



“Orphan” Radioactive Sources in Scrap Metal

Did you know that sometimes radioactive material accidentally ends up in metal products, like chairs, countertops and even in architectural beams? Sometimes radiation sources are not disposed of properly and end up in scrap metal yards. Luckily, with the help of advanced technology, we are finding ways to locate misplaced radiation sources before they get into scrap metal yards and enter consumer products.

Some sources of radioactive materials lack adequate control, sufficient accountability, and proper disposal processes. Found or abandoned sources are described as “orphan” when their identifying marks have been removed or damaged. The government has become more concerned with this issue as increased radiation monitoring has uncovered a growing number of these “orphan” sources.

Some industrial devices contain a small quantity of safely enclosed radioactive material called a “sealed” source. On the other hand, if this equipment is disposed of improperly or sent for recycling as scrap metal, the sealed source accidentally may be placed in the possession of someone who is not licensed to handle it. For instance, if a steel mill melts a sealed source containing radioactive material, it contaminates the metal, the processing equipment, and the facility. More importantly, the mill workers might be exposed to the radiation.

Officials at scrap metal yards and disposal sites use sensitive radiation scanners on incoming shipments to uncover unwanted radioactive materials before these materials can cause widespread contamination. Unfortunately, the protective housings around radioactive sources, in addition to making the sources safe, make detection difficult.

Who is protecting you

The States

Each State in the United States has one or more programs to address radiation protection and to respond to and investigate alarms at scrap metal facilities.

U.S. Environmental Protection Agency (EPA)

EPA operates a monitoring program that ensures imported scrap metal coming into the U.S. does not contain radioactive material. EPA also operates programs in conjunction with state governments to ensure radioactive material does not get into scrap metal being recycled.

EPA develops training programs for the metal processing and demolition industries.

EPA is working with the United Nations Economic Commission for Europe to develop an international protocol for the radiation monitoring of scrap metal.

U.S. Nuclear Regulatory Commission (NRC) and Agreement States

The primary mission of the NRC is to protect public health and safety and the environment from the effects of radiation from licensed nuclear reactors, sealed sources containing radioactive material, and waste facilities. Thirty-three states have signed formal agreements with the NRC, providing the states regulatory responsibility over small quantities of special nuclear material and its source and byproducts.

U.S. Department of Energy (DOE)

The DOE operates the National Recycle Program to control radioactive scrap metal from decommissioned nuclear facilities.

U.S. Department of Transportation (DOT)

DOT protects people, property and the environment by regulating transport of hazardous materials including radioactive contaminated scrap metal by highway, rail, air, and vessel.

What can you do to protect yourself

Coming into contact with something believed to be an orphan source or contaminated scrap metal is highly unlikely. However, if you think you have found an orphan source, immediately contact your state radiation authority, and avoid touching the item.

Three basic ways to limit unnecessary exposure include:

- **Time:** Limit the time spent around the radiation source.
- **Distance:** Increase the distance between you and the radiation source.
- **Shielding:** Increase the shielding from a radiation source with protective barriers such as walls and buildings. Alpha radiation can be effectively shielded with something as thin as a piece of paper or a plastic bag, while gamma radiation requires barriers as thick as lead-lined walls.

Resources

You can explore this radiation source further through the resources at the following URL:

<http://www.epa.gov/radtown/orphan-sources.html#resources>

We provide these resources on-line rather than here so we can keep the links up-to-date.