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**NEED FOR ACTION AND OBJECTIVES
OF A VOLUNTARY INTERNATIONAL PROTOCOL
ON RADIOACTIVELY CONTAMINATED SCRAP METAL**

Note by the secretariat

A. MANDATE AND BACKGROUND

1. In 2001, the United Nations Economic Commission for Europe (UNECE), the European Commission and the International Atomic Energy Agency (IAEA) prepared a “[Report on the Improvement of the Management of Radiation Protection in the Recycling of Metal Scrap](#)” that recommended measures to avoid the introduction of radiation sources into the metal recycling stream.¹
2. In continuation of this work, the UNECE, with the support of the Government of the United States of America, prepared and circulated in 2003 a questionnaire to ascertain the current state of scrap metal radiation monitoring worldwide.
3. Following evaluation of the information received, an international group of experts was convened in April 2004 under the auspices of the UNECE to discuss policies and experiences in monitoring and interception of radioactively contaminated scrap metal world-wide and to explore ways and means to facilitate and secure international trade and transport of scrap metal.

¹ For details see: www.unece/trans/radiation/radiation.html.

4. The proceedings of this group of experts together with extensive documentation on national experiences are contained in a report published by the UNECE on “[Monitoring, Interception and Managing Radioactively Contaminated Scrap Metal](#)”.² The group of experts identified ten issues as a common basis for possible future work and recommended to keep in motion a permanent international dialogue on these issues among Governments and industries (see [annex](#)).
5. In order to address these issues at the international level, the group of experts felt that the following concrete outputs could be envisaged to considerably facilitate international control, transport and commerce of scrap metal:
- (a) Protocol: Development of an international Protocol to increase the capture of radioactive material in scrap metal, to reduce potential contamination and to aid in the disposition of found materials.
 - (b) Information exchange: Establishment of an international web portal to allow access to scrap industry data and possible development of a database where countries can report metal scrap radiation incidents.
 - (c) Training: Preparation of international training and capacity-building programmes to address protocol implementation, optimum location of radiation monitors, detector sensitivities, calibration and maintenance needs, incident reporting mechanisms and dispositioning procedures (TRANS/AC.10/2004/4, paras. 58 and 59).

B. PURPOSE AND OBJECTIVES OF A VOLUNTARY INTERNATIONAL PROTOCOL

6. Governments and the metal processing industries have become concerned about the control over scrap metal and the potential use of radioactively contaminated scrap metal. Recycled scrap metal is increasingly used by the steel and foundry industries worldwide to the extent that these industries now have become highly dependent on its secure and safe supply. As scrap metal also plays an important role in conserving national resources and energy it has become one of the most actively traded commodities with over 405,5 million tons consumed worldwide (2003). Through 2004 there were over 5,000 reported detections of radioactivity in scrap metal. Worldwide there have been 40 reported deaths and 266 serious injuries due to radioactive source incidents. The economic consequences of such incidents can range from US\$ 12 million to more than US\$ 100 million.³

² For details see: <http://www.unece.org/trans/radiation/1stMeeting.html>. Credentials and password for access to the protected parts of the site may be obtained from radiation@unece.org.

³ R.Turner, 2005.

7. So far there is international consensus on the application of the principles of exemption, exclusion, clearance and values of activity concentrations that may not require regulatory control (IAEA RS-G-1.7).⁴ The IAEA is at present also developing recommendations for monitoring compliance with these values⁵ and provides also the secretariat for the code of conduct of sealed sources⁶ that covers the management of these sources up to the final stage of disposal. Other organisations, such as the EC have also developed recommendations in this area (EC Radiation Protection No.113). However, there exist no international standards and specific practical measures to monitor, intercept and manage radioactively contaminated scrap metal even though large parts of such recycled materials are traded internationally. The same holds true for incentives to encourage detection of radioactive sources in scrap metal. IAEA RS-G-1.7 requires coordination of monitoring strategies between countries, but there is a perceived lack of commonly acceptable procedures and efficient mechanisms to assist all parties involved (governmental authorities and metal scrap processing industries) to prevent the occurrence and to respond efficiently to incidents involving radioactively contaminated scrap metal.

8. Some codes of practice and voluntary agreements have been developed on a national basis, such as the Spanish Protocol following a major incident with contaminated scrap metal in Spain. Also the United Kingdom has recently developed an industrial code for clearance and exemption principles.⁷ Differences in national strategies, monitoring approaches and procedures as well as different values for the release of material from regulatory control could however lead to a situation where contaminated metal scrap is attracted to some countries and at the same time driven out of others. In order to facilitate trade and business without compromising safety, more efforts are required to facilitate harmonisation of national legislation, codes of practice and infrastructures.

9. The proposed Voluntary Protocol should provide a first step in this direction. Its objective is to establish a framework that provides, within existing national and international safety standards,⁸ recommendations on the fields of actions to be addressed and mechanisms to be set up in order to effectively monitor, intercept and manage radioactively contaminated scrap metal.

10. In doing so the proposed Protocol should:

- (a) enhance transparency and identify responsibilities among all parties (e.g.: regulatory authorities and industries) in the metal recycling process;

⁴ International Atomic Energy Agency (IAEA), Application of the concepts of exclusion, exemption and clearance, IAEA Safety Standards Series No. RS-G-1.7, IAEA, Vienna (2004).

⁵ International Atomic Energy Agency, Safety Reports Series, Monitoring for Compliance with Exclusion, Exemption and Clearance Values, (DS740).

⁶ Code of Conduct on the Safety and Security of Radioactive Sources: Guidance on the Import and Export of Radioactive Sources, IAEA, Vienna, 2005.

⁷ Clearance and Exemption Principles, Processes and Practices for Use by the Nuclear Industry A Nuclear Industry Code of Practice, United Kingdom, 2005.

⁸ For example IAEA GS-R-1.

- (b) build up trust and safety in the handling and transport of scrap metal; and
- (c) facilitate international trade and business in scrap metal used for recycling.⁹

The ultimate goal should be to minimize all problems associated with radiological contamination of scrap metal and to facilitate its handling during all stages of the recycling process, including demolition, procurement, transport, storage and melting.¹⁰ This would also go a long way in advancing conservation of natural resources, recycling being an integral part of it, and in the renewal of trust in recycled materials and metal scrap in particular.

11. Given the concerns of the metal processing industry and prevailing consumer perception concerning “radiation-free” products, the Protocol would need to address not only materials and radioactive sources that pose harmful health effects, but also those that are in the range of or below the levels requiring regulatory control (IAEA, RS-G-1.7).

12. Specifically, the proposed Protocol should:

- (a) Identify fields of action, responsibilities and effective mechanisms to enable regulatory authorities and the metal and scrap processing industries to effectively monitor, intercept and manage radioactively contaminated scrap metal.
- (b) Recommend proven collaborative arrangements and procedures that would allow all parties involved in the scrap metal recycling process to act jointly, responsibly and effectively in case of radioactive incidents.

13. In order to facilitate application of its provisions, the Protocol should provide checklists and benchmarks based on experiences and best practices. In order to ensure internationally harmonized action, the Protocol should refer to applicable international standards and recommendations and should identify ways and means to recognise and implement them at the national level.¹¹

⁹ Consumers want radiation-free goods. Therefore, all parties in the metal recycling loop have to provide material complying with such wishes, i.e. material that is virtually free of detectable radioactive contamination. Refer also to: Improvement of the Management of Radiation Protection Aspects in the Recycling of Metal Scrap, UNECE, 2001, page 21 and Monitoring, Interception and Managing Radioactively Contaminated Scrap Metal, UNECE, 2004, page (v) (www.unece.org/trans/radiation/pub.html).

¹⁰ For details on the metal recycling loop, refer to the UNECE publication: Improvement of the Management of Radiation Protection Aspects in the Recycling of Metal Scrap, UNECE, 2001 (www.unece.org/trans/radiation/pub.html).

¹¹ Account will be taken of the IAEA Safety Report on Monitoring for Compliance with Exclusion, Exemption and Clearance (currently under development).

14. The Protocol would not establish legal commitments nor would it oblige countries or industry groups to transpose its provisions into national practice, codes of conduct, administrative regulations or law. Rather, the Protocol would contain recommendations established by Governmental and industry experts on the safe and secure use of scrap metal without impeding commerce based on the experiences and best practice. Application of the Protocol would depend on national administrative and commercial circumstances as well as prevailing legislation.

C. OTHER OUTPUTS RECOMMENDED BY THE GROUP OF EXPERTS

15. In addition to the development of a Protocol, the group of experts felt that inter-country sharing of information on experiences with radioactively contaminated metal and lessons-learned when dealing with such material, if accomplished frequently and openly by Governmental authorities and by industry, could prove beneficial to effectively monitor radioactively contaminated scrap metal at the national level. It could also assist in protecting against the production and dissemination of radioactively contaminated materials at the international level (TRANS/AC.10/2004/4, paras. 56 and 57).

16. The group of experts was also convinced that training, particularly for staff involved in inspection and enforcement, was of high importance in order to prevent and resolve radiation contamination incidents. The preparation of international training and capacity-building programmes is essential and could address all issues related to the application of the voluntary international Protocol, including optimum location of radiation monitors, detector sensitivities, calibration and maintenance needs, incident reporting mechanisms and dispositioning procedures

17. On the basis of the provisions of the voluntary international Protocol, to be finalized at the present session, the group of experts may wish to consider such additional concrete outputs of its work under item 6 of the provisional agenda of the present session and on the basis of a document prepared by the UNECE secretariat (ECE/TRANS/AC.10/2006/6).

Annex

Issues for possible future work taken from the report of the first session of the Expert Group meeting providing a framework for an internationally harmonized approach to monitor radioactive scrap metal

UNECE Group of Experts on Monitoring of Radioactively Contaminated Scrap Metal
(Geneva, 7 April 2004)
(TRANS/AC.10/2004/4, paras. 36-57)

Regulatory infrastructure

Issue 1: Application of the IAEA Code of Conduct for the Safety and Security of Radioactive Sources

Monitoring – Movement of radioactive material, particularly scrap metal, including training of staff involved in inspection and enforcement

Issue 2: Monitoring of imported and exported scrap metal

Issue 3: Location of monitoring of scrap metal in the distribution chain

Issue 4: Need to globally harmonize the monitoring of scrap metal and metal products

Dispositioning – Governmental and private sector response procedures and requirements for removal and management of detected radioactive material

Issue 5: Arrangement for disposal facility or return to manufacturer programme

Issue 6: Application of existing regulations for the shipment of detected radioactive material

Issue 7: Mechanisms for efficiently dealing with contaminated scrap metal

Contracts – Provisions to facilitate trade in scrap metal

Issue 8: Strengthening of contractual requirements on the acquisition of scrap metal

Reporting - Inter-agency cooperation in monitoring, notification and response

Issue 9: Standardization and strengthening reporting and investigating procedures

Experiences – Establishing an international information exchange system

Issue 10: Establishment of a mechanism for the exchange of information on practices and lessons learned in monitoring radioactively contaminated scrap metal
