An International Approach to *Monitoring, Interception & Managing*
Radioactively Contaminated Scrap Metal

Deborah Kopsick, *U.S. Environmental Protection Agency,* **S.Y. Chen,** *Argonne National Laboratory,* **Ray Turner,** *River Metals Recycling,*
Martin Magold, *United Nations Economic Commission for Europe,* **Ronald B. Pope,** *Consultant*

SCOPE of PROBLEM

- Worldwide, there have been over 40 deaths and 266 serious injuries as the result of uncontrolled radioactive source incidents.
- Aside from radiation exposure to workers and the public, this unwanted radioactive scrap material causes environmental and facility contamination with cleanup costs that average $12–15 million per incident.
- It is estimated that through 2001, scrap yards and steel mills in North America have experienced over 10,000 detections of radioactivity in recycled scrap metal.

Portal Radiation Monitors at Scrap Yard

Initial Data Gathering

United Nations Economic Commission for Europe circulated a questionnaire to ascertain the current state of scrap metal radiation monitoring protocols. Six specific areas were investigated:

1) *Regulatory infrastructure*
2) *Monitoring*
3) *Dispositioning*
4) *Contractual*
5) *Reporting*
6) *Experience*

55 responses from agencies, organizations or companies; 48 countries responded.

Stakeholders

Also in Attendance:

- United States of America
- World Customs Organization (WCO)
- International Atomic Energy Agency (IAEA)
- Bureau of International Recycling (BIR)
- Scrap processing consultant

The Group of Experts represented a range of monitoring expertise, from countries that have well-defined radiation monitoring programs to those wishing to initiate a program.

United Nations Economic Commission for Europe

Issues Identified

Regulatory Infrastructure

1. Application of the International Atomic Energy Agency (IAEA) Code of Conduct for the Safety and Security of Radioactive Sources.

Monitoring

2. Monitoring of imported and exported scrap metal
3. Location, scope and magnitude of monitoring requirements and procedures
4. Standardization of monitoring of scrap metal and response to alarms

Dispositioning

5. Arrangement for disposal facility or return to manufacturer program
6. Application of existing regulations for the shipment of detected radioactive material
7. Mechanisms for effectively dealing with contaminated scrap metal

Contracts

8. Strengthening of contractual requirements on the acquisition of scrap metal to require radiation monitoring prior to sale

Reporting

9. Standardizing and strengthening reporting and investigating procedures

Experiences

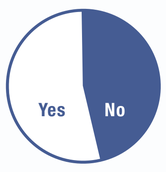
10. Establishment of a mechanism for the exchange of information on practices and lessons learned in monitoring radioactively contaminated scrap metal

QRI-1
Is there a regulatory mechanism to prevent loss of discrete radioactive materials?
Yes 98%, No 2%

QM-2
Is there a regulatory requirement for monitoring imported and/or exported scrap metals for radioactivity?
Yes 44%, No 56%

QM-8
Are employees trained in monitoring and response techniques?
Yes 71%, No 29%

QM-15
Do metal melting facilities monitor output?
Yes 48%, No 52%



QC-2
When scrap metal is purchased, does the contract require it be radiation-free?
Yes 52%, No 48%

QR-1
Are there reporting requirements for alarms at metal processing facilities?
Yes 56%, No 44%

NEXT STEPS

- **Protocol**: An internationally acceptable monitoring and response protocol will be developed. The Spanish Protocol, which provides for collaboration between various government agencies and industry to monitor for and dispose of unwanted radioactive materials in scrap metal, will be used as a framework.
- **Information Exchange**: International information exchange will be accomplished through the development of a web portal to allow access to scrap industry data and the possible development of a database where countries can report scrap radiation incidents.
- **Training**: International training programs will be developed to address such topics as protocol implementation, optimum location of radiation monitors, detector sensitivities, calibration and maintenance needs, incident reporting formats, the process for handling materials after detection, and transportation considerations.

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For further information, contact Deborah Kopsick, *EPA Office of Radiation and Indoor Air,* *kopsick.deborah@epa.gov*

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