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Group of Experts on Monitoring of Radiologically Contaminated Scrap Metal
(First session, 5-7 April 2004,
agenda item 5)

**ACTIONS TO BE TAKEN AT NATIONAL AND INTERNATIONAL LEVELS
TO AVOID THE IMPORT OF RADIOLOGICALLY CONTAMINATED SCRAP METAL**

Prepared by the UNECE secretariat

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BACKGROUND

1. The United Nations Economic Commission for Europe (UNECE) is convening a group of experts, 5 to 7 April 2004, to discuss the monitoring of radiologically contaminated scrap metal.

2. The meeting has been prompted by a growing concern that scrap yards and steel mills are identifying the presence of radioactive materials in incoming scrap metal as the result of accidents or inadvertent disposal. The presence of radioactive materials in such metals is not only a source of economic difficulty (in terms of the costs of remediation) but also poses potential health and environmental problems.

3. In preparation for that meeting, the UNECE circulated a questionnaire to Member States. The questionnaire and the responses thereto have been made available on the UNECE website at:

<http://www.unece.org/trans/radiation/radiation.html>.

4. The responses of 38 countries to that questionnaire were summarized and analyzed in a separate paper for the expert group meeting (“*Analysis of Responses to Questionnaire Circulated by the United Nations Economic Commission for Europe to Relevant Member States and Organizations on the Subject of Monitoring of Radiologically Contaminated Scrap Metal – Responses Analyzed for Submittal Received through 17 March 2004*”). Based on that analysis and other relevant activities throughout the world, a number of issues have been identified that may be worthy of discussion during the expert group meeting. Those issues are briefly listed and discussed below.

5. The provisional agenda for the first session of the meeting mentions a number of issues to which attention should be given. Those listed are:

- Existing and planned national regulatory mechanisms;
- Monitoring of the movement of radioactive materials, particularly scrap metal, including training of staff involved in inspection and response;
- Dispositioning (removal) of detected radioactive materials;
- Contractual provisions governing trade in scrap metal products;
- Governmental and private sector response procedures and requirements;
- Inter-agency cooperation in monitoring and response;
- Good (and bad) practices and lessons to be learned.

6. The questionnaire was structured with five main topics; the issues that follow use those same five topics, and – as appropriate – the discussion of the issues is cross-referenced to specific questions and responses thereto.

POTENTIAL ISSUES

Regulatory Infrastructure

This topic includes the first general issue mentioned in the provisional agenda for the first session, i.e. “*Existing and planned national regulatory mechanisms*”. In general, as noted in the analysis of the responses to the questionnaire, the positive response rate (i.e., an answer of “yes”) in the Regulatory Infrastructure area was high.

Potential Issue 1 – Adoption of the IAEA Code of Conduct for the Safety and Security of Radioactive Sources.

The response to question (Q RI 3) “*Has your country/organization adopted the IAEA Code of Conduct for the Safety and Security of Radioactive Sources?*” and the comments associated with the question indicated that greater effort may be needed by countries with regard to this Code of Conduct. Recognizing that the adoption by countries of the Code is a voluntary action on the part of each country, its adoption is however recommended by the IAEA Secretariat. Broadened adoption at the state level could strengthen, worldwide, the safety and security of sources regime.

Potential Issue 2 – Potential need to globally standardize levels below which materials are exempted from control.

The detailed responses to question (Q RI 6) “*Are there any levels below which material is exempted from regulatory control?*” indicate a wide range of standards used in countries for releasing material from regulatory control, ranging from the exemption levels specified in the IAEA Basic Safety Standards, to only naturally occurring radionuclides, to values established on a state level, to the old non-radionuclide-specific level for defining “radioactive material” in the IAEA Transport Regulations.

It must be recognized that the issue of release of material from regulatory control has been the topic of discussion, worldwide for many years, with the IAEA taking a lead role in those discussions. In this instance, consideration might be given to further efforts, collaborating with the IAEA, with a view to striving for standardization of release levels for application at metal processing facilities.

Potential Issue 3 – Release of materials from facilities.

The response to questions (Q RI 7) “*Are materials from nuclear facilities, with very low levels of radioactivity, released in accordance with a national regulation?*” should be reassessed considering that it addressed only nuclear facilities, and not all facilities that are associated with radioactive material. Nuclear material is defined very specifically by the IAEA through its Safeguards and Security programme. Nuclear material is limited to those few radionuclides that are capable of sustaining a chain reaction if properly processed (uranium, plutonium, irradiated nuclear fuel and high-level waste).

Although many countries do not have a facility or facilities associated with the nuclear fuel cycle (the front-end production of fresh fuel materials, the nuclear reactors that burn the fuel, and those facilities that handle discharged fuel and their reprocessed products), they probably do have facilities that have radioactive sources and other radioactive material (which are not nuclear material) for which consideration should be given to how materials are released from those facilities.

Monitoring

This topic includes the second general issue mentioned in the provisional agenda for the first session, i.e. “*Monitoring of the movement of radioactive materials, particularly scrap metal, including training of staff involved in inspection and response*”. Although focusing on monitoring, many of the issues here are also regulatory related.

Potential Issue 4 – Release of materials from facilities.

The second question on **Monitoring** (Q M 2) asked “*Is there a regulatory requirement regarding monitoring imported and/or exported scrap metals for radioactivity?*” The positive response rate was only 42 percent. A potential issue is whether further consideration may be needed with regard to establishing a broad-based regulatory regime requiring monitoring of scrap metals being imported and/or exported.

Potential Issue 5 – Location in distribution chain where scrap metals should be monitored.

The detailed responses to question (Q M 3) “*At what point in the distribution chain is the scrap metal monitored?*” indicate a wide disparity in where (and if) monitoring occurs. A potential issue is whether further consideration should be given to globally standardizing requirements for monitoring at the point of production of scrap metal.

Potential Issue 6 – Potential need to globally standardize the monitoring of metal products.

The responses to many of the “Monitoring” questions indicate a wide disparity in how metal products are monitored, in terms of specifications on the detectors (Q M 4) locations of detectors (Q M 5), percentage of imported and exported materials monitored (Q M 6), quality assurance procedures used (Q M 7), extent of preparation of procedures to be followed in training (Q M 8) and protocols to be followed when an alarm is triggered (Q M 9), detection alarm thresholds (Q M 10), and testing of systems (Q M 11 through Q M 14). For the three questions in this series posed to obtain either a positive (“yes”) or negative (“no”) response, about 1/3 of the responses were negative (employees are not trained, regular sensitivity checks are not performed).

In addition, only 45 % of the countries responding monitor smelter outputs (Q M 15) only 37 % of the countries train personnel at smelters (Q M 16) or provide guidelines at smelters for identifying and characterizing sources at processing facilities (Q M 17), and a similar low number (39 %, question Q M 18) provide reporting protocols at processing facilities.

Thus, it would appear that it might be beneficial to prepare internationally recognized guidance material in all of these areas to enhance a standardized approach to monitoring of contaminated metals and to facilitate early identification of sources before they get into the metal processing chain.

Dispositioning

This topic includes the third general issue mentioned in the provisional agenda for the first session, i.e. “*Dispositioning (removal) of detected radioactive materials*”. In general it appears that countries reporting have established procedures for dispositioning depending upon their individual needs.

Potential Issue 7 – Arrangement for disposal facility or return to manufacturer program.

The response to question (Q D 2) shows that further consideration may be needed with regard to providing a facility or program for handling materials found to be contaminated (only 29 % of the countries responding have a mechanism in place for this issue).

Potential Issue 8 – Potential need to globally acknowledge that protocols (standards) already exist for the transport of detected radioactive materials (including sources and contaminated scrap metal).

The response rate to the two questions (Q D 5 and Q D 6) relating to the transport of identified radioactive or contaminated materials was quite high (84 % “yes” for materials and 68 % “yes” for contaminated scrap metal). However, the discussions provided would indicate that many countries need to recognize and rely upon the IAEA Regulations for the Safe Transport of Radioactive Material (TS-R-1) as they are implemented through binding international modal instruments (of, e.g., those of the ICAO, IMO, ADR, RID and ADN for air, sea, road, rail and inland waterway transport, respectively) and the relevant domestic regulations that are based on the current IAEA Transport Regulations or (for some countries) its predecessor documents. In the event that the material or contaminated scrap has activity levels that exceed those for being exempt from the Transport Regulations (as specified in Table I of TS-R-1), then the Transport Regulations as adopted and applied in each individual country should be applied and serve as the protocol for transport of the material or scrap.

Contractual

This topic includes the fourth and fifth general issues mentioned in the provisional agenda for the first session, i.e. “*Contractual provisions governing trade in scrap metal products*” and “*Governmental and private sector response procedures and requirements*”.

Potential Issue 9 – Potential need to consider strengthening contractual requirements on the acquisition of scrap metal.

The latter four questions on dispositioning (Q D 2 through Q D 5) had low positive response rates (ranging from as low as 21 percent to slightly more than 50 percent). The questions dealt with constraints on contractual arrangements with processors, producers and purchasers of metal products that might strengthen controls on the inadvertent production and distribution of radioactively contaminated metals. Consideration might be given to the imposition of tighter contractual requirements in these areas which, in turn, could improve both the domestic and international controls on the production and movement of contaminated scrap material.

Reporting

This topic includes the sixth general issue mentioned in the provisional agenda for the first session, i.e. “*Inter-agency cooperation in monitoring and response*”. In general it appears that countries reporting have established procedures for dispositioning depending their individual needs.

Potential Issue 10 – Potential need to consider standardizing and strengthening reporting and investigating procedures.

Three questions (Q R 1, Q R 4 and Q R 6) had low positive response rates (55, 53 and 39 percent respectively). These questions dealt with reporting and investigating incidents at producing facilities, and the allowed (controlled or uncontrolled) accumulation of detected radioactive material. For example, only slightly more than one half of the countries responding to the questionnaire reported a requirement for a metal processing facility to report a detection alarm (Q R 1), and half of the processing facilities perform their on investigations and corrective actions (Q R 4). Finally, approximately 20 % of the responding countries reported that responsible ministries do not investigate detection reports (Q R 2). Development of reporting guidance (for both the regulator and the regulated) might provide improvements in this area.

Experience

This topic addresses the last general issue mentioned in the provisional agenda for the first session, i.e. “*Good (and bad) practices and lessons to be learned*”.

Potential Issue 11 – Potential need to develop mechanism for exchanging information on practices and lessons learned in the area of Monitoring of Radiologically Contaminated Scrap Metal

More than 60 percent of the countries responding to the questionnaire provided brief comments on their experience in the area of contaminated scrap metal issues. These are summarized in the last section of the paper “*Analysis of Responses to Questionnaire Circulated by the United Nations Economic Commission for Europe to Relevant Member States and Organizations on the Subject of Monitoring of Radiologically Contaminated Scrap Metal – Responses Analyzed for Submittal Received through 17 March 2004*” prepared for this meeting. Such information, if shared frequently and openly by countries could prove beneficial in helping countries enhance their monitoring of scrap metals, assisting in protecting against the production and dissemination of radioactively contaminated materials. This could be a task undertaken by an international body, and might be in the form of a newsletter assembled periodically and made available on the Internet.
