



The Dangers of Irradiation Facilities

Food irradiation supporters often say that irradiation facilities and irradiation equipment are safe – that accidents rarely happen, and that injuries and deaths are infrequent. The historical record says otherwise. Since the 1960s, dozens of accidents have been reported throughout the world. Radioactive water has been flushed into the public sewer system. Radioactive waste has been thrown into the garbage. Radiation has leaked. Facilities have caught fire. Equipment has malfunctioned. Workers have lost fingers, hands, legs and, in several cases, their lives. Company executives have been charged with cover-ups and, in one case, sentenced to federal prison. The debate over food irradiation would not be complete without an understanding of the risks associated with the technology itself. Here are some examples of what can go wrong.

Brazil

In the south-central Brazilian city of Goiânia in 1987, scavengers dismantled a cesium-137 irradiation canister while rummaging through a junkyard and took it home.

Over the next week, several hundred people were unwittingly exposed. Some children and adults – thinking the cesium powder was “pretty” – rubbed it over their bodies. Others inadvertently ate food that had been contaminated with the radioactive powder.

More than 100,000 people were monitored for radiation exposure – 300 of whom were contaminated with cesium-137. Four people eventually died. Homes and businesses were also contaminated, requiring a major clean-up operation that lasted six months.

Israel

At a cobalt-60 irradiator in Soreq in 1990, a worker entered the irradiation chamber after an alarm sounded. Acting against operating and safety instructions, he did not notify his supervisor and instead handled the situation on his own. He turned off the alarm, bypassed the safety system, unlocked the door and entered the radiation room. He did not notice that the cobalt-60 was exposed until he moved a pile of boxes. After a minute of direct exposure, he began

to feel a burning sensation in his eyes and left the room. He died 36 days later.

El Salvador

In February 1989, three workers were poisoned when they entered the irradiation chamber at a cobalt-60 irradiation facility near San Salvador.

Responding to a malfunction, a worker bypassed the safety system and entered the radiation room with two others – neither of whom had formal training to operate the equipment. All three men were exposed when they stood directly in front of the cobalt source. One man was sick for more than six months. Another had his legs amputated. The most-exposed worker (who first entered the chamber) was hospitalized for radiation poisoning throughout his body and for extensive radiation burns to his legs and feet. His right leg was amputated and, 197 days after the accident, he died.

The company was unaware of the accident for several days because the workers were incorrectly diagnosed as having food poisoning.

Belarus

In 1991, a worker was fatally poisoned at a cobalt-60 irradiation facility in Nesvizh, about 120 km from

Minsk. When a piece of equipment jammed, the worker entered the irradiation chamber after bypassing a number of safety features. The radioactive material became exposed and irradiated the man for about one minute. After undergoing specialized treatment in Moscow, the man died 113 days after the accident.

United States

- In 1988, a capsule of radioactive cesium-137 – salvaged from a waste dump at a nuclear weapons factory – sprung a leak near Atlanta, Georgia. Though the leak was contained to the site, two of the three exposed workers spread radioactivity to their cars and homes. An estimated 70,000 milk cartons, contact lens solution boxes and other containers were shipped out after they were splashed with radioactive water. Only about 900 of the contaminated containers were recalled. The ensuing taxpayer-funded cleanup cost more than \$30 million.

- In 1986, two company executives were indicted on federal charges following a 1982 spill of 600 gallons of contaminated water at a cobalt-60 facility in New Jersey. Workers were instructed to pour the radioactive water down a shower drain that emptied into the public sewer system. Workers were also ordered to wear their radiation-detection “badges” in such a way to falsify radiation levels. A \$2 million cleanup included the cost to dispose of radioactive material at a nuclear waste dump. A company vice president who once served on the U.S. Atomic Energy Commission was convicted of conspiracy and fraud.

- A worker at a cobalt-60 facility in New Jersey was exposed to a near-fatal dose of 150-300 rems in 1977 when a system designed to protect workers from radioactivity failed. In 1988 – after more than 30 Nuclear Regulatory Commission violations, including throwing out radioactive garbage with the trash – the company’s president was indicted on federal criminal charges and sentenced to two years in prison.

- The radiation director at a cobalt-60 facility in New Jersey was exposed to a near-fatal dose of 400 rems in 1974. The man was critically injured and hospitalized for a month. Two years later, a fire near the cobalt storage pool released chemicals into the pool that caused the cobalt rods to corrode and leak. Radioactive water was then flushed down the toilet into the public sewer system. Eventually, concrete around the cobalt-60 pool, as well as the toilet and bathroom plumbing, was found to be radioactive and taken to a nuclear waste dump. The amount of radiation released into the public sewer system was never determined.

Elsewhere...

China

In China in 1992, a cobalt-60 source was lost and picked up by an unsuspecting individual. Three persons in the family died of resulting overexposure.

Italy

In 1975, a worker at a cobalt-60 irradiation facility in Brescia was exposed when he bypassed all safety controls, climbed onto a conveyor belt and entered the irradiation chamber. He died 12 days later.

Norway

A Norwegian worker received a huge cobalt-60 dose in 1982 while trying to fix a jammed conveyor belt. He died 13 days later.

Turkey

In 1998 in Istanbul, two cobalt-60 sources in their shipping containers were sold as scrap metal. Ten people were inadvertently exposed to radiation, though none were reported to have died. One of the cobalt-60 sources was still missing several months following the incident.

Viet Nam

In 1992, a mishap at a 15 million electron-volt linear accelerator in Hanoi cost the facility’s research director a hand and several fingers.

Sources

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