

Conference Summary and Conclusions

Metal recycling has become an important industrial activity in all countries; it is seen as being socially and environmentally beneficial because it conserves natural ore resources and saves energy. Radioactive material may become associated with scrap metal inadvertently and if it is melted can cause health, economic and public acceptance problems for the metal industry.

The aim of this conference was to share experiences and, if possible, to contribute towards the resolution of the problems caused by the inadvertent presence of radioactive material in scrap metal.

This is an issue of wide concern; it involves regulators, industry and the public. The high level of interest in the subject is shown by the conference attendance of more than 200 participants from 62 countries and 5 international organisations.

The technical contributions in the form of oral presentations and posters from all around the world have revealed that the problems discussed at the conference are truly global in nature and demand an urgent solution. Altogether, 40 oral and 38 poster contributions from more than 60 countries and international organisations were presented.

The presentations included experiences from incidents involving radioactive material in scrap from 10 countries. They showed that the health effects resulting from such incidents can be significant but, in addition, that the consequences of radioactive material in scrap reaching the processed metal product can be costly. Such events have led to plant closures and to expensive clean-ups. Even the discovery and recovery of radioactive material from scrap metal loads at entrance gates to scrap metal and metal processing facilities can be disturbing and costly. In addition, such incidents lead to a loss of trust in the recycled metal industry.

At the base of the problem are the deficiencies which still exist in the control of radiation sources and materials. Considerable efforts, both at national and international levels, have gone into securing sources and improving controls on them. Many countries have made commitments to resolve the problem by formally associating themselves with the international Code of Conduct on the Safety and Security of Radioactive Sealed Sources.

Increased monitoring at national borders, at entrances to scrap yards and steel plants has helped to improve the situation, but globally, the monitoring is incomplete in its coverage. Incidents continue to occur and reports at the conference have provided clear evidence of the incompleteness of the monitoring. In addition, there are limits to the effectiveness of detection methods.

Reducing the magnitude of the problem by prevention, detection and subsequent reaction requires the cooperative efforts of all concerned parties, that is, the scrap metal carriers, the

scrap metal industry, the steel industry, the national regulators and the radioactive waste management organisations. An effective national model is that of Spain and its protocol, while international recommendations, aimed at the global situation, have been provided by the United Nations Economic Commission for Europe. The essential features of the recommendations are prevention, detection and response. National strategies based on these three guiding steps were repeated in many of the presentations at the conference.

The Spanish experience with its Protocol has shown the value of an all-inclusive approach in which the concerned parties are encouraged to feel that they are all part of the solution; a collaborative approach in which no-one is blamed and the emphasis is on finding a solution.

The presentations and posters displayed at the conference showed clearly that the problem is global and therefore requires a global reaction. Translating the positive national experience to the international scale will not be easy but the lessons learned from some national experiences are valid. The global situation can only be improved with collaborative efforts and improved trust between all major stakeholders.

From the presentations and discussions it is clear that many countries feel that the main problems come from imports from outside their frontiers. The problems are particularly difficult for small countries with limited experience and resources, especially those which have borders with several other states. At present, there are no international legal instruments that cover the trans-border issues associated with radioactive material found in scrap metal. Several examples of the trans-border issue were presented. For example, there is no international requirement to report a load which is rejected at a border to the authorities in the neighbouring countries and there is no international requirement for the certification of monitoring of loads being imported into or exported from a country. It is also clear that countries have different acceptance criteria for radionuclides in metal scrap leading to possible acceptance problems at borders.

The participants of the conference were unanimous in recognising the potential benefit that would result from establishing some form of binding international agreement between governments to unify the approach to trans-border issues concerning metal scrap containing radioactive material. This should now be a subject for the international agencies to consider and to determine the most effective mechanism for the purpose. In doing this they might explore the possibility that certain existing international instruments, for example, the international Regulations for the Transport of Radioactive Materials, could address some of the trans-border issues.

Many of the topics raised by conference participants in this context have been addressed in the United Nations Economic Commission for Europe recommendations and they could, therefore, be one of the starting points for deliberations.

In many countries, the discovery of radioactive material in scrap is seen by persons in the scrap metal industry as a negative thing because it can bring difficulties with the authorities, a loss of production and a waste of time. This can cause such incidents to be hidden from

the authorities. It was suggested that giving awards to persons for the discovery of radioactive material could transform the situation and lead to greater openness in reporting.

Although the majority of reported incidents involving radioactive material in scrap metal are concerned with naturally occurring radionuclides and orphan sources, the conference also addressed the issues surrounding the recycling of metals from the nuclear industry – which is practised on a limited scale at present but which may be expected to grow as more nuclear facilities are decommissioned in the coming years.

It was argued that the nuclear industry needs to recycle its metal – the disposal alternative may not always be available or be too expensive for the large volumes concerned and, in addition, it is wasteful of valuable metal resources. However, the potential presence of radioactive material in scrap metal from the nuclear industry has made the steel industry reluctant to accept scrap from this source.

The nuclear industry in several countries is using the clearance concept to determine which materials can be released from regulatory control for recycle. Most of the released metals have so far been used in controlled applications or returned for reuse within the nuclear industry. Generally, the release of cleared metals from the nuclear industry for unrestricted use has not yet gained acceptance. This is a key issue for the future and the determination of an agreement on appropriate acceptance criteria for radionuclides in metal scrap and processed metal would be one step towards its resolution.

In some countries, scrap metal from the nuclear industry is already accepted by the local steel industry. In these cases it has been recognised by the local steel company that the scrap is carefully controlled and of high quality. An important element in this context is the understanding and trust developed between the supplier and customer.

The issues surrounding inadvertent radioactive material appearing in scrap metal and processed metal may cause public alarm and concern. Therefore, in all matters related to the problem the views of the public must be considered. The industries and the national authorities should try to obtain the trust of the public by being open and transparent in what they do, by providing proper information and by communicating effectively. It is essential that the public is assured that the authorities are making all possible efforts to ensure its protection and wellbeing.

Clearly, there are many issues for the nuclear and steel industries to resolve. Currently there are too few occasions at which the representatives of the nuclear and steel industries can meet to discuss their problems. A way forward might be to create a forum where this could occur. It might help to improve understanding of the issues and concerns of both sides and to build mutual trust.

In summary, the conference achieved the objectives set for it - by successfully promoting the exchange of information between those concerned with the problems of inadvertent radioactive material in scrap metal. In addition, it has indicated a way forward to help

resolve some of the major issues raised through the development of an international agreement between countries on the subject.