regulations or by the competent authority to be a type of hazardous work by members States that have ratified that Convention, persons under 18 must not be engaged in such work.

Dose limits for workers not directly engaged in radiation work (paragraph 14)

35. In giving effect to Article 8 of the Convention, the Committee considers that the dose limits for workers not directly engaged in radiation work are those to be applied to members of the public, particularly an annual effective dose limit of 1 mSv. A higher value of effective dose can be allowed in a single year, provided that the average over five years does not exceed 1 mSv per year. To prevent deterministic effects, separate annual dose equivalent limits are to be set for the lens of the eye at 15 mSv in a year and for the skin at 50 mSv in a year. Optimization of protection should be applied to the exposure of individuals who are not directly engaged in radiation work.

Limitation of occupational exposure during an emergency (paragraphs 15–24)

36. The Committee considers that it is essential that measures that have minimized significant potential exposures be examined and addressed in the authorization process, and that the resources are identified and emergency preparedness and response plans put in place to minimize or eliminate the exposure of workers. Planning to undertake is advance of an emergency should be based on the optimization of a protection strategy, which should be implemented when generic criteria, for use in protection strategies that are compatible with reference
General Observation of 2015

Two parts:

- The first part is a summary of the recommendations of the ICRP and the IAEA
- The second part is the CEACR's conclusions on the measures that should be taken, to give effect to the Convention, in light of these recommendations.

- A copy of the general observation will be sent to all 50 countries that have ratified the Convention, and they will be asked to provide information on the measures they are taking with respect to the guidance given.
Cases were reviewed by the ILO CEACR in 2015:

Belize, Guyana, Japan, UK,

Direct requests on C115 were made to:

Argentina, Brazil, Djibouti, Ecuador, France, Germany, Ghana, India, Japan, Republic of Korea, Kyrgyzstan, Latvia, Lebanon, Luxembourg, Mexico, Netherlands, Norway, Paraguay, Poland, Slovakia, Spain, Sri Lanka, Sweden, Turkey, Ukraine, United Kingdom, Guernsey, United Kingdom: Jersey, Uruguay.

The CEACR will examine a number of other reports this year. It draws systematically the attention of the ratifying countries to its new General Observation which reflects the up-to-date standards. It seems that a number of Governments do not have yet given effect to the new dose limit for the lens of the eye.
On 21 March 2012 the Governing Body of the ILO at its 313th Session authorized the revised BSS to be published as a joint publication.
On 29 March 2012, ILO confirmed its participation in the revision of GS-R-2 and its intention for co-sponsorship.
Basic Safety Standards – New Structure

Three exposure situations
- Planned exposure situation
- Existing exposure situations
- Emergency Exposure situations

Three categories of exposure
- Occupational exposure
- Medical exposure
- Public exposure

Protection and Safety requirements of the BSS apply to all facilities and activities
Combine, revise and supersede five safety guides
Safety Guide on Occupational Radiation Protection
- Following the revised BSS, jointly developed by IAEA and ILO
- Approved by CSS in April 2015 for publication
- Under publication process

Safety Report: Radiation Protection of Itinerant Workers
- Focusing on mobile skilled workforce;
- Emphasis on
  - The cooperation of different parties,
  - Dose tracking and radiation protection optimization
- Published in December 2015
Future plan for the safety standards on occupational radiation protection

Safety Report on the assessment of occupational exposure due to external sources of radiation
Safety Report on the assessment of occupational exposure due to intakes of radionuclides
Safety Report on radiation protection optimization
2nd International Conference on Occupational Radiation Protection
1-5 December 2014
Vienna, Austria
OCCUPATIONAL RADIATION PROTECTION CALL-FOR-ACTION

Protecting workers exposed to radiation
1. Implement the existing international safety standards to improve occupational protection of workers
2. Develop and implement new international guidance
3. Strengthen assistance to Member States with less developed programs for occupational radiation protection
4. Promote exchange of operating experience
5. Increase training and education in occupational radiation protection
6. Improve safety culture among workers exposed to ionizing radiation
7. Develop young professionals in the area of radiation protection
8. Convene an appropriate international forum to exchange additional information
9. Apply the graded approach of the IAEA International Basic Safety Standards (BSS): Radiation Protection and the Safety of Radiation Sources in protecting workers against exposures to elevated levels of naturally occurring radiation or radioactive materials
Activities to support BSS implementation

- IACRS BSS Working Group
- Collaborate with the IAEA in its development of Safety Guides relevant to protection of workers against radiation to support the BSS
- BSS Workshops in Africa (Madagascar) & Asia (China) in 2017
- ILO experts participation in the BSS promotion workshops
- Involvement of workers’ and employers’ organizations
- Industrial safety in nuclear facilities and nuclear power plant construction
Thank you!

Dr. Shengli Niu
Senior Specialist on Occupational Health
Labour Administration, Labour Inspection and Occupational Safety and Health Branch (LABADMIN/OSH)
International Labour Organization

Thank to:
Erica Martin, Monique Zarka-Martres, Jizeng Ma