

IAEA tracks unauthorized incidents involving radioactive material

Many thefts occur during authorized transport.

By **Toni Feder**

The International Atomic Energy Agency (IAEA) tallied 4626 incidents from 1993 through 2025 in which nuclear and other radioactive material was not under regulatory control. Such incidents include theft, illegal possession, attempted sale, smuggling, and unauthorized disposal of material.

According to a 23 March fact sheet from the IAEA's Incident and Trafficking Database (ITDB), 359 (nearly 8%) of the reported incidents were likely connected with trafficking or malicious use. The remaining incidents were likely not connected to those motives (68%) or were of undetermined intent (24%).

Over the first roughly 15 years, the number of incidents reported to the agency by 145 member countries trended upward, but since 2007, it's fluctuated around 180 incidents a year. The majority of materials reported as lost, stolen, or missing involved radioactive sources used in industrial, medical, or material-analysis applications.

In the past decade, nearly 70% of reported thefts occurred during authorized transport.

▼ An expert participates in a field exercise on transport security of nuclear and other radioactive material. The course took place in Karlsruhe, Germany, in 2017. (Photo by Dean Calma/IAEA.)



“Nuclear and other radioactive material remains vulnerable to security threats during transport, and data from the ITDB underscores the continued need to strengthen security,” Elena Buglova, director of the IAEA’s division of nuclear security, said in a press release. In more than half the transport-related thefts, the stolen radioactive materials have not been recovered, according to the press release.

Some 14% of the incidents involved nuclear material, including uranium and plutonium; 60% involved other radioactive material; and 26% involved radioactively contaminated or other material. The agency reports a long-term decline in incidents involving nuclear material and an increase in those involving non-nuclear materials. Those trends appear to be associated with improved detection capabilities, reporting practices, and international cooperation in nuclear security, according to the fact sheet.

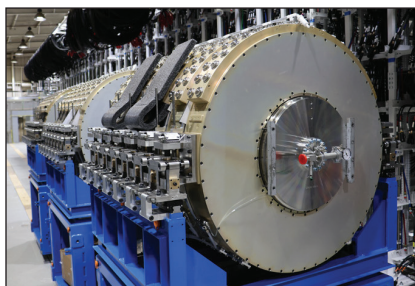
Of reported thefts, nearly 4% were confirmed to be related to trafficking, defined in the ITDB framework as intentional unauthorized movement or trade of nuclear or other radioactive material, in particular with possible or proven criminal intent. Some thefts involved nonradioactive materials, which perpetrators may present as radioactive to deceive prospective buyers.

Most trafficking incidents are opportunistic, “as demonstrated by ad hoc planning and a lack of resources and technical proficiency,” the fact sheet says. But over the past decade, a few incidents have been reported to the agency that appeared “more organized” and “better resourced” and that “involved perpetrators with a track record in trafficking nuclear/radioactive material or other criminal activities.”

Most seizures of nuclear material that potentially could be used in weapons involved gram quantities, but a few—most recently in 1994—involved kilograms. The number of successful sales of nuclear or other radioactive material is unknown, and it is “difficult to accurately characterize an actual ‘illicit nuclear market,’” according to the fact sheet. For cases where a motive was determined, financial gain was a principal incentive.

Among incidents in which there was no trafficking or malicious use, the majority involved unauthorized disposal or shipment of radioactive material or discovery of uncontrolled sources. Examples include radioactive sources being shipped across international borders or entering the scrap metal or waste recycling industries. The latter can result, for example, in the manufacture of goods contaminated with radionuclides, such as cobalt-60.

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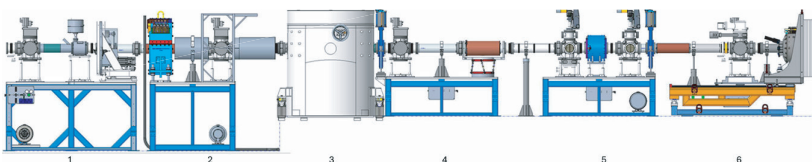
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