



# The Dangers of Irradiation Facilities

Supporters of food irradiation say irradiation facilities are safe. They say radioactive cobalt-60 and cesium-137, and speed-of-light electron beams from linear accelerators, pose no danger to the public. They say accidents rarely happen. The historical record, however, says otherwise. Since the 1960s, dozens of mishaps have been reported throughout the United States and the world. Radioactive water has been flushed into the public sewer system. Radioactive waste has been thrown into the garbage. 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.

## Decatur, GA

In 1988, a capsule of radioactive cesium-137 – a waste product from nuclear weapons production – sprung a leak at a Radiation Sterilizers plant near Atlanta. Though the leak was contained to the site, two of 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 after they were splashed with radioactive water. Only about 900 of the contaminated containers were recalled. The taxpayer-funded cleanup cost more than \$30 million. A government report concluded “public health and safety could have been compromised.”

## Rockaway, NJ

In 1977, a worker was exposed to a near-fatal dose of radiation at a Radiation Technology facility in northern New Jersey when a system designed to protect workers from radiation cobalt-60 failed. In 1988 – after more than 30 Nuclear Regulatory Commission violations, including one for throwing out radioactive garbage with the trash – company president Martin Welt and an engineer were charged with numerous federal crimes, including conspiracy to defraud the NRC. Welt, who threatened to fire workers who did not lie to NRC investigators, was charged with obstruction of justice. The engineer was sentenced to probation; Welt was sentenced to two years in prison, placed on three years probation and fined \$50,000.

## 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. Several hundred people were unwittingly exposed. Some children and adults – thinking the cesium powder was “pretty” – rubbed it over their bodies. Others ate food that had been contaminated with the radioactive powder. More than 100,000 people were monitored for radiation exposure; four eventually died. Homes and businesses were also contaminated, requiring a six-month clean-up.

## El Salvador

In 1989, three workers were poisoned when they entered the irradiation chamber at a cobalt-60 facility near San Salvador. Responding to a malfunction, a worker bypassed the safety system and entered the radiation chamber with two others – neither of whom had formal training. All three were exposed when they stood directly in front of the cobalt source. One man was sick for more than six months. Another man’s legs were amputated. The most-exposed worker (who entered the chamber first) had radiation poisoning throughout his body and 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.

## Dover, NJ

In 1986, International Neutronics executives were charged with several federal crimes stemming from a 1982 spill of 600 gallons of contaminated water at a cobalt-60 facility in northern New Jersey. Workers were instructed to pour the water down a shower drain that emptied into the public sewer system. They were also ordered to wear their radiation-detection “badges” in such a way to falsify their radiation exposure. A federal prosecutor said company executives “bamboozled” NRC inspectors by delaying an inspection of the facility, where food, gems, chemicals and medical supplies were irradiated. Company vice president Eugene O’Sullivan – a former member of the U.S. Atomic Energy Commission – was convicted of conspiracy and fraud.

## Israel

In 1990, a worker at a cobalt-60 facility in Soreq entered the radiation chamber after an alarm sounded. Acting contrary to 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 chamber. 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.

## Parsippany, NJ

In 1974, the radiation director at an Isomedix cobalt-60 facility in northern New Jersey was exposed to a near-fatal dose of 400 rems while irradiating medical supplies. 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 flushed down the toilet into the public sewer system. The amount of radiation released into the public sewer system was never determined.

## Honolulu, HI

In 1979, decontamination began at the Hawaiian Developmental Irradiator at Fort Armstrong where, years earlier, radioactive water leaked onto the roof and front lawn. As part of the \$500,000, taxpayer-subsidized clean-up, nearly 50 tons of steel, 250 cubic feet of concrete and 1,100 cubic feet of soil were removed and taken to the nuclear waste dump in Hanford, Wash. – one of the most polluted places on Earth. The plant was shut down in 1980 and the remaining cobalt-60 was shipped to the University of Hawaii.

## Elsewhere

◆ In 1991 in Belarus, a worker was fatally poisoned at a cobalt-60 irradiation facility. When a piece of equipment jammed, he entered the irradiation chamber after bypassing a number of safety features. The man was irradiated for one minute and died 113 days later.

◆ In 1982, a Norwegian worker received a massive radiation dose from cobalt-60 while trying fix a jammed conveyor belt. He died 13 days later.

◆ In 1975, an Italian worker was exposed to cobalt-60 when he bypassed all safety controls, climbed onto a conveyor belt and entered the irradiation chamber. He died 12 days later.

## Electron-Beam Accidents

◆ In 1991, a Maryland worker ignored safety warnings and received a 5,000-rad dose from a 3 million electron-volt linear accelerator. He lost four fingers.

◆ 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.

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