

**Open-ended Meeting of Legal and Technical Experts to Develop Internationally Harmonized  
Guidance for Implementing the Recommendations of the Code of Conduct on the Safety and  
Security of Radioactive Sources in Relation to the Long-Term Management of Disused Radioactive  
Sources**

**Vienna, 20 to 23 October 2014**

**Report of the Chairman**

1. An open-ended meeting of technical and legal experts to develop internationally harmonized guidance for implementing the recommendations of the Code of Conduct on the Safety and Security of Radioactive Sources (the Code) in relation to the long-term management of disused radioactive sources was held from 20 to 23 October 2014 at the IAEA Headquarters in Vienna under the chairmanship of Mr Javier Zarzuela (Spain).
2. The meeting was attended by 162 experts from 73 Member States of the IAEA (Albania, Algeria, Argentina, Azerbaijan, Bahrain, Bangladesh, Belarus, Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, Burundi, Cambodia, Cameroon, Canada, Central African Republic, Chile, Cuba, Czech Republic, Democratic Republic of the Congo, Egypt, Estonia, France, Georgia, Germany, Ghana, Greece, Honduras, India, Indonesia, Islamic Republic of Iran, Iraq, Italy, Japan, Kazakhstan, Kenya, Lebanon, Libya, Lithuania, Madagascar, Malaysia, Mauritius, Montenegro, Morocco, Nepal, Nigeria, Pakistan, Peru, Philippines, Poland, Qatar, Romania, Russian Federation, Senegal, Seychelles, South Africa, Spain, Sudan, Sweden, Syrian Arab Republic, Tajikistan, Thailand, the Former Yugoslavian Republic of Macedonia, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United States of America, Vietnam, Yemen and Zimbabwe) and 1 non-Member State (Comoros). The meeting was also attended by 4 observers from: the European Commission, the International Source Suppliers and Producers Association (ISSPA) and the World Institute of Nuclear Security (WINS). The Scientific Secretaries for the meeting were Ms Christina George (Division of Nuclear Security) and Mr Hilaire Mansoux (Division of Radiation, Transport and Waste Safety). The rapporteurs for the meeting were Messrs Fred Morris and Anthony Wrixon (consultants).
3. The issue of long term management of disused sources has been raised in a number of meetings, notably the *International Conference on the Safety and Security of Radioactive Sources: Maintaining Continuous Control of Sources throughout Their Life Cycle*, held in Abu Dhabi in October 2013. The Conference President, while noting the achievements that had been made regarding the safety and security of radioactive sources, recommended that additional guidance at the international level for the long-term management of disused radioactive sources be developed, covering, at a minimum, the development of a national policy (including the establishment of interim storage facilities), the organization of the return to suppliers (including related financial arrangements) and the interface with transport and waste regulations. It considered that such guidance could be supplementary to the Code of Conduct. In view of this recommendation and the importance of the subject raised on several occasions, the Secretariat took the initiative to develop draft guidance with the help of a consultants' group which met in June 2014 and to convene an open-ended meeting of legal and technical experts to discuss the proposed content and format of this

guidance. The prepared draft was provided to participants of the meeting of legal and technical experts prior to the meeting.

4. The objective of the meeting of legal and technical experts was to review the draft document and make recommendations regarding the way forward, including the format in which the guidance should be presented.
5. The meeting was opened by Mr Denis Flory, Deputy Director General and Head of the Department of Nuclear Safety and Security. In welcoming the participants, he noted the widespread commitment of Member States to the Code and the great progress that has been made in implementing its provisions. He also noted the challenges that remain, including challenges related to the management of disused sources. He further noted that this issue has long been recognized as a critical matter at periodic Code meetings, such as at the Abu Dhabi Conference in 2013. He concluded his remarks by introducing Mr Javier Zarzuela, Nuclear Safety Council Spain, Chairman of the Meeting, and the Scientific Secretaries.
6. The Chairman recounted the history of the development of supplementary import-export guidance under the Code as well as the formalized process established in 2006 for meetings on the Code every three years, three of which have been held. The Chairman expressed the hope that the meeting would improve the draft and agree the path forward for the future guidance document to be submitted to the IAEA Board of Governors for approval.
7. Following discussion of administrative matters, the Scientific Secretaries made presentations on the rationale for development of guidance on long term management of disused sources, noting the wide recognition of the concerns on this topic. It was also noted that many States have introduced regulatory requirements for return of disused sources to suppliers, but that this option is not always available. As the Code of Conduct now enjoys wide acceptance and provides an appropriate framework, it was proposed that the guidance be a document parallel to the supplementary guidance on import and export, targeting States to enable them to understand the importance of the issue and the options for addressing it through policy and strategy. In this proposed format, the guidance would have high visibility, would address long-term management from both safety and security perspective, would build on the Code and would be consistent with Nuclear Security Plan and General Conference resolutions.
8. The Secretariat proposed that further development of the guidance, its approval and publication would follow the same process as the import export guidance, and there were no objections.
9. Mr Andrea Gioia, from the IAEA's Office of Legal Affairs, summarized the legal status of the Code and the import/export Guidance compared to other international instruments for safety and security. He identified the types of international legal instruments and noted that the main distinction is among legally binding instruments (treaties, under various titles) and non-legally binding instruments such as declarations, memoranda of understanding, and codes of conduct. The latter follow a less formal process for adoption. IAEA codes of conduct are an example. They may be strengthened by informal peer review mechanisms and mechanisms by which States make "political commitments". This is the case with the Code of Conduct on the Safety and Security of Radioactive Sources and its supplementary import-export guidance. Such commitments are not equivalent to a State's consent to be bound by a treaty.

10. Mr Eric Reber (IAEA) provided an overview of the IAEA Safety Standards, specific to the management of disused sources. Ms Christina George (IAEA) presented the hierarchy of the Nuclear Security Series, including the Nuclear Security Fundamentals, the Recommendations documents, Implementing Guidance, and Technical Guidance relevant to the long term management of disused sources.
11. Mr Hilaire Mansoux (IAEA) recalled provisions in the Code in relation to long term management of disused sources. He noted that the Code's objectives are to be achieved through a system of regulatory control from initial production to final disposal. The Code includes a definition of disused sources. Relevant substantive provisions on long term management include paras 7(a), 14, 15, 20(e)(vii), 20(q), 22(b), 22(c), and 27. He noted that the draft guidance is linked to one or more of the relevant provisions of the Code, and seeks to bridge the gap between the Code and the existing detailed safety and security guidance.
12. Several presentations discussed International Initiatives/Recent Activities on Long Term Management of Disused Sources. Ms Christina George and Mr Hilaire Mansoux discussed previous IAEA Code Meetings, Conferences and other events. In 2009 and 2012, Code meetings were dedicated to long term management during which all options were discussed. Other issues discussed included discovery of sources in scrap metal, disused sources/radioactive waste, the connection between the Code and the Joint Convention and proposals for exchange of information between Joint Convention contracting parties and Code meeting participants. While it was recognized that there is extensive guidance and other available resources from the IAEA, there is a need for a road map for disused source management. The decision of the Contracting Parties to the Joint Convention to give greater attention to the management of disused sources was highlighted during the 4th review meeting. The July 2013 IAEA Conference on Nuclear Security, the Abu Dhabi Conference of October 2013, and the IAEA Working Group on Radioactive Source Security, all highlighted the topic of long term management of disused sources. One of the recommendations of the President of the Abu Dhabi Conference was better integration of safety and security in IAEA guidance related to radioactive sources.
13. Ms Abigail Cuthbertson, U.S.A., presented the outcomes of the Disused Sources Working Group of the US Low-Level Radioactive Waste Forum. Recommendations from the Forum include establishing new disposal funding options, such as pre-payment plans or state funding; setting time limits for storage; requiring formal reuse or recycling plans for those who seek to avoid the time limits; improving source accounting; providing support for reuse and recycling; Several presentations discussed the IAEA Interregional Project to Strengthen Cradle to Grave Control of Radioactive Sources in the Mediterranean Region. Ms Monika Kinker (IAEA) presented an overview. She described the project objective focused on cradle to grave control of radioactive sources in the Mediterranean region, especially for disused sources for which regulatory control tends to be weaker. The Project provides support in seven discreet areas and has made a number of achievements both in capacity building and in providing tools and means. Three presentations from participants from Albania (Mr Rustem Paci) Bosnia-Herzegovina (Mr Jovica Bosnjak) and Morocco (Mr Lakbir El Hali) provided national perspectives on project implementation, benefits and challenges still to be solved with regard to disused sources. Mr Bernard Sevestre, France, made a presentation on the GIP sources-HA / WINS Workshop on End of Life Management. The workshop found that there are only two technical options for management of disused sources:

reuse/recycling and management as radioactive waste. In either case, there is need for interim storage, transport, and adequate funding. The workshop found that effective end of life management improves security, provided adequate security measures are provided at each step. The key areas for improvement are security for interim storage and security in transport. The workshop reached additional specific conclusions regarding return to supplier and repatriation, reuse and recycling, final disposal, interim storage, transport and logistics, international regulations and harmonization.

14. Mr Paul Gray, International Source Suppliers and Producers Association (ISSPA), provided ISSPA's perspective on the role of industry in long term management of disused sources. Industry's position is that disused source could and should be returned to any willing source manufacturer capable of safely and securely handling and managing it, ideally the supplier of the new source. Of the various options, industry prefers recycling/reutilization where possible. Upon return, industry may re-use, recycle or reprocess the source. Interim storage is part of end of life management in support of all the various options. Long-term storage is the least preferred option. ISSPA reported on particular challenges in connection with the designation of disused sources as radioactive waste, continued and long term availability of licensed transport containers, inconsistencies in transport regulations, limited transport supply chains, denials of shipment, costs of transporting disused sources to a supplier, availability of disposal in certain countries via the source manufacturer, and the challenges of estimating transport or disposal costs at the time of manufacture. ISSPA made a number of suggestions to address these issues and the commitment of industry in providing options was provided.
15. Ms Kate Roughan (IAEA) discussed technology developments related to long term management. She noted the IAEA takes a holistic approach to this topic. Technologies for Category 3-5 sources address retrievable conditioning, removal of sources from devices and placement in shielded containers, reuse and recycling. For Category 1-2 sources, management options include support of return to supplier/repatriation, recycling or reuse, transfer to centralized long-term storage, and disposal. Examples of technological support include the IAEA's mobile hot cell for removal and conditioning of high activity sources, including the associated long-term storage shield; alternative mobile hot cells; the new US-DOE Type B container; centralized storage facility design; and the borehole disposal concept.
16. Ms Renate Czarwinski (BFS, Germany) and Ms Sarah Case (US-DoS) provided a brief about the Ad-hoc Group of Major Source Supplier States history, composition, goals, topics of interest, resources and governance. The Ad Hoc Group is an informal group that meets to exchange views and ideas of importance to states that are major suppliers of radioactive sources, typically on the margins of IAEA Code of Conduct meetings.
17. The meeting then proceeded to discuss the draft guidance. This was initiated by an overview of the guidance by the rapporteurs, who were involved in the development. Then followed discussion of each section in turn. Many detailed comments were raised which were noted by the Secretariat. The following is a list of the major points for consideration in the preparation of the next draft:
  - a. The term "long-term management of disused radioactive sources" should be replaced with "management of disused radioactive sources" in the title and throughout the document.
  - b. The foreword should reference the legally non-binding nature of the guidance.

- c. The guidance should include a clear depiction of the relationships among the various management options (return to supplier, reuse, recycling, decay storage and disposal, including the need for safe and secure storage between the consecutive steps of the management process), early in the document, and possibly in graphical form. In this regard, definitions should be modified or added for supplier, reuse, and recycle.
- d. Due to the intended level of the guidance, prescriptive recommendations are not appropriate (follow the “what, not how” principle).
- e. There was significant discussion regarding the time period for interim storage, which should be addressed in the guidance.
- f. Various provisions related to scope now in the body of the guidance (e.g. the section on long-term management of disused sources within radioactive waste management) should be moved to scope.
- g. Recommendations should be formulated as “should” not “must” or “needs to” statements.
- h. The qualifier “as appropriate” was suggested for a number of provisions.
- i. The guidance should use a consistent term for the audience being addressed: i.e., “each State” (rather than “the State” or “States”).
- j. In several cases, the guidance could be re-phrased to recommend the establishment of “responsibilities and arrangements” for a particular topic, rather than the detailed contents of those arrangements.
- k. The guidance should be careful to avoid going into details of aspects already covered in IAEA safety standards, for example on radioactive waste management.
- l. Greater emphasis should be placed on the importance of qualification and training of personnel involved in management of disused sources.
- m. Several references to “conditions of authorization” should be replaced by a more generic phrase, such as the “regulatory and authorization process” to reflect differing national approaches to regulation.
- n. The importance of financial arrangements for management of disused sources was generally acknowledged, although some participants emphasized the difficulty of accurately estimating costs over the often lengthy time periods involved. A specific section should be considered.
- o. The point at which a disused source is designated as radioactive waste was acknowledged as an issue that needs further consideration.
- p. The guidance should clearly distinguish among onsite storage by the user and storage of multiple sources in a government designated facility, although terminology for the various modes of storage was not fully determined.
- q. The continued availability of national storage capabilities was recognized as necessary.
- r. The guidance should more clearly address the information on disused sources to be maintained by States or authorized persons, using terminology that is sufficiently general to account for variations in approach and nomenclature among States.
- s. Participants discussed the issues related to transporting disused sources which have lost their special form certificates, as well as the certification, availability and cost of transport containers.

- t. Participants agreed that the guidance should address management of orphan sources rather than their discovery, although the line is not always easy to draw.

18. From the discussions held, the following conclusions were drawn:

- a. The meeting supported the initiative to develop the guidance on the management of disused sources which would be of considerable value to Member States.
- b. The meeting agreed that the development of the guidance should continue to be pursued as supplementary guidance under the Code of Conduct, at a similar level as the Import/Export Guidance.
- c. The level of participation and engagement during the meeting demonstrated the interest in the need for, and the importance of this guidance for the safety and security of disused radioactive sources.
- d. The meeting supported the approach and the proposed format of the draft guidance.

19. The meeting also made the following Recommendations:

- a. The Secretariat should prepare a revised version of the draft guidance addressing the participants' comments.
- b. The Secretariat should schedule a second open-ended meeting of technical and legal experts to review the revised draft.
- c. The Secretariat should inform on progress on the guidance at the next review meetings of the Code of Conduct and the Joint Convention.
- d. The Secretariat should submit this report to the Board of Governors for its information and direction on the way forward.



Javier Zarzuela Jiménez  
Chairman  
23 October 2014