The view of the steelmakers

Control and Management of Inadvertent Radioactive Material in Scrap Metal

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- European confederation of iron and steel industries: founded 1976

- Represents 100% of steel producers in the EU

- Objectives include: co-operation in matters that contribute to the development of the European steel industry
Steel in the EU 2007

- Steel production 209 Mtonne
- Scrap consumption 118 Mtonne
- Scrap imports 5.8 Mtonne, exports 10.8 Mtonne
- Scrap traded internally 30 M tonne
Reported melting incidents
(based on J. Yusko listing)

Reported accidental meltings of radioactive sources (80% in steel)
Post-steelplant detections

Radioactive push buttons: France; October 2008
Otis, recall 500 lift buttons

Radioactive watches: France; October 2000
Radioactivity in the bracelet

Radioactive handles: Australia; October 2004
Customs seize stainless steel drawer handles

Radioactive wheel trim: UK; May 2000
Melting incidents are under-reported

- Detection:
- Monitoring is not always comprehensive
  - Steelplant products: Steel; off-gas dust; slag

- Reporting:
- Publicity is not helpful

‘RADIOACTIVE CESIUM SPILL COOKS EUROPE’
Cost

- Melting of radioactive source
  - Exposure of people to radioactivity
  - Cost >1M €

- Detector system to check scrap ~50000 €
  - plus yearly costs
  - plus nuisance alarms

- Correct disposal of radioactive source ~ 10000 €
Control of radioactive material

- The origin of the problem is poor control of radioactive material
- European HASS directive acknowledges the problem
- Imported scrap not affected by HASS
- Control varies from country to country
Detection systems
Monitoring for radioactivity

• Steelplants monitor for radioactivity
• Some scrap processors monitor for radioactivity
• Monitoring is a legal requirement in the Netherlands
• There are technical limits to detection
Is it radioactive?

- European steel scrap specification
  - All grades shall exclude:
  - ... radioactivity in excess of the ambient level ...

- Scrap causing alarms has to be searched

- Scrap meeting clearance levels can cause alarms
If radioactivity is detected

- Isolation of radioactivity from scrap is not usually difficult
- In the UK it is the responsibility of the finder
- In the Netherlands, and some other countries, it is the responsibility of the national authorities
Conclusions

- Control of radioactive sources is still a problem

- Steel production is the industry most at risk
  - it is the main finder of orphan radioactive sources
  - it pays for detection
  - it pays for melting incidents

- The polluter pays?