Open-ended Meeting of Technical and Legal Experts to Develop a Non-Binding Instrument on the Transboundary Movement of Scrap Metal that may Inadvertently Contain Radioactive Material

Vienna, 6-8 July 2011

Report of the Chairman

1. An open-ended meeting of technical and legal experts to develop a non-binding instrument on the transboundary movement of scrap metal that may inadvertently contain radioactive material was held from 6 to 8 July 2011 at the IAEA Headquarters in Vienna under the chairmanship of Mr R. Irwin (Canada).

2. The meeting was attended by 40 experts from 31 Member States of the IAEA (Algeria, Argentina, Australia, Belgium, Bulgaria, Canada, Croatia, Cuba, Ecuador, Finland, France, Germany, Greece, India, Indonesia, Islamic Republic of Iran, Mexico, Mozambique, Netherlands, Pakistan, Russian Federation, Slovakia, Slovenia, South Africa, Spain, Sweden, Thailand, Ukraine, United Kingdom, United States of America, Vietnam) and one non-Member State of the IAEA (Laos). The meeting was also attended by 5 observers from the following organizations: the Bureau of International of Recycling (BIR), the European Commission (EC), the Federacion Espanola de la Recuperacion (FER), the Institute of Scrap Recycling Industries (ISRI), and the World Nuclear Association (WNA). The Scientific Secretaries for the meeting were Mr E. Reber (Division of Radiation, Transport and Waste Safety) and Mr W. Tonhauser (Office of Legal Affairs). The rapporteur for the meeting was Mr. A. Wrixon.

3. Pursuant to GC(54)RES/7, the objective of the meeting was to undertake exploratory discussions concerning the development of a non-binding international instrument that will establish and harmonize an appropriately graded approach by States to the protection of people, property and the environment from the inadvertent presence of radioactive material in scrap metal that is transported across State boundaries.

4. The meeting was opened by Mr Pil-Soo Hahn, Director of the Division of Radiation, Transport and Waste Safety. In his opening remarks, Mr Hahn noted that metal recycling has become an important industrial activity worldwide and is socially and environmentally beneficial. However, accidents over past decades had occurred involving radioactive material that is inadvertently present in the scrap metal. In some cases these accidents led to serious harm and environmental consequences. Mr. Hahn noted that there are two main origins of radioactive material in scrap metal, viz. sealed radioactive sources that are not under regulatory control, and unsealed radioactive material as a result of either melting of “orphan sources” or inadequate control during the decommissioning of a nuclear or other facility. Furthermore,
naturally occurring radioactive material may be present in scrap metal from industries that process large amounts of raw material.

Mr. Hahn noted that scrap metal is widely traded internationally but the level of monitoring for the presence of radioactive material varied considerably among States. There are also differences in acceptance levels and responses to the discovery of radioactive material. If shipments of scrap metal containing radioactive material were rejected and transported without the proper application of radiation safety provisions, opportunity for bringing the radioactive material under regulatory control would be lost. In response to growing international concern with problems such as these, the International Conference on Control and Management of Radioactive Material Inadvertently Incorporated into Scrap Metal was convened in Tarragona, Spain in February 2009. The participants at the conference unanimously recognized “the potential benefit that would result from establishing some form of binding international agreement between States” to address these problems.

5. Following Mr. Hahn’s remarks, the Chairman described the outcomes of the consultants’ meeting that was held in Vienna in July 2010, notably the development of an initial draft of an international agreement, and the recommendation to the Secretariat that the agreement should be non-binding. Mr. Irwin raised a number of issues that he felt the meeting should consider—the implications of a non-binding agreement for the different modes of transport, the value of a certificate indicating the monitoring that had been carried out, the value of visual inspection, whether a standard was required on the monitoring of scrap metal and the factor of naturally occurring radioactive material detections at facilities with scrap metal monitoring capability.

6. Mr Reber provided the background to the meeting:

a. Starting with the Tarragona Conference, he noted that an acceptance criterion of zero contamination was not possible but that consensus had been reached on the levels of radioactive contamination below which regulatory control should not be necessary. These levels are found in IAEA Safety Standard RS-G-1.7.

b. Later, in September 2009, in resolution GC(53)/RES/10, the General Conference noted “the outcomes from the International Conference on Control and Management of Radioactive Material Inadvertently Incorporated into Scrap Metal held in Spain in February 2009, and [requested] the Secretariat to take into account the recommendations of this conference.”

c. The Secretariat accordingly convened a meeting of consultants in Vienna in July of 2010 to explore the development of some type of international agreement concerning the transboundary movement of scrap metal containing radioactive material. Among the outcomes of the work of the consultants were recommendations that the “agreement” be non-binding and a request that the General Conference recommend that the Secretariat should begin preparatory work on the
development of a non-binding international instrument in this regard, including the convening of an open-ended meeting of technical and legal experts to undertake discussions in line with the findings of the consultancy meeting. (GC (54)/Res/7).

7. Mr Tonhauser provided a review of the different types of binding and non-binding legal instruments.

8. Two presentations on issues relevant to the transboundary movement of scrap metal that may inadvertently contain radioactive material were made by participants:

   a. One presentation covered the arrangements made in Croatia regarding border monitoring and the regional cooperative agreement reached between the Balkan States.

   b. The other presentation covered the experience obtained in Spain in the implementation of the so-called "Spanish Protocol", that was established following the Acerinox accident in 1998. The decision taken by the government, industry and the industry association in Spain, was to develop a voluntary agreement between the various parties.

9. Later on the first day, there followed a discussion of matters arising from the presentations and subsequently a general discussion of numerous issues and Member State and industry concerns associated with the draft agreement or Code of Conduct that had been drafted during the July, 2010 consultancy. A copy of the draft Code of Conduct was provided to participants prior to the meeting.

10. The remainder of the first day and all of the second day of the meeting were devoted to a review of the draft Code of Conduct in an annotated version.

11. In addition, on the first day of the meeting, the five observers in attendance were given time to offer their views and reactions to issues that had been identified in the introductory presentations and in the general discussion. The observers were also asked to offer their views and opinions at any time throughout the meeting. The efforts of industry associations were notable because they included the development of information documents to educate workers about the types, sizes, shapes and labelling of the kinds of radioactive sealed sources that they might possibly encounter in the course of their work with scrap metal. The observer from the European Commission (EC) expressed a concern that the IAEA incorporates activity concentrations from RS-G-1.7 in the draft Code of Conduct that are, in some cases (e.g. for cobalt-60), a factor of ten lower than the clearance levels that have been developed for metal recycling that are being used in the EC. The EC representative remarked that there are large volumes of metal that have been contaminated with radioactive material as a result of the Fukushima accident.

12. On day three of the meeting, the participants met in plenary to discuss the overall findings and review the report of the Chairman.
The key findings are described below:

1. What to call the document in question was a matter brought to the attention of meeting participants. The July, 2010 consultancy meeting produced a draft “agreement” and the September, 2010 General Conference resolution indicated that the Secretariat should “begin preparatory work on the development of a non-binding instrument”. After some discussion, it was decided that the document should be a Code of Conduct, hereafter referred to as the “Metal Recycling Code”. By developing the document as a Code of Conduct, it would be easily identified, understood as non-binding and it would also follow a development process at the IAEA similar to other codes of conduct.

2. The presence of orphan sources and unsealed radioactive material in scrap metal often results in significant safety consequences, as well as economic impacts to the industry. It was confirmed by the meeting participants that the development of this Code of Conduct should be handled within the context of radiation safety. Radiation monitors are often installed to monitor vehicles and trains and vessels at border crossings and at ports and these monitors sometimes detect radioactive material that is inadvertently present in scrap metal; however, at such locations, their primary purpose is to detect radioactive and nuclear material that may be trafficked for illicit purposes.

3. The meeting noted that the Metal Recycling Code will be a non-binding instrument primarily among States, but its success would rely heavily upon the efforts of the industry to purchase, install, and properly set up radiation monitors, to train facility staff, to routinely monitor consignments of scrap metal in a consistent manner and to respond to, investigate and report radiation alarms in a graded fashion in accordance with the level of radiation risk posed by the occurrence detected. Notification and response processes concerning the discovery of radioactive material would need to be developed in conjunction with national authorities.

   Details of these arrangements are a matter for national authorities and not within the scope of the Metal Recycling Code.

4. Many participants agreed with the proposal of taking a positive approach to the problem of the inadvertent presence of radioactive material in scrap metal. Such an approach was characterized by a focus on dealing with the problem and not penalizing the party who discovered the orphan source. Participants were also of the opinion that, if possible, a discovery of radioactive material in scrap metal should be dealt with and resolved locally. Some Member States described how a consignment of scrap metal might sometimes be rejected, either at a facility or at a border crossing. The rejection of a consignment, without investigation, results in the movement of radioactive material in a manner that could contravene the IAEA transport regulations, poses a potential radiation hazard for other workers and the public and simply moves the problem to different location.

5. The participants noted that scrap metal recycling facilities are the best locations for monitoring scrap metal and for investigating, identifying and
removing the radioactive material that was inadvertently incorporated into a consignment. A scrap metal recycling facility is normally a location where the heavy equipment that is often needed to open a consignment, the physical space required to spread out and investigate a consignment and the secure location to carry out this work are all readily available. Border crossings seldom meet all of these needs.

6. Mr Tonhauser pointed out the importance of having a clear understanding of the relationships and boundaries between this Scrap Metal Code, the Code of Conduct on the Safety and Security of Radioactive Sources (notably the definition of radioactive source), the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (specifically, Articles 27 and 28), and the Specific Safety Guide on “Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries”, (SSG-17). The participants agreed that the next technical meeting concerning the development of this Code of Conduct will include a discussion of these issues.

7. Meeting participants expressed strong opinions about the issue of a certificate intended to accompany each consignment of scrap metal. The draft working document for this meeting used the word “certificate”, but the use of the word “certificate” carries with it the suggestion that a load of scrap metal is guaranteed to be free of radioactive material by a third party.

The participants at the meeting noted that even with the best monitoring equipment and techniques, for such reasons as the complex geometry of scrap metal consignments, the variety of possible radionuclides that might be inadvertently incorporated into a consignment and the radiation shielding characteristics of scrap metal itself, it is impossible to “certify” that a load is free of radioactive material.

In addition, there were questions about who would issue the certificate. Any certification process was expected to be complex and expensive.

The participants at the meeting preferred the use of a different term and in the later stages of the meeting, the phrase “radiation monitoring report” was suggested. The radiation monitoring report, whether in paper or electronic form, would still include the same information as the earlier certificate, but without the attendant liability and other associations of the word “certificate”.

8. The participants also discussed the difficulty of complying with the IAEA Transport Regulations if radioactive material is discovered in a consignment of scrap metal or semi-finished products at a location without proper facilities and equipment to open and investigate the load. If the consignment must be moved to another facility to be properly investigated or if the material is to be returned, it cannot be moved in accordance with the Transport regulations unless the radioactive material is characterized. Some Member States have drafted documents and procedures to address these circumstances in whole or in part, but some additional discussion is needed to deal with such situations in a consistent and compliant manner.
9. The participants noted the difficulties associated with the harmonization of scrap metal radiation monitoring practices in Member States and the difficulties of relating the annex values to measurable quantities. A wide variety of methods and equipment are currently in use including hand held gamma radiation survey instruments, portal radiation monitors (most are large volume plastic scintillators) of various designs that monitor the sides and the top of loads and grapples with built in radiation detectors. Procedures for monitoring and for validating an alarm also differ among States and may necessitate further international consideration. Participants proposed that a discussion concerning current developments in the monitoring of scrap metal and semi-finished products and the presence of radioactive material should be held at the next technical meeting.

10. The participants devoted some time to a discussion of the responsibilities of so called “Transit States”. Participants were in general agreement that detections of radioactive material in scrap metal are best investigated and resolved locally and Transit States generally do not want to bear the costs of the investigation, management and disposal of any radioactive material discovered. The participants were not insistent that Transit States should monitor consignments of scrap metal for the presence of radioactive material, but detections were certainly possible. It did not seem fair that a Transit State should have to bear the costs associated with the management and disposal of a source following its discovery.

11. Participants noted that, in view of the wide range of situations that may cause radiation detectors to alarm when scrap metal is monitored, a graded approach to responding to and reporting these alarms is necessary. A high percentage of these radiation alarms are caused by naturally occurring radioactive material (NORM), which normally have minor radiological implications. A suggestion was made that the next open-ended meeting on the development of this Code of Conduct should include presentations concerning the handling and management of NORM that is discovered in scrap metal.

12. The Secretariat noted that the IAEA process for the development of a Code of Conduct normally involves several open-ended meetings followed by consideration by the Agency’s policy making organs. Participants agreed on a schedule involving a second open-ended meeting of technical and legal experts to be held in late 2011 or early 2012 that will be held with the goal of producing a final draft Code of Conduct that will be submitted for consideration at the 2012 IAEA General Conference.

On July 8, 2011, the chairman’s report was discussed and the input of meeting participants was incorporated.

Robert Irwin,
Chairman