

Chairman's Report

Regional Workshop on Transboundary Movement of Scrap metal and Other Commodities that Inadvertently Contain Radioactive Material

INT9176/9004/01

Sliema, Malta; 10 to 14 June 2013

The Workshop Director, Mr Paul Brejza, Executive Chairperson of Malta's Radiation Protection Board, opened the workshop. Next, Mr Juan Pedro Garcia Cadierno of the Spanish regulatory body, who served as the chairman for the workshop, provided some opening remarks, which included the objectives of the workshop. Mr Cadierno made a presentation concerning the Spanish Protocol including the need for a national system of control over radioactivity that is inadvertently present in scrap metal. Mr Alvaro Rodriguez Martinez of the Federacion Espanola de la Recuperacion, a recycling trade association, made a presentation concerning the problem of radioactive material inadvertently being incorporated into scrap metal from the industry's perspective. He emphasized that the industry is the first victim when the control over radioactive sources is lost and warned against the implementation of a "finder pays" principle concerning the discovery of radioactive material. Mr Eric Reber of the IAEA made a presentation on the development of the Metal Recycling Code of Conduct and on IAEA Specific Safety Guide No. SSG-17, Control of Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries. Mr Markku Olavi Koskelainen of STUK made a presentation on control of radioactive sources in Finland and Finnish experience with radioactive material that is inadvertently present in scrap metal. He emphasized the importance of cooperation among customs, the regulatory body, and the scrap industry.

Allison Bennett of the NNSA made a presentation concerning the NNSA's Secondary Line of Defense program. The SLD's mission is to deter, detect, and interdict illicit trafficking of nuclear and other radioactive materials. Main components of their work are implementation, i.e., installation and provision of radiation detection equipment, and sustainability, i.e., provision of training, technical support, etc.

There is a provision for 'reachback' which provides assistance for the confirmation of, or technical assistance with, suspicious alarms. 2500 portal monitors have been installed in 54 countries at 455 international crossings and 45 large container ports (Megaports). Implementation at new facilities is scheduled to continue in spite of recent budgeting setbacks.

It was acknowledged that radioactive material that is inadvertently present in commodities, i.e., not being illicitly trafficked, is often discovered at border crossings. Recipient States are not required to report non-threat incidents to SLD; regardless, about 25% of incidents reported to SLD are associated with scrap metal and of these incidents, ~25% involve Ra-226, ~20% involve Co-60, and ~15% involve Cs-137. Sometimes scrap metal that is detected will be returned to the exporting company and then later re-exported and re-detected, i.e., no action is taken by the exporting company to remove the radioactive material from the scrap metal before it is exported a second time.

National communication systems have been provided, which provide communication links between monitoring facilities and a central communications hub within a State.

NNSA provided the radiation monitor at Gate 1 of the VIC.

Workshop participants made national presentations concerning various the presence of radioactive material in commodities, with the bulk of these presentations focusing on scrap metal, semi-finished products and finished products. A site visit was made on Wednesday afternoon to Malta's Freeport, which is a Megaport site. Discussions were held with the aim of summarizing the issues within the region and developing solutions.

The workshop was attended by 29 representatives from Malta, Albania, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, Ghana, Greece, Jordan, Lebanon, Libya, Frmr. Yug. Rep. of Macedonia, Montenegro, Morocco, Nigeria, Slovenia, Tunisia, Turkey, and Tanzania. Of the participants, less than five have participated in meetings related to the development of the Metal Recycling Code of Conduct. Most of the participants are employed by regulatory bodies for radiation safety and some for waste management organizations.

Funding to support the holding of the workshop within an interregional project [INT9176] was provided by the European Union and Spain.

Observations and Recommendations

It was generally recognized that harmonization of transboundary issues related to the discovery of radioactive material in scrap metal, such as provided in the draft Metal Recycling Code of Conduct, would be beneficial.

It was recognized that domestic and international cooperation is necessary on issues related to the discovery of radioactive material and its subsequent handling between regulatory bodies, stakeholders and other states. Many States have established such cooperation. Sometimes the cooperation takes place on an informal basis and sometimes under the terms of written memorandums of understanding. Some participants indicated that a written MOU is necessary for effective cooperation. It was noted that it is often the regulatory body that has the opportunity to establish such cooperation through awareness raising, provision of training and technical advice.

Some multi-lateral agreements exist concerning the discovery of radioactive material in commodities such as scrap metal at borders. An informal multilateral agreement was described that exists among Bosnia and Herzegovina, Croatia, Former Yugoslav Republic of Macedonia, Montenegro, Serbia and Slovenia. A bilateral agreement among the customs authorities in Finland and Russia that covers shipments of scrap metal was also described. For States that receive shipments from many States it was discussed that it would be impractical to establish bilateral agreements with all relevant countries and therefore, the framework of Metal Recycling Code of Conduct is seen as a substitute for such agreements.

Various problems concerning the return of radioactive material to exporting countries were discussed, including the lack of an authorized facility to ship the source to and acceptance by the facility in the exporting country of their responsibility for the radioactive material in question. It was accepted that on safety grounds, anyone discovering the presence of

radioactive material has a responsibility to act and bring the material back under regulatory control.

The benefits of using radiation detection instruments to monitor scrap metal were discussed and it was noted that most dangerous sources could usually be identified using radiation detection instrumentation. It was noted that wherever possible, monitoring of scrap metal consignments should be undertaken using radiation detection instruments.

It was acknowledged that portal monitors are the only practical means of monitoring a large number of consignments of scrap metal that is subject to transboundary movement or being delivered to/transported from metal recycling facilities and that the sensitivity of this type of monitoring is generally superior to the use of handheld monitoring equipment. However, one participant noted the benefits of using handheld radiation detection instruments to monitor scrap metal. Specifically, the increased efficiency that comes from a small distance (smaller than with portal monitors) between the scrap metal and the sensitive volume was seen as a benefit.

Investigation levels differ from state to state. It was acknowledged that investigation levels based on clearance levels are almost impossible to implement. It was discussed that scanning with portal monitors or handheld equipment should be a first step and that analysis for compliance with clearance levels would be a second step requiring laboratory analysis. One participant indicated that there are computer programs [such as Microshield] that could be used to convert specific activities to dose rates that could be measured with a handheld detector. To harmonize the radiation monitoring of scrap metal, radiation monitoring should be implemented according to the guidance on radiation monitoring in SSG-17.

It was stated that scrap metal that is destined for export should be scanned using radiation detection equipment in accordance with a graded approach at the exporting metal recycling facility.

States have implemented border monitoring capabilities with the aim of detecting radioactive material that is being trafficked illicitly. It was acknowledged that when radioactive material that is inadvertently present in commodities is detected, that there is a responsibility to handle the material in a safe manner and that this is one of the underlying principles of the Metal Recycling Code of Conduct.

When commodities activate alarms, the industry sometimes is not willing to accept the commodities in question, even those with concentrations of radioactivity below clearance levels. Communication among stakeholders was identified as a way to increase acceptance.

Ferrous scrap is mostly traded domestically and regionally because the shipping costs limit the economic benefit of transporting it over large distances.

The lack of acceptance by exporting countries raised the problem of monitoring scrap metal in states of transit. It was suggested that where it is not possible to return the radioactive material to the exporting state, it may in some instances be best not to monitor the shipments as not to be left with the radioactive material in the state of transit. However, it was noted that from a safety perspective it is important that any and all resources to identify radioactive material inadvertently present in a consignment should be used and all radioactive material should be brought under regulatory control upon discovery.

Some confusion exists among participants concerning reporting of incidents involving the discovery of radioactive material to the IAEA, i.e., reporting to the ITDB and/or notifications in the USIE system. One participant indicated that the current reporting guidelines are clear. Also, States are required to report incidents involving nuclear materials to safeguards. States should report incidents to the IAEA through the appropriate channels. It was noted that the information in the ITDB should be reported in such a way as to characterize the types of incidents and trends with regard to the presence of radioactive material in scrap metal.

The application of international transport regulations can be problematic for radioactive material present in scrap metal consignments. It was acknowledged that appropriate transport measures must be applied to radioactive material to be returned, or to consignments that are rejected and returned to the exporting state. The use of special arrangements in transport of radioactive materials was presented as a solution in cases where there were difficulties of determining the radionuclide, activity and the form of radioactive material.

Sometimes points of contact related to the Code of Conduct on the Safety and Security of Radioactive Sources are used to facilitate the return of radioactive material to exporting States.

Not all countries require metal recycling companies to pay various fees associated with the discovery of radioactive material in scrap metal. The industry representative indicated that such policies may have the effect that the industry does not report the discovery of radioactive material in scrap metal to the government because of the adverse consequences. Several participants indicated that a policy of no fees associated with the discovery of radioactive material may have the effect that users of radioactive material may use metal recycling facilities as “dumping grounds” for unwanted radioactive material. The Chairman indicated that the policy in Spain of not charging fees when radioactive material is discovered is working well.

It was generally recognized that harmonization of rules for radioactive material discovered in transboundary consignments is required. It was accepted that the Metal Recycling Code of Conduct would be beneficial for scrap metal consignments, but it does not solve the issue of radioactive material present in finished products.

Following incidents in recent years involving the incorporation of radioactive material into finished products, producers of steel in one country have received increased requests for evidence of the monitoring of semi-finished products for the presence of radioactive material.

Generally, when NORM is detected in commodities, if the radionuclides and quantities present match up with those expected for the material involved, no further analysis is performed and no further provisions are implemented based on the radioactivity that is present.

The participants felt that it would be useful for the IAEA to develop basic training material for workers at scrap metal facilities that may include videos, presentations, brochures and posters.

The participants indicated that the workshop was a useful forum for the exchange of ideas, lessons learned and experience with the prevention of, and response to, radioactive material

that is inadvertently present in scrap metal. The participants felt that it was useful to have an industry representative and a representative from NNSA's Second Line of Defense initiative at the workshop. The participants recommended that similar workshops be held in other regions.

The participants recommended that the IAEA explore the possibility of the establishment of some sort of regional network that will deal with problems associated with the inadvertent incorporation of radioactive material into scrap metal. Such a network would include national points of contact for the purpose of facilitation communication among the exporting State, the importing State and the State(s) of transit in the event that radioactive material is discovered in a consignment.

The participants recommended the establishment of a waste disposal facility and, minimally, the establishment of a dedicated facility capable of storing radioactive sources.

Summaries of the national presentations that were given at the workshop are provided in the annex to this report.

A draft version of this report was provided to the workshop participants and their feedback was incorporated into the final version.



Juan Pedro Garcia Cadierno

Chairman

ANNEX

Summaries of National Presentations

Malta

Scrap metal is collected for export only, i.e., there are no melting facilities in Malta. The Radiation Protection Board has not done much work concerning radiation hazards associated with the domestic collection of scrap metal. RPB has made some site visits and some facilities have monitoring capabilities.

Megaport portal monitors are operated by Customs. A standard operating procedure has been established concerning cooperation between RPB and customs regarding radioactive material that may be discovered.

In the past year they have found three containers with finished products from India that were contaminated with Co-60. No scrap metal with radioactive material has been discovered since the monitors were installed approximately one year ago. 4% of containers that are monitored trigger alarms, mostly due to NORM.

RPB assists shipper in compliance with transport regulations.

No bilateral agreements concerning radioactive material in shipments.

Albania

A legal framework concerning the potential presence of radioactive material in scrap metal has been established; however, the application of the requirements to small metal recycling facilities is not entirely clear. No penalties apply to the discovery of orphan sources. No procedures have been established concerning the return of radioactive sources to exporting countries as this is a complex process.

Metal recycling facilities are obliged to check scrap metal for radioactive material before export/after import. Semi-finished products are also monitored. Generally, metal recycling facilities have portal monitors in place. One facility melts scrap metal (Kurum). There are approximately 100 small scrap metal facilities, which do not, generally, perform radiation monitoring of scrap metal. Albania imports and exports scrap metal.

The government is involved in training, response, support, waste handling and efforts to regain control over radioactive material. Procedures concerning the handling of orphan sources by customs have been established. Concentrations in commodities are controlled and some difficulties exist in applying requirements because the limits are expressed in terms of specific activity and it is difficult to make meaningful measurements in the field. 100 nSv/hr is the limit used by the government to designate when scrap metal is free from radioactive material.

A dedicated storage facility for radioactive sources has been established.

Bosnia and Herzegovina

One radioactive source storage facility is available. The regulatory body covers costs associated with orphan sources if the owner cannot be identified.

RB responds when radioactive material is discovered at metal recycling and production facilities or at borders. MOU with customs has been established concerning radioactive material in scrap metal. Customs investigation levels are 50% higher than natural background. Actions to be taken at higher dose levels have also been established.

A steel plant has a portal monitor and also handheld equipment.

Common orphan sources detected are lightning rods and thorium in aircraft parts.

Regulatory requirements concerning metal recycling facilities are in the process of being implemented. Requirements cover training, monitoring, preparedness and response with regard to the presence of radioactive material in scrap metal. Guidance indicates that a radiation monitoring report should be prepared for shipments of scrap metal.

MOUs concerning the discovery of radioactive material at borders have been established with neighboring States and three MOUs are being developed.

Croatia

Multilateral agreement est. in March 2007 established among Bosnia and Herzegovina, Croatia, Former Yugoslav Republic of Macedonia, Serbia and Slovenia concerning exchange of information on illicit trafficking of radioactive material within States. Provisions apply to radioactive material detected at borders – notification of States, country of origin takes responsibility, streamlined procedure for return of shipments. This agreement informal and unsigned agreement seems to be working well.

Border monitoring capabilities exist and procedures for the use of equipment and actions to be taken when radioactive material is identified have been established. SORNS (RB) provides technical advice and response capabilities in the event that radioactive material is discovered.

Cyprus

The regulatory body is involved with the monitoring of scrap metal prior to export.

There are three main scrap metal dealers and two smaller ones. There are no metal melting facilities in Cyprus, i.e., scrap metal is not imported and only exported, mainly to Greece. All metal recycling facilities have radiation detection equipment. There is close open cooperation between the RB and the operators of scrap metal facilities. The RB provides assistance, information and technical support to scrap facilities. So far, no orphan sources have been detected.

Portal monitors are installed at the main export port.

A requirement is in place on the import of new radioactive sources requiring the supplier company will take back the source when it is disused.

Egypt

A dedicated storage facility for radioactive sources has been established.

A legal and regulatory framework for the control of radioactive sources including their transport has been established.

The country has a large number of disused radioactive sources.

Greece

Steel, copper and aluminium are imported into, and exported from, Greece with more imports than exports.

GAEC performs inspections of scrap metal facilities and customs facilities and responds to the discovery of radioactive material. GAEC is on-call 24/7 to respond to the discovery of radioactive material in scrap metal (and other events). Monitoring of scrap metal for radioactive content is required by a ministerial decision and large metal recycling facilities have installed portal monitors. GAEC issues scrap metal import authorizations and requires evidence of radiation monitoring before issuing such authorizations.

Greece has an interim storage facility for radioactive sources that is currently under licensing procedure.

There are no penalties that apply to the discovery of radioactive material in scrap metal.

Megaport portal monitors for vehicles and pedestrians have been installed at non EU borders and customs.

GAEC is aware of 51 incidents concerning the discovery of various types of radioactive material at steel and metal recycling facilities from 2008 to the present.

In 2005, multiple sources were detected in scrap metal in an open ship, e.g., one source contained 18.5 TBq Cs-137. A radiation monitoring certificate indicated that radioactive material was not present was received for the shipment.

Former Yugoslav Republic of Macedonia

MOUs have been established between the Radiation Safety Directorate and various governmental organizations including customs. Ten border crossings have portal monitors and handheld radiation monitoring equipment. RSD provides technical assistance to customs concerning the identification and management of radioactive material that is discovered.

Scrap metal is traded internationally with various countries, the most significant being Greece, Kosovo, Serbia and Bulgaria. In the past, a disproportionate amount of radioactive material was found in shipments from Kosovo, but this problem seems to have been solved through the implementation of radiation monitoring procedures in Kosovo.

Costs associated with the management of orphan sources not found in scrap metal are paid by the government. Costs associated with orphan sources found in scrap metal are paid by the owner of the scrap metal.

Scrap metal is monitored for the presence of radioactive material prior to export.

Scrap metal is melted at a facility in Skopje and this facility has installed radiation monitoring equipment at appropriate locations.

Jordan

Following significant incidents involving multiple orphan sources in 2003, the Jordan Nuclear Energy Commission initiated a number of actions in 2004 to bring orphan sources under regulatory control. JNRC now checks all shipments of imports and exports of scrap metal.

The Jordan Nuclear Regulatory Commission, which was founded in 2008, has good relations with customs and police.

SLD was established in Jordan in 2008. Border monitoring has been installed at 9 ports of entry. Investigation level is 50% higher than natural background.

Jordan does not charge the scrap metal dealer when orphan sources are discovered in scrap metal.

Scrap metal is melted at one facility, which detects radioactive material about 5 – 7 times per year.

Lebanon

Aluminium, steel and copper are exported to various countries, and iron scrap metal is exported mainly to Turkey.

2000 containers of scrap metal are exported annually.

Monitoring of exports of scrap metal is performed according to a certificate given by the RB.

The RB is responsible for monitoring scrap metal and disposing of sources that are found. The RB currently covers the costs associated with orphan sources that are found; however, there is a plan to charge the scrap metal dealers in the future for such costs.

Around 150 contaminated pieces have been found in scrap metal, most contaminated with Ra-226.

Libya

Libya is in the process of developing a system for the control of radioactive material in scrap metal.

Border monitoring has not yet been installed.

There is a major steel plant in Misrata city.

TNRC performs inspections on commodities.

Montenegro

Seven companies are engaged in the import/export of scrap metal. One foundry melts scrap metal. No requirements apply to the monitoring of scrap metal at these facilities, but most of them perform such monitoring.

Incoming scrap metal is monitored for the presence of radioactive metal by the customs authority. No penalties apply to the discovery of orphan sources; however, the company involved must pay a fee to cover the costs of storing sources that are discovered.

A new dedicated facility for the storage of radioactive sources exists.

Morocco

The RB searches for, and secures, orphan sources. The RB provides training to workers at scrap metal facilities. The radiation protection officers within the metal recycling industry participate in the recovery of orphan sources.

There is a wide range of metal recycling facilities. Many of these facilities have installed detection equipment. Import and export of scrap metal and semi-finished products occurs. In 2012 there were 630 shipments of scrap metal and/or semi-finished products.

Government procedures exist concerning the monitoring of radioactive material at border crossings and actions to be taken following the discovery of radioactive material; however, not all border crossings have suitable equipment and personnel available to execute the procedures. There are plans to increase the implementation of radiation detection equipment at border crossings.

In the case of recovering an orphan source, it must be stored in the national storage facility.

Nigeria

Regulatory activities on control over radioactive materials in scrap metal, steel processing and recycling plants are not vigorously conducted. There are many scavengers and metal recycling facilities. Portal monitors have not been installed at any metal recycling facilities.

IN 2011 the NNRA conducted radiation monitoring at metal recycling facilities in the South-South of the country.

A portal monitor has been installed at the export terminal of the Nigeria Aviation Handling Company (NAHCO), Murtala Mohammed International Airport, Lagos. Three further portals are planned to be installed at border crossings. An MOU was signed between the NNRA and the customs authority. Export of scrap metal is required by the Nigerian Safety and Security of Radioactive Sources Regulation (2006) to be done only through designated ports where portal monitors have been installed, but that have not yet been installed.

No bilateral agreements have been established.

Slovenia

Generally, control over radioactive material that may be present in scrap metal is well-established.

There are 21 authorized providers of measurements of radioactivity of scrap metal. These entities are steel mills and large metal recycling facilities. Inspections are performed at these facilities. Requirements apply to the monitoring of scrap metal shipment. Large metal recycling and melting facilities have installed radiation detection equipment. A system for reporting the discovery of radioactive material in scrap metal has been implemented.

The investigation level is 50% above background.

12 to 18 "interventions" involving radioactivity in scrap metal occur each year.

A waste management organization arranges for the transport of orphan sources and can store orphan sources.

Outreach activities aimed at the metal recycling industry are conducted.

Two portal monitors were installed at border crossings in 2006. Customs and the police are equipped with radiation monitoring equipment.

Tunisia

A large number of radioactive sources are in use as well as ionizing radiations emitters.

The recycling of scrap metal is a very important business in Tunisia. Some of the important categories of scrap metal recycling include (Lead / Acid Battery Recycling , Tin Scrap Recycling ,Aluminum Scrap Recycling ,Copper Scrap Recycling , etc....)

One steel foundry plant (owned by EL FOULEDH: 1500 workers) exists and it has one radiation portal monitor and handled equipment.

Various companies export scrap metal (more than 150). Radioactive material is detected a few times per year.

One radiation portal monitor was installed at Rades SeaPort in 2009.

Radiation detection equipment are distributed in the borders (Algeria, Lybia), in the Tunis-Carthage Airport and the port.

Tunisia doesn't have any specific penalties associated with the discovery of radioactive material in scrap metal and no bilateral agreements in place concerning trans-boundary movements of scrap metal. Furthermore, no requirements pertaining to radioactive material in scrap metal have been established.

Turkey

Turkey is a major steel producing country and is one of the biggest scrap metal importers in Europe.

A system that addresses the presence of radioactive material in scrap metal has been developed and implemented. A certification procedure for scrap metal was established in 2004. Such a certificate is required for the import of scrap metal. TAEA does inspections of metal recycling facilities. When radioactive material is discovered in scrap metal, notification of the TAEA is required. Radiation monitoring equipment is installed at many medium and large-sized metal recycling and production facilities.

Most radioactive material that is discovered in imported scrap metal is NORM.

Orphan sources that are collected are obliged to be sent to Turkey's waste management facility. The metal recycling companies must pay for the handling and storage of radioactive material that is discovered.

Tanzania

Collaboration has been established between the Tanzania Atomic Energy Commission and other governmental organizations concerning radioactive material in scrap metal and other orphan source issues. There are also plans to establish collaboration with additional governmental organizations regarding these issues.

There are no fees charged to the metal recycling industry when they report the discovery of radioactive material to TAEC.

TAEC works on capacity building in the metal recycling industry.

A bill has been drafted within the Ministry of Industry that would ban the export of scrap metal in an attempt to bolster local production of steel.

There are a number of companies involved in the collection of scrap metal and its export.

No bilateral arrangements concerning transboundary trade in scrap metal have been established.