STUDY CASE N° 25: INCIDENT INVOLVING STAINLESS STEEL SHEETS CONTAMINATED WITH COBALT 60 IN ITALY

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❑ Description of the incident

Between January and February 2008, the *Carabinieri of Environmental Care Command – Radioactive Materials Pollution Unit*, supported by APAT (Italian Environmental Protection Agency) and other Competent Authorities, seized 3 hot rolled stainless steel sheets in coils contaminated by cobalt 60. Each coil weighs about 10 tons and is made of sheets 6 mm thick (see figure below). Probably they are part of a single casting. Fortunately, they were destined for industrial applications (like tanks, chimneys, pulleys) not for domestic use.

The shipment was a combined transport of many containers from China to an Italian plant through a South Korean export society. The same ship carried more than 180,000 tons of steel, but only these 3 coils were contaminated. The other coils had different thickness or different identification number.

The dose-rate at contact was about 20 mSv/h (52 mSv/h inside the coils) and 4 mSv/h at one meter.

In steel factories, cobalt sources are used in the blast furnace to check the thickness of the walls. If the maintenance works are not adequate, the sources can fall in contaminating all the melt.

In Italy, radiometric checks are compulsory only on metal scraps and not on other metallic products. In some harbours not all the imported containers are investigated by portal monitor or handhold instruments. For these reasons, the contamination was discovered later, only after the radiometric check of metal scraps coming out from the steel works in the factories. At the end of the investigations, more than ten persons were reported to the public persecutor for many offences against the environment and all the contaminated steel were seized in Italy and the others countries where it has been exported (Croatia, Turkey, Egypt and Poland).

❑ **Lessons learned**

The seizure of contaminated steel and other similar events that have happened in Italy in the past, clearly demonstrate that the problem of orphan sources involves not only scrap metal but the semi-finished products, too. In conclusion, radiometric checks should be compulsory on all metal products. The Italian law is changing in this way.