



**CONFERENCE OF RADIATION CONTROL PROGRAM DIRECTORS, INC.
BOARD OF DIRECTORS**

POSITION

Relating to: Recommended Safety Practice for Radioactive Materials in Recycled Metals

In 1983, a steel mill in New York State discovered it had smelted accidentally a radioactive source that had become mixed with its metal scrap feed. Costs for the decontamination and disposal of the radioactive waste totaled \$4,400,000. Smeltings have since occurred regularly. Since this incident, 23 more smeltings have been reported in the United States, while 12 additional reported smeltings have occurred in foreign countries. These events are very costly; a recent estimate provided by the U.S. steel industry is that losses due to the accidental smelting of a radioactive source have ranged up to \$23,000,000. Radioactive material that became mixed with metal scrap has caused radiation injuries to members of the public.

Scrap processors are also at risk. In 1994, a nuclear gauging device containing a 200 millicurie cesium-137 radioactive source was improperly transferred to a Kentucky scrap processor. A shredder at this scrap processor separated the source from its shielded source holder. Fortunately, in this case, the processed scrap was checked with a radiation detector, and the source was found intact, with no contamination of the employees or the equipment of the scrap processor. In late 1994, an Illinois scrap processor using a newly acquired radiation survey meter found elevated radiation levels on the property. Subsequently, an unshielded radioactive source was found buried in the soil. It was estimated to contain 370 millicuries of cesium-137. Investigations into how this source entered the facility, how it came to be buried and whether workers were exposed to it are continuing. In January, 1993 a metal scrap facility in Estonia detected radiation coming from a device mixed with metal scrap. The device was transferred to a waste disposal site where it was placed in storage. Unfortunately, an individual, possibly looking for recyclable materials, illegally removed a radioactive source from the site late in 1994 and took it to his residence. He died from the radiation exposure, and members of his family have also suffered from acute radiation syndrome.

The States or the Nuclear Regulatory Commission license the use of radioactive materials used in medical and industrial devices. The vast majority of licensees use these devices safely, taking proper care to account for the sources. In some cases however, these devices have been disposed of improperly and appear in metal scrap for recycling. Although iron and steel scrap is the most commonly affected, radioactive sources have also become mixed with scrap used in the aluminum, lead, copper, zinc and gold recycling industries.

Radiation from these sources can be detected using special equipment. While the use of radiation detectors to find radioactive sources in metal scrap cannot provide a 100% guarantee of protection, it is a proven technique for protecting scrap processors, mills, and their employees from inadvertently handling a radioactive source.

PERSONS WHO RECEIVE, PROCESS OR USE METAL SCRAP SHOULD PROTECT THEIR EMPLOYEES AND THEIR PLANTS BY ROUTINELY MONITORING INCOMING AND OUTGOING SHIPMENTS OF SCRAP FOR RADIATION.

Information brochures and technical guidance can be obtained from the Institute of Scrap Recycling Industries, Inc. You may contact your state radiation control agency or the regional office of the U.S. Nuclear Regulatory Commission for assistance.

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Original signed by Charles M. Hardin, Executive Director