

**Code of Conduct on
the Safety and Security of Radioactive Sources**

放射源安全和保安行为准则

**Code de conduite sur
la sûreté et la sécurité des sources radioactives**

**Кодекс поведения по обеспечению безопасности
и сохранности радиоактивных источников**

**Código de Conducta sobre la seguridad tecnológica
y la seguridad física de las fuentes radiactivas**

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INTERNATIONAL ATOMIC ENERGY AGENCY

December 2000

Code of Conduct on the Safety and Security of Radioactive Sources

In recent years there has been a growing awareness of the potential for accidents involving radiation sources, some such accidents having had serious even fatal consequences. More recently still, concern has been raised by the problems associated with radioactive sources in the form of sources of interest, not subject to regulatory control or under which such control is inadequate.

The International Commission on Atomic Energy held its 19th Session in September 1997. The Commission's work in this area was reviewed and the Commission's conclusions and recommendations were adopted.

The Commission's conclusions and recommendations were adopted in the following terms:

The Commission's conclusions and recommendations concerning the safety and security of radioactive sources and attracting broad adherence could be formulated as follows:

The Secretariat presented the requested report to the March 1999 session of the Board of Governors. The Board noted the conclusions and recommendations of the report and requested the Secretariat to prepare an Action Plan to take into account the conclusions and recommendations of the report and the Board's discussion of the report.

An Action Plan was subsequently prepared by the Secretariat, approved by the Board of Governors in September 1999 and endorsed, in October 1999, by the General Conference in its resolution GC(41)/RES/10. The Action Plan covers seven areas: regulatory infrastructure, management of disused sources, categorization of sources, response to abnormal events, information exchange, education and training and international undertakings.

Within the area of international undertakings, a Code of Conduct on the Safety and Security of Radioactive Sources was prepared in two Open-ended Meetings of Technical and Legal Experts. At these meetings senior experts from the following Member States participated in the drafting of the Code of Conduct: Argentina, Australia, Austria, Canada, Cuba, China, Egypt, Finland, France, Germany, Greece, India, Republic of Korea, Russian Federation, Slovakia, Sweden, United Kingdom, United States of America, and observers from the European Commission, the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development, and the Pan American Health Organization.

On 11 September 2000, the General Conference endorsed, in resolution GC(41)/RES/11, the actions taken by the Board of Governors and invited Member States to take note of the Code of Conduct on the Safety and Security of Radioactive Sources and to consider, as appropriate, means of ensuring its wide application.

The Code of Conduct contains a provision for its dissemination: "Every State should inform public and private institutions and persons involved in the management of radioactive sources, as appropriate, of the measures it has taken to implement this Code and should take steps to disseminate this information."



INTERNATIONAL ATOMIC ENERGY AGENCY

Dissemination of the Code

December 2000

FOREWORD

In recent years there has been a growing awareness of the potential for accidents involving radiation sources, some such accidents having had serious, even fatal, consequences. More recently still, concern has been raised by the problems associated with radiation sources that for one reason or another are not subject to regulatory control or over which regulatory control has been lost. An International Conference held in Dijon, France, in September 1998 summarized a number of conclusions aiming at a global improvement of source control. These conclusions were taken note of by the IAEA immediately after, and the General Conference in its resolution GC(42)/RES/12 requested the Secretariat of the IAEA *"to prepare for the consideration of the IAEA's Board of Governors, a report on:*

- (i) how national systems for ensuring the safety of radiation sources and the security of radioactive materials can be operated at a high level of effectiveness and*
- (ii) whether international undertakings concerned with the effective operation of such systems and attracting broad adherence could be formulated."*

The Secretariat presented the requested report to the March 1999 session of the Board of Governors. The Board noted the conclusions and recommendations of the report and requested the Secretariat to prepare an *Action Plan* to take into account the conclusions and recommendations of the report and the Board's discussion of the report.

An Action Plan was subsequently prepared by the Secretariat, approved by the Board of Governors in September 1999 and endorsed, in October 1999, by the General Conference in its resolution GC(43)/RES/10. The Action Plan covers seven areas: regulatory infrastructures, management of disused sources, categorization of sources, response to abnormal events, information exchange, education and training and international undertakings.

Within the area of international undertakings, a Code of Conduct on the Safety and Security of Radioactive Sources was prepared in two Open-ended Meetings of Technical and Legal Experts. At these meetings senior experts from the following Member States participated in the drafting of the Code of Conduct: Argentina, Australia, Austria, Canada, Cuba, China, Egypt, Finland, France, Germany, Greece, India, Republic of Korea, Russian Federation, Slovakia, Sweden, United Kingdom, United States of America; and observers from the European Commission, the Nuclear Energy Agency of the Organisation for Economic Cooperation and Development, and the Pan American Health Organization.

On 11 September 2000, the General Conference endorsed, in resolution GC(44)/RES/11, the actions taken by the Board of Governors and invited Member States to take note of the Code of Conduct on the Safety and Security of Radioactive Sources and to consider, as appropriate, means of ensuring its wide application.

The Code includes a provision for its dissemination: "Every State should inform public and private organizations and persons involved in the management of radioactive sources, as appropriate, of the measures it has taken to implement this Code and should take steps to disseminate that information widely." The purpose of this document is to facilitate dissemination of the Code.

Code of Conduct on the Safety and Security of Radioactive Sources

The IAEA's Member States

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

Aware that their use involves risks due to radiation exposure,

Aware that these risks must be restricted and protected against through the application of appropriate radiation safety standards,

Aware that there have been a number of accidents with serious, even fatal, consequences during the use of radiation sources,

Recognizing that such accidents may have an adverse impact on individuals and on the environment,

Recognizing the importance of fostering a safety culture in all organizations and among all individuals engaged in the regulatory control or in the management of radiation sources,

Recognizing the need for effective and continuous regulatory control, both within States and in situations involving the transfer of radiation sources between States,

Noting that serious accidents have occurred during the use of radiation sources, in particular radioactive sources, as a result of ineffective, or lapses in the continuity of, regulatory control, or as a result of lapses in management control during extended periods of storage,

Recognizing that most of these accidents have been caused by the use of radioactive sources, including accidents involving orphan sources,

Recognizing that a number of States may lack appropriate infrastructure for the safe management of radioactive sources, and that consequently exporting States should take due care in authorizing exports,

Recognizing the need for technical facilities, including appropriate equipment and qualified staff, to ensure the safe and secure management of radioactive sources,

Noting that the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources contain recommendations for protection against exposure to ionizing radiation and for the safety and security of radioactive sources,

Recalling the IAEA's Safety Requirements document on Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport 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 Nuclear Accident or Radiological Emergency (1986),

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), in particular those provisions which relate to the transboundary movement of radioactive waste and to the possession, remanufacturing or disposal of disused sealed sources,

Recognizing the global role of the IAEA in the areas of nuclear and radiation safety and the safety of radioactive waste management and disposal, and

Taking account of the "Categorization of Radiation Sources" in the Annex to Attachment 3 to IAEA document GOV/2000/36/GC(44)/12,

DECIDE that the following Code of Conduct should serve as guidance to States for - *inter alia* - the development and harmonization of policies, laws and regulations on the safety and security of radioactive sources.

I. SCOPE AND OBJECTIVE

1. This Code applies to all radioactive sources that may pose a significant risk to health and the environment. In implementing this Code, States should give highest priority to those radioactive sources which pose the most significant risks, i.e. the radioactive sources belonging to Category 1 of the IAEA's "Categorization of Radiation Sources". However, in doing so, States should also devote appropriate attention to the regulation of radioactive sources other than those belonging to Category 1.
2. This Code does not apply to the control of nuclear materials as defined in the Convention on the Physical Protection of Nuclear Materials.
3. This Code also does not apply to radioactive sources within military or defence programmes. However, such sources should be managed in accordance with the principles of this Code.
4. The objective of this Code is to achieve and maintain a high level of safety and security of radioactive sources through the development, harmonization and enforcement of national policies, laws and regulations, and through the fostering of international co-operation. In particular, this Code addresses the establishment of an adequate system of regulatory control from the production of radioactive sources to their final disposal, and a system for the restoration of such control if it has been lost.
5. This Code relies on existing international standards relating to legal and governmental infrastructure for nuclear, radiation, waste and transport safety and to the control of radioactive sources. It is intended to complement existing international standards in these areas.
6. In implementing this Code, States should emphasize and reinforce to manufacturers, suppliers, users and those managing disused sources their responsibilities for the safety and security of radioactive sources.

II. DEFINITIONS

7. For the purposes of this Code:

"authorization" means a permission granted in a document by a regulatory body to a legal person who has submitted an application to manufacture, supply, receive, store, use, transfer, import, export, transport, maintain or dispose of radioactive sources. The authorization can take the form of a registration or a licence.

"disused source" means a radioactive source no longer intended to be used for its original purpose.

"management" means all activities, administrative and operational, that are involved in the manufacture, supply, receipt, storage, use, transfer, import, export, transport, maintenance or disposal of radioactive sources.

"orphan source" means a source which poses sufficient radiological hazard to warrant regulatory control but is not under regulatory control, either because it has never been under regulatory control, or because it has been abandoned, lost, misplaced, stolen or transferred without proper authorization.

"radiation source" means a radiation generator, or a radioactive source or other radioactive material outside the nuclear fuel cycles of research and power reactors.

"radioactive source" means radioactive material that is permanently sealed in a capsule or closely bonded and in a solid form, excluding material within the nuclear fuel cycles of research and power reactors. It also includes any radioactive material released if the source is leaking or broken.

"regulatory body" means any body or bodies on which a State has conferred legal authority to regulate any aspect of the safety and security of radioactive sources, including legal authority to grant authorizations.

"regulatory control" means any form of control applied to facilities or activities by a regulatory body for reasons related to radiation protection or to the safety and security of radioactive sources.

"safety" means measures intended to minimize the likelihood of accidents with radiation sources and, should such an accident occur, to mitigate its consequences.

"security" means measures to prevent unauthorized access to, and loss, theft and unauthorized transfer of, radioactive sources.

III. BASIC PRINCIPLES

GENERAL

8. Every State should, in order to protect human health and the environment, take the appropriate steps necessary to ensure that the radioactive sources within its territory, or under its jurisdiction or control, are:
 - (a) fit for purpose;
 - (b) safely managed during their useful lives and at the end of their useful lives; and
 - (c) not stored for extended periods of time in facilities not designed for the purpose of such storage.
9. Every State should establish an effective national legislative and regulatory system of control over the management of radioactive sources and over any other activity involving radioactive sources which entails a significant risk to individuals or the environment. Such a system should:
 - (a) place the prime responsibility for the safe management of radioactive sources on the persons being granted the relevant authorizations;
 - (b) minimize the likelihood of a loss of control;
 - (c) provide for rapid response for the purpose of regaining control over sources that are no longer under control;
 - (d) foster ongoing communication between the regulatory body and users; and
 - (e) provide for its continual improvement.
10. Every State should ensure that appropriate facilities and services for radiation protection and safety are available to, and used by, the persons who are authorized to manage radioactive sources or undertake any other activity with radioactive sources within its territory. Such facilities and services should include those needed for: (a) searching for missing sources and securing found sources; (b) intervention in the event of an accident involving a radioactive source; (c) personal dosimetry and environmental monitoring; and (d) the calibration and intercomparison of radiation monitoring equipment.
11. Every State should ensure that adequate arrangements are in place for the appropriate training of the staff of its regulatory body, its customs officers, its police and the staff of other law enforcement agencies.
12. Every State should encourage bodies or persons likely to encounter orphan sources during the course of their operations to implement appropriate monitoring programmes to detect such sources.

LEGISLATION AND REGULATIONS

13. Every State should establish legislation and regulations that:
 - (a) prescribe and assign governmental responsibilities for the safety and security of radioactive sources;
 - (b) provide for the effective control of radioactive sources;
 - (c) specify the requirements for protection against exposure to ionizing radiation; and
 - (d) specify the requirements for the safety and security of radioactive sources.

14. Such legislation and regulations should include, in particular:
- (a) the establishment of a regulatory body whose regulatory functions are effectively independent of other functions if that body is involved in both the management of radioactive sources and in their regulation. This body should have the powers listed in paragraphs 15 to 17;
 - (b) measures, commensurate with the risks, to protect individuals and the environment from the deleterious effects of radiation;
 - (c) administrative requirements relating to:
 - (i) the authorization of the management of radioactive sources; and
 - (ii) the notification to the regulatory body, as appropriate, by an authorized person of actions involved in the management of such sources and of any other activity in relation to such sources which may engender a significant risk to individuals or the environment;
 - (d) provisions for exemption, as appropriate, from these administrative requirements;
 - (e) managerial requirements, in particular relating to the establishment of adequate policies, procedures and measures for the control of radioactive sources;
 - (f) security measures to prevent, protect against, and ensure the timely detection of, the theft, loss or unauthorized use or removal of radioactive sources during all stages of management;
 - (g) requirements relating to the verification of safety, through: safety assessments; monitoring and verification of compliance; and the maintenance of appropriate records; and
 - (h) the imposition of appropriate penalties;

REGULATORY BODY

15. Every State should ensure that the regulatory body established by its legislation has the authority to:
- (a) establish regulations and issue guidance relating to the safety and security of radioactive sources;
 - (b) require those who intend to use radioactive sources to seek an authorization, and to submit a safety assessment when one is deemed necessary in the light of the risks posed;
 - (c) obtain any relevant information from an applicant for an authorization;
 - (d) issue, amend, suspend or revoke, as necessary, authorizations for:
 - (i) the management of radioactive sources; and
 - (ii) any other activity involving such sources which may engender a risk to individuals or the environment;
 - (e) attach clear and unambiguous conditions to the authorizations issued by it, including conditions relating to:
 - (i) responsibilities;
 - (ii) minimum operator competencies;
 - (iii) minimum equipment performance criteria (including radioactive source requirements);
 - (iv) requirements for emergency procedures and communication links;
 - (v) work procedures to be followed;
 - (vi) maintenance of equipment and sources; and

(vii) the adequate management of disused sources, including, where applicable, agreements regarding the possible return of decayed/disused sources to a supplier;

- (f) obtain any relevant and necessary information from the holder of an authorization;
- (g) enter premises of authorized users to undertake inspections, according to established procedures, to verify compliance with regulatory requirements;
- (h) enforce regulatory requirements;
- (i) monitor, or request other authorized bodies to monitor, at appropriate checkpoints for the purpose of detecting orphan sources;
- (j) ensure that corrective actions are taken when a radioactive source is in an unsafe condition;
- (k) provide, on a case-by-case basis, to the holder of an authorization and the public any information that is deemed necessary in order to protect individuals and the environment;
- (l) liaise and co-ordinate with other governmental bodies and relevant non-governmental bodies within the State, and also with international bodies and regulatory bodies in other States, in order to seek guidance, information and assistance relevant to the safe and secure management of radioactive sources; and
- (m) establish criteria for intervention in emergency situations.

16. Every State should ensure that its regulatory body:

- (a) is staffed by qualified personnel; and
- (b) has the financial resources and the facilities and equipment necessary to undertake its functions in an effective manner.

17. Every State should ensure that

- (a) establishes procedures for dealing with applications for authorization;
- (b) ensures that, before the receipt of a radioactive source is authorized:
 - (i) arrangements have been made for its safe management once it has become a disused source; and
 - (ii) financial provision has been made for its safe management once it has become a disused source.
- (c) maintains appropriate records of holders of authorizations in respect of radioactive sources, with a clear indication of the type(s) of the radioactive sources that they are authorized to use, and appropriate records of the transfer and disposal of the radioactive sources on termination of the authorization;
- (d) establishes systems for ensuring that, where practicable, both radioactive sources belonging to Categories I and 2 of the IAEA's "Categorization of Radiation Sources", and their containment, are marked with an appropriate sign to warn members of the public of the radiation hazard, but where this is not practicable, at least the containment is so marked.
- (e) establishes systems for ensuring that, where practicable, radioactive sources belonging to Categories I and 2 of the IAEA's "Categorization of Radiation Sources" are identifiable and traceable;
- (f) ensures that inventory controls are conducted on a regular basis by the holders of authorizations;
- (g) carries out both announced and unannounced inspections at a frequency determined by past performance and the risks presented by the radioactive source;
- (h) takes enforcement actions, as appropriate, to ensure compliance with regulatory requirements;

- (i) ensures that the regulatory principles and criteria remain adequate and valid and take into account, as applicable, operating experience and internationally endorsed standards and recommendations;
- (j) requires the prompt reporting by authorized persons of loss of control over, and of incidents in connection with, radioactive sources; prescribes appropriate levels of training for manufacturers, suppliers and users of radioactive sources;
- (k) prescribes appropriate levels of training for manufacturers, suppliers and users of radioactive sources;
- (l) requires authorized persons to prepare appropriate emergency plans;
- (m) is prepared, or has established provisions, to recover orphan sources and to deal with radiological emergencies and has established appropriate response plans and measures;
- (n) is prepared, in respect of any radioactive source whose export it has authorized, to provide, upon request, information relating to its safe management.

IMPORT AND EXPORT OF RADIOACTIVE SOURCES

- 18. Every State intending to import a radioactive source belonging to Categories 1 and 2 of the LAEA's "Categorization of Radiation Sources" should consent to its import only if the State has the technical and administrative capability needed to manage the source in a manner consistent with the provisions of this Code.
- 19. A State should allow for re-entry into its territory of disused radioactive sources if, in the framework of its national law, it has accepted that they be returned to a manufacturer qualified to receive and possess the disused radioactive sources.
- 20. Any State which authorizes the export of a radioactive source should take appropriate steps to ensure that such export is undertaken in a manner consistent with existing international standards relating to the safe transport of radioactive materials.

ROLE OF THE IAEA

- 21. The IAEA should:
 - (a) continue to collect and disseminate information on laws, regulations and technical standards relating to the safe and secure management of radioactive sources, develop and establish relevant technical standards and provide for the application of these standards at the request of any State, inter alia by advising and assisting on all aspects of the safe and secure management of radioactive sources; and
 - (b) in particular, implement the measures approved by its governing bodies, including pursuant to its Action Plan on the Safety of Radiation Sources and the Security of Radioactive Materials.

DISSEMINATION OF THE CODE

- 22. Every State should inform public and private organizations and persons involved in the management of radioactive sources, as appropriate, of the measures it has taken to implement this Code and should take steps to disseminate that information widely.