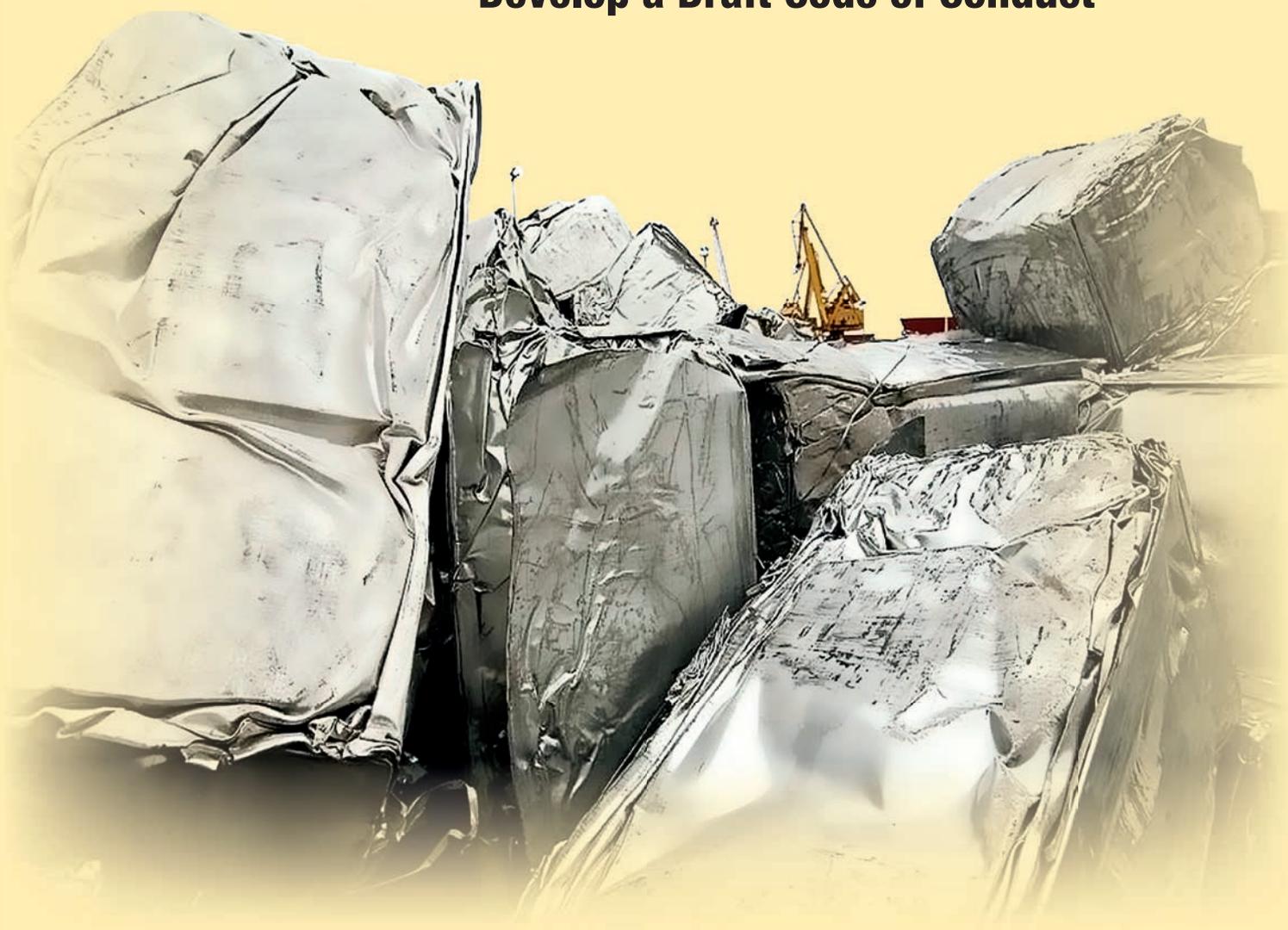


# **Control of Transboundary Movement of Radioactive Material Inadvertently Incorporated into Scrap Metal and Semi-finished Products of the Metal Recycling Industries**

**Results of the Meetings Conducted to  
Develop a Draft Code of Conduct**



**IAEA**

International Atomic Energy Agency

CONTROL OF TRANSBOUNDARY  
MOVEMENT OF RADIOACTIVE MATERIAL  
INADVERTENTLY INCORPORATED  
INTO SCRAP METAL AND  
SEMI-FINISHED PRODUCTS OF THE  
METAL RECYCLING INDUSTRIES

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DEVELOP A DRAFT CODE OF CONDUCT

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CONTROL OF TRANSBOUNDARY MOVEMENT OF RADIOACTIVE MATERIAL INADVERTENTLY INCORPORATED  
INTO SCRAP METAL AND SEMI-FINISHED PRODUCTS OF THE METAL RECYCLING INDUSTRIES

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## FOREWORD

In 2010, the IAEA initiated the development of a code of conduct on the transboundary movement of radioactive material inadvertently incorporated into scrap metal and semi-finished products of the metal recycling industries (Metal Recycling Code of Conduct). The Metal Recycling Code of Conduct was intended to harmonize the approaches of Member States in relation to the discovery of radioactive material that may inadvertently be present in scrap metals and semi-finished products subject to transboundary movement, and their safe handling and management to facilitate regulatory control.

The Metal Recycling Code of Conduct was envisaged as being complementary to the Safety Guide on Control of Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries (IAEA Safety Standards Series No. SSG-17), which provides recommendations, principally within a national context, on the protection of workers, members of the public and the environment in relation to the control of radioactive material inadvertently incorporated in scrap metal.

In February 2013, the third open-ended meeting of technical and legal experts to develop the Metal Recycling Code of Conduct was organized. The objective of this meeting was to address the comments received from Member States and to finalize the text of the draft Metal Recycling Code of Conduct. Representatives from 55 Member States, one non-Member State and the EU, together with seven observers from the metal recycling industry, reviewed the comments and revised the draft accordingly.

In September 2013, in Resolution GC(57)/RES/9, the IAEA General Conference recorded that it “Appreciates the intensive efforts undertaken by the Secretariat to develop a code of conduct on the transboundary movement of scrap metal, or materials produced from scrap metal, that may inadvertently contain radioactive material, and encourages the Secretariat to make the results of the discussion conducted on this issue available to Member States by issuing a relevant TECDOC...” In accordance with GC(57)/RES/9, the draft text developed through the three open-ended technical meetings is provided in this publication.

The IAEA officer responsible for the development of this publication was E. Reber of the Division of Radiation, Transport and Waste Safety.

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## INTRODUCTION

Metal recycling has become an important industrial activity. The worldwide consumption of scrap metal is of the order of five hundred millions of tonnes each year. The presence of radioactive material in scrap metal or the semi-finished products of the metal recycling industries may cause health, economic and public acceptance problems. Furthermore, this industrial activity has a large international dimension since there is substantial transboundary movement of scrap metal and the semi-finished products of the metal recycling industries. The International Conference on Control and Management of Radioactive Material Inadvertently Incorporated into Scrap Metal was organized in Tarragona, Spain, in 2009 to share experiences in order to contribute towards the resolution of the problems caused by the inadvertent presence of radioactive material in scrap metal. Many participants considered that the main problems were associated with the import of scrap metal.

The participants of the conference unanimously recognized “the potential benefit that would result from establishing some form of binding international agreement between governments to unify the approach to trans-border issues concerning scrap metal containing radioactive material”.

In September 2009, in resolution GC(53)/RES/10, the IAEA 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”.

In response, the IAEA Secretariat held a Consultancy Meeting in Vienna in July 2010 “to develop an initial draft proposal for an international agreement concerning the trans-boundary movement of scrap metal containing radioactive material”. In September 2010, the IAEA General Conference requested, in resolution GC(54)/RES/7, “the Secretariat to begin preparatory work on the development of a non-binding international instrument, including the convening of an open-ended group of technical and legal experts to undertake discussions in line with the findings of the Consultancy Meeting that was held in July 2010”.

The first 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 in Vienna in July 2011. This meeting agreed that the non-binding instrument should take the form of a Code of Conduct and held initial discussions on a draft text. In resolution GC(55)/RES/9, the General Conference noted “the outcomes of [the] open-ended meeting of technical and legal experts ... concerning the development of a non-binding instrument on the transboundary movement of scrap metal that may inadvertently contain radioactive material, and [called] upon the Secretariat to proceed with the development of a Code of Conduct”.

The second 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 in Vienna on 30 January to 3 February 2012. This meeting agreed the text of the draft Code and recommended that the Secretariat solicit further input by circulating it and any necessary background information to all Member States for comment.

This Code of Conduct takes account of other related developments spanning the past decade or so that relate to the safety and security of radioactive sources. These developments are described below.

A particularly important step was the development of an international undertaking on the safety and security of radioactive sources. The concept of such an international undertaking was highlighted in the major findings of the International Conference on the Safety of Radiation Sources and the Security of Radioactive Materials held in Dijon, France, in September 1998. This led to the Code of Conduct on the Safety and Security of Radioactive Sources which was approved by the IAEA Board of Governors in 2003 and, in resolution GC(47)/RES/7, endorsed by the General Conference. The general objective of the Code of Conduct on the Safety and Security of Radioactive Sources is to achieve a high level of safety and security of radioactive sources that may pose a significant risk to health. These are referred to as Category 1, 2 and 3 sources and are defined in Annex I of the Code. The Code includes guidance on general basic principles, legislation and the regulatory body, with some specific guidance on the import and export of radioactive sources. In response to a request from the Chairman of the Board of Governors, the matter of the import and export of radioactive sources was further explored and this led to the development of further guidance which is given in “Guidance on the Import and Export of Radioactive Sources” to supplement the Code. A revised text was approved by the Board of Governors in September 2011 and the General Conference, in resolution GC(55)/RES/9, endorsed it. It is focused on those radioactive sources in Categories 1 and 2 of Annex I of the Code.

In spite of the efforts made to improve the safety and security of the radioactive sources that may pose a significant risk to individuals, society and the environment, such sources may still inadvertently be incorporated into scrap metal. Radioactive sources in lower categories than those considered by the Code of Conduct on the Safety and Security of Radioactive Sources may also present a risk to health or be the source of contamination in metal recycling facilities. Furthermore, radioactive material in unsealed form may be present in scrap metal, either as radionuclides of natural origin or for reasons of inadequate control of radioactive material used in nuclear or industrial facilities.

The development of internationally agreed values of activity concentration for radionuclides in bulk amounts of material (commodities, in general) marked the culmination of efforts spanning several years. In September 2000, the General Conference requested the Secretariat “to develop, using the Agency’s radiation protection advisory mechanisms and in collaboration with the competent organs of the United Nations and with the specialized agencies concerned, [...] radiological criteria for long-lived radionuclides in commodities, particularly foodstuffs and wood, and to submit them to the Board of Governors for its approval”. Work on non-comestible commodities was subsequently carried out by the Secretariat. The result of this was the publication of the IAEA Safety Guide on Application of the Concepts of Exclusion, Exemption and Clearance (IAEA Safety Standards Series No. RS-G-1.7, IAEA, Vienna (2004)), which provides values of activity concentration for radionuclides (both of natural and of artificial origin) in bulk amounts of materials and provides guidance on their application to national and international trade in commodities.

In September 2004, the Board of Governors approved the use of these radiological criteria for radionuclides in commodities in the application of the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of

Radiation Sources (BSS) and encouraged Member States to make use of them, for example, to facilitate trade. The Board's approval was subsequently welcomed by the General Conference. These values were later incorporated into Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards (IAEA General Safety Requirements Part 3 (Interim Edition), Vienna, 2011) and into the IAEA Safety Guide on Control of Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries, IAEA Safety Standards Series No. SSG-17, IAEA, Vienna (2012).

This Code of Conduct on the Transboundary Movement of Radioactive Material Inadvertently Incorporated into Scrap Metal and Semi-finished Products of the Metal Recycling Industries was approved by the Board of Governors on... In Resolution..., the General Conference in September... welcomed the adoption of the Code by the Board, and endorsed the Code. It also encouraged Member States to apply the Code to the recycling of scrap metal and requested the Secretariat to assist Member States in the implementation of the Code within available resources.

While the Code of Conduct is non-binding, the Secretariat expects that its implementation will help national authorities to ensure that radioactive material that has inadvertently been incorporated into scrap metal or the semi-finished products of the metal recycling industries will be discovered and appropriately managed within an appropriate radiation safety framework.

## PREAMBLE

THE IAEA'S MEMBER STATES,

Noting that radioactive sources are used throughout the world for a wide variety of beneficial purposes, e.g. in industry, medicine, research, agriculture and education,

Noting that unsealed radioactive material may inadvertently be present in scrap metal and the semi-finished products of the metal recycling industries,

Noting that the absence or loss of control has resulted in the incorporation of radioactive material, particularly radioactive sources, into scrap metal, which has sometimes resulted in serious health consequences, and that the subsequent melting of radioactive material with scrap metal has sometimes led to serious economic consequences and to health detriment resulting from radiation exposure,

Recognizing the need to protect people, property and the environment from the harmful effects of ionizing radiation arising from radioactive material, whether as discrete sources or in unsealed form,

Recognizing that there is substantial international trade in scrap metal and the semi-finished products of the metal recycling industries,

Noting that the risks associated with radioactive material inadvertently incorporated into scrap metal and the semi-finished products of the metal recycling industries varies over many orders of magnitude and the occurrence of such radioactive material in these industries is relatively rare,

Noting that the size of operations within the metal recycling industries varies widely, from small facilities involving small tonnage of scrap metal to large facilities handling hundreds of thousands of tonnes or more of scrap metal and therefore that a graded approach is necessary with the main focus being on large facilities such as those that operate shredders and melt scrap metal,

Recognizing that, in most cases, radioactive material that is found at a metal recycling facility has been delivered by a third party without the consent or approval of the affected metal recycling facility and that such facilities are not usually subject to regulatory requirements for authorization for handling radioactive material,

Recognizing that the shielding inherent in bulk quantities of scrap metal may mask the presence of radionuclides,

Recognizing that the risks arising from such incidents are minimized and protected against through the application of appropriate radiation safety standards, including administrative controls,

Recognizing that many States have established radiation monitoring at borders primarily for the purpose of nuclear security and that such monitoring systems will also detect radioactive material that has been inadvertently incorporated into scrap metal or the semi-finished products of the metal recycling industry,

Noting that *Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards* (IAEA General Safety Requirements Part 3, Vienna, 2011) contain recommendations for protection against exposure to ionizing radiation and for the safety of radioactive sources, and that *Governmental, Legal and Regulatory Framework for Safety* (IAEA General Safety Requirements Part 1, Vienna, 2010) contains recommendations regarding the necessary infrastructure for safety,

Taking account of the provisions of the Convention on Early Notification of a Nuclear Accident (1986) and of the provisions of the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1986) and the arrangements given in the *Operations Manual for Incident and Emergency Communication* (IEComm 2012) for communicating to the IAEA in emergencies,

Taking account of the provisions of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997) that apply to “radioactive waste” and disused “sealed sources” as defined therein,

Taking account of the guidance given in the Code of Conduct on the Safety and Security of Radioactive Sources (2004), in particular those provisions relating to the need for gaining or regaining control over orphan sources in Categories 1, 2 and 3,

Taking account of the Guidance on the Import and Export of Radioactive Sources, which contains provisions relating to the import and export of Category 1 and 2 radioactive sources,

Taking account of the IAEA Safety Requirements, *Regulations for the Safe Transport of Radioactive Material* (IAEA Safety Standards Series No. SSR-6, Vienna 2012),

Taking account of the guidance given in the IAEA Safety Guide, *Application of the Concepts of Exclusion, Exemption and Clearance* (IAEA Safety Standards Series No. RS-G-1.7, Vienna, 2004) and in the IAEA Safety Guide, *Control of Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries* (IAEA Safety Standards Series No. SSG-17, Vienna, 2012),

Noting that the prevention and detection of, and response to, malicious acts involving radioactive material are considered in the IAEA Nuclear Security Series,

Noting that much of the guidance in this Code could also apply to radioactive material that is inadvertently present in scrap metal or semi-finished products that are not subject to transboundary movement, even though such material is excluded from this Code,

Recognizing that while finished metal products are excluded from this Code, there may be circumstances where radioactive material may be inadvertently incorporated into finished products. When discovered, there may be circumstances where they should be managed in accordance with the objectives of this Code,

Recognizing that some States require additional technical guidance concerning the implementation of this Code within the metal recycling industry,

Recognizing the global role of the IAEA in the area of radiation safety,

DECIDE that the following Code of Conduct should serve as guidance to States and industry for — *inter alia* — the development and harmonization of policies, laws and regulations on the transboundary movement of radioactive material inadvertently incorporated into scrap metal and the semi-finished products of the metal recycling industries.

## I. DEFINITIONS

For the purposes of this Code:

“consignment” means a load of scrap metal or the semi-finished products of the metal recycling industries destined for or delivered to an importing facility from an exporting facility.

“export” means the physical transfer of a consignment from an exporting State to a State of transit or an importing State.

“exporting facility” means the natural or legal person in an exporting State from which an export of a consignment originates.

“exporting State” means the State of origin of a consignment.

“import” means the physical transfer of a consignment into an importing State.

“importing facility” means the natural or legal person in an importing State that receives imports of a consignment.

“importing State” means the State of final destination of imports of a consignment.

“investigation level” means the value of a quantity such as a radiation level or count rate, at or above which, an investigation should be conducted.

“metal recycling industries” means all those physical and legal entities involved in the recycling of scrap metal, such as facilities carrying out collection, sorting and processing of scrap metal, including foundries, and metallurgical operations.

“radiation monitoring” means the use of suitable equipment and measurement methods for the detection of radiation in scrap metal and semi-finished products.

“radioactive material” means a radioactive source, or other material with an activity concentration above the relevant value given in Annex I of this Code for purposes of transboundary movement of consignments or, within its territory, as specified by the regulatory body.

“radioactive source” means material that is: (a) permanently sealed in a capsule; or (b) closely bonded and in a solid form, containing radionuclides with activity levels above the relevant value given in Annex II of this Code.

“regulatory body” means an authority or a system of authorities designated by the government of a State as having legal authority for conducting the regulatory process — including the issuing of authorizations — and thereby regulating nuclear, radiation, radioactive waste and transport safety.

“regulatory control” means any form of control or regulation applied to facilities or activities by a regulatory body.

“safety” means the protection of people, property and the environment against radiation risks, and the safety of facilities and activities that give rise to radiation risks.

“scrap metal” means metal that is no longer in use and is available for recycling or is being recycled for reuse.

“semi-finished products” means initial products produced in whole or in part from scrap metal through metallurgical operations.

“State of transit” means any State, other than the exporting State or importing State, through whose territory a transboundary movement is planned or takes place.

“transboundary movement” means any movement of a consignment from one State to or through another.

“visual inspection” means an attempt to recognize by sight radioactive sources and their containers and the various signs, labels and placards that are used to indicate their presence.

## **II. OBJECTIVES**

1. The objective of this Code is to protect people, property and the environment from ionizing radiation arising from the transboundary movement of radioactive material that may be inadvertently incorporated into scrap metal and semi-finished products of the metal recycling industries by bringing that radioactive material under regulatory control.
2. In particular, this Code is aimed at harmonizing the approach of States with regard to:
  - (a) Discovering the presence of; and
  - (b) Handling and managing in a safe manner;radioactive material that may inadvertently be present in a consignment.
3. This Code is intended to complement existing international legal instruments, standards and guidance relating to radiation, transport and radioactive waste safety.

## **III. SCOPE**

4. This Code sets out provisions for the discovery of, and response to, radioactive material inadvertently incorporated into scrap metal and the semi-finished products of the metal recycling industries destined for or delivered to an importing State from an exporting State.
5. Implementation of this Code is without prejudice to the authorized movement of radioactive material.

## **IV. IMPLEMENTATION OF THIS CODE**

6. Implementation of this Code should be accomplished through the development, harmonization and implementation of national policies, laws, regulations, guidance, and strategies, as applicable, and through the fostering of international cooperation. In implementing this Code, States are encouraged to make appropriate use of the IAEA’s safety standards.
7. Every State should encourage the metal recycling industries and national authorities to cooperate in order to meet the objectives of this Code and in particular, to bring any radioactive material discovered under regulatory control in order to protect people, property and the environment.
8. Every State should adopt a graded approach according to the possible radiation risks, the size of the metal recycling facility and the capabilities of the operator of the facility to address the problem.

## **V. POINT OF CONTACT**

9. Every State should identify a point of contact or channel of communication for the purpose of facilitating communication among the exporting State, the importing State and the State(s) of transit in the event that radioactive material is discovered in a consignment. If more than one point of contact is designated by a State, the State should indicate which point of contact should be contacted under which circumstances. States are encouraged to provide the details of these points of contact or channel of communication to the IAEA.

## **VI. ROLE OF THE STATE**

### GENERAL

10. Every State should, in order to protect people, property and the environment, take the appropriate measures necessary to ensure, to the extent possible, that consignments do not contain radioactive material.
11. Every State should ensure that provisions are established regarding the responsible organizations and arrangements for dealing with the response to, and the consequences of, any discovery of radioactive material in a consignment within its territory. These provisions should be consistent with requirements for radiological emergencies, transport of radioactive material, and radioactive waste management, as appropriate.
12. Every State should implement provisions such that operators of metal recycling facilities are encouraged to report the discovery of radioactive material in order that appropriate action may be taken by the State to bring the material under regulatory control.
13. Every State should ensure that any radioactive waste arising from radioactive material that has been inadvertently incorporated into a consignment is managed in an appropriately safe manner.
14. Every State should encourage importing facilities to make it a contractual obligation, where appropriate, for the exporting facility to provide a radiation monitoring report with the information given in Annex III of this Code, to obtain assurance that the consignment contains no radioactive material, as far as can be ascertained.
15. Every State should promote cooperation and establish arrangements with relevant importing States, exporting States and State(s) of transit regarding the discovery of, and response to, the presence of radioactive material in consignments.
16. Every State should ensure that the appropriate personnel of facilities in the metal recycling industries, and national customs and/or border control authorities are aware:
  - (a) That radioactive material may inadvertently have been incorporated into a consignment;
  - (b) Of procedures for reviewing associated radiation monitoring reports containing the information given in Annex III of this Code; and

- (c) Of the actions necessary to deal with the suspected presence of radioactive material in a consignment.
- 17. Every State should ensure that adequate resources are available to implement this Code.
- 18. Every State should, as appropriate, inform persons who may be involved in the discovery of, and response to, radioactive material in consignments, such as industry and government bodies, of the measures it has taken to implement this Code.

#### MANAGEMENT OF RADIOACTIVE MATERIAL DISCOVERED IN A CONSIGNMENT

- 19. Every State should ensure that any radioactive material discovered in a consignment within its territory, or under its jurisdiction or control, is promptly brought under regulatory control and managed safely.
- 20. Every State should promptly inform potentially affected States, directly or through the IAEA or through another mechanism, in the event of it becoming aware that radioactive material may be present in a consignment that has been dispatched.
- 21. Every importing State or State of transit should, on discovery of radioactive material in a consignment, notify the exporting State without undue delay.
- 22. If the importing State or State of transit decides to return radioactive material discovered in a consignment within its territory to the exporting State, the importing State or State of transit should satisfy itself, insofar as practicable, that the exporting State has the appropriate administrative and technical capability, resources and regulatory infrastructure needed to manage the radioactive material safely.
- 23. Every exporting State should allow for re-entry into its territory of any radioactive material discovered in a consignment initially exported from its territory.
- 24. Every State should ensure that the return of any radioactive material discovered in a consignment within its territory should take place in a manner consistent with existing relevant international standards relating to the safe transport of radioactive material.
- 25. Each State should take appropriate measures consistent with its national law to protect the confidentiality of any information that it receives in confidence under this Code of Conduct from another State or through participation in an activity carried out for the implementation of this Code of Conduct.

#### **VII. ROLE OF THE REGULATORY BODY**

- 26. The regulatory body should:
  - (a) Liaise and coordinate with the metal recycling industries, and the customs and/or border authorities, in order to ensure effective cooperation in the event of the discovery of radioactive material;

- (b) Assist, as necessary, in a graded manner according to the radiation risk, in confirming the presence of radioactive material that has inadvertently been incorporated into scrap metal or the semi-finished products of metal recycling, following notification by the facility, or the customs and/or border authorities or other relevant national authorities;
- (c) In cooperation with other relevant national authorities, develop policies and strategies for the safe management of radioactive material discovered in scrap metal, the semi-finished products of the metal recycling industry;
- (d) Liaise with regulatory bodies in other States, and relevant regional and international organizations to promote cooperation, the exchange of information and the harmonization of approaches concerning matters within the scope of this Code;
- (e) Encourage the development of radiation safety awareness and appropriate training programmes for metal recycling facilities, customs and/or border authorities, police and emergency response organizations;
- (f) As appropriate, promote or establish regulations and/or issue guidance to give effect to this Code.

#### **VIII. ROLE OF THE INDUSTRY**

- 27. The metal recycling industries should ensure that their own safety policies give an appropriately high priority to radiation safety in furtherance of this Code.
- 28. The metal recycling industries should ensure, to the extent practicable, that the following are undertaken with respect to each consignment:
  - (a) If there is a history of consignments from specific exporting facilities containing radioactive material, a more thorough investigation for the presence of radioactive material than would normally be the case;
  - (b) A review of the radiation monitoring report provided by the exporting facility. If no such report has been provided, a more thorough investigation for the presence of radioactive material should be undertaken than would normally be the case;
  - (c) A visual inspection of the consignment by an appropriately trained person;
  - (d) Radiation monitoring at appropriate stages in the movement and processing of scrap metal and the manufacture of semi-finished products where radioactive material might be detected, including entrances and exits of facilities up to and within the melting facility;
  - (e) Specification of the immediate safety actions to be taken in the event of:
    - (i) Visible evidence of the presence of a radioactive source in scrap metal;
    - (ii) An investigation level being exceeded; or
    - (iii) The presence of radioactive material in a consignment being otherwise suspected;

- (f) Specification of the procedures to confirm that radioactive material is present and to control and isolate any discovered radioactive material;
  - (g) Notification to the regulatory body in the event of the discovery of radioactive material in accordance with national arrangements, as appropriate.
29. The metal recycling industries should ensure, where appropriate, that a radiation monitoring report containing the information specified in Annex III of this Code is provided for each consignment.

#### **IX. ROLE OF THE IAEA**

30. The IAEA should, as appropriate and subject to the availability of funds:
- (a) Assist States, upon their own request, in implementation of this Code;
  - (b) Collect and disseminate information on laws, regulations and technical standards relating to the discovery of, and response to, radioactive material inadvertently incorporated into a consignment and the safe management of any radioactive material that is discovered;
  - (c) Develop and establish relevant technical standards for the purposes of this Code and provide for the application of these standards at the request of any State;
  - (d) Gather and disseminate lessons learned from instances involving the presence of radioactive material inadvertently incorporated into a consignment;
  - (e) Disseminate this Code and related information widely;
  - (f) Maintain an up-to-date list of the points of contact described in Section V; and
  - (g) In particular, implement the measures approved by its policy-making organs.



## ANNEX I

Radionuclide	Activity concentration (Bq/g)
Am-241, Ag-110m, Co-60, Cs-137, Pu-238, Pu-239, Zn-65	0.1
Cm-244, Ir-192, Nb-95, Sr-90, Tc-99, Tl-204, Zr-95, each radionuclide in the uranium and thorium decay chains	1
K-40	10
Ni-63	100
Pm-147	1000

A complete list of values of activity concentration for radionuclides and a methodology for applying these values to material containing more than one radionuclide can be found in Table I-2, and paras I-14 and I-15, respectively, of Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, IAEA General Safety Requirements Part 3 (Interim Edition), IAEA, Vienna, 2011.



## ANNEX II

Radionuclide	Activity (Bq)	Radionuclide	Activity (Bq)
Fe-55	$1 \times 10^6$	Tm-170	$1 \times 10^6$
Co-57	$1 \times 10^6$	Yb-169	$1 \times 10^7$
Co-60	$1 \times 10^5$	Ir-192	$1 \times 10^4$
Ni-63	$1 \times 10^8$	Au-198	$1 \times 10^6$
Ge-68	$1 \times 10^5$	Tl-204	$1 \times 10^4$
Se-75	$1 \times 10^6$	Po-210	$1 \times 10^4$
Sr-90	$1 \times 10^4$	Ra-226	$1 \times 10^4$
Ru-106	$1 \times 10^5$	Pu-238	$1 \times 10^4$
Pd-103	$1 \times 10^8$	Pu-239	$1 \times 10^4$
Cd-109	$1 \times 10^6$	Am-241	$1 \times 10^4$
Cs-137	$1 \times 10^4$	Cm-244	$1 \times 10^4$
Pm-147	$1 \times 10^7$	Cf-252	$1 \times 10^4$
Gd-153	$1 \times 10^7$		

A complete list of values of activity for radionuclides and a methodology for applying these values to radioactive sources containing more than one radionuclide can be found in Table I-1 and para. I-7, respectively, of Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, IAEA General Safety Requirements Part 3 (Interim Edition), IAEA, Vienna, 2011.



### ANNEX III

The radiation monitoring report, provided electronically or in paper form, or any other documentation associated with a consignment, should refer to this Code and should, in particular, address the following:

- Identification of the exporting facility (name, address, telephone number, etc.);
- Identification of the importing facility (name, address, telephone number, etc.);
- (Unique) identifier of the consignment that has been monitored;
- Type and quantity of scrap metal and/or semi-finished products in the consignment;
- Details of the radiation monitoring carried out, e.g., instruments used and readings obtained; position of the monitoring equipment relative to the consignment;
- Background and investigation levels used;
- Name, signature and position of the appropriately trained person who carried out the monitoring;
- Statement that radioactive material was not discovered in the consignment prior to dispatch;
- Date and place of monitoring.



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