



## Timeline of Accidents at Nuclear Facilities

	Year	Location	Type of Incident	Killed	Injured	Radiation Release
1	1952	Chalk River (Canada) nuclear power plant	Partial core meltdown			Yes
2	1956	Sylvania Electric Products' Metallurgy Atomic Research Center	Explosion		9	
3	1957	Mayak (Russia), nuclear power plant	Failure of cooling system		(10,000 evacuated & thousands more exposed)	Yes (70-80 tons)
4	1957	Cumbria (U.K.), nuclear power plant (200 sq mi contamination)	Fire in reactor			Yes 20,000 curies (I-131)
5	1958	Los Alamos, New Mexico Plutonium recovery operations		1		
6	1958	Chalk River (Canada) Nuclear power plant	Lack of coolant for fuel element		Yes	Yes
7	1959	Santa Susana Field Laboratory (now known as the Boeing-Rocketdyne Nuclear Facility), Ventura County, CA	A clogged coolant channel resulted in a 30% reactor core meltdown		Yes	Yes
8	1961	Arco, ID, Nuclear power plant	Explosion-Sabotage	3		Yes
9	1964	Charlestown, RI Nuclear power plant	Mishandling uranium		1	Yes
10	1966	Fermi I, Detroit Nuclear power plant	Cooling system block, partial core meltdown			Yes (secondary containment)
11	1969	Denver, Colorado Rocky Flats Nuclear Weapons Plant	Fire causes spontaneous ignition of Plutonium			Yes (plutonium)
12	1971	Monticello, MN Nuclear power plant	50,000 gallons of radioactive wastewater overflowed into Mississippi River			Yes
13	1972	Alaska Nuclear power plant	Drinking water cross-contamination at the site			Yes
14	1972	Virginia: Surrey 2 Nuclear power plant	Radioactive steam release in a gap in a vent line	2		Yes
15	1972	Pauling New York Plutonium fabrication plant	Fire & two explosions			Yes
16	1974	Isomedix (New Jersey) Food Irradiation Facility	Deliberate mishandling of radioactive materials		1	Yes Radioactive water flushed down toilets & contaminated pipes leading to sewers
17	1975	Decatur, AL Nuclear power plant	Major fire			
18	1976	Germany Nuclear power plant	Partial core meltdown			
19	1979	3-Mile island, PA Nuclear power plant (200,000 evacuated)	Cooling water loss; core meltdown			Yes
20	1979	Church Rock, New Mexico	Dam holding radioactive mill			Yes



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			tailings broke; 100 million gallons of radioactive liquids & 1,100 tons of solid wastes released into river			
21	1979	Erwin, Tennessee Nuclear Fuel Service Top-secret nuclear fuel plant	Pipe clog		~1,000 people contaminated	Yes (highly enriched uranium)
22	1980	Lawrence Livermore National Laboratory, Livermore, CA	5.5 Richter earthquake			Yes (Tritium leak)
23	1981	Tennessee Nuclear power plant	Accidental valve opening released 110,000 gallons of radioactive coolant into containment building		8	Yes
24	1981	New York State Nuclear power plant	Wastewater flood			Yes
25	1981 (June)	Salem 2: NJ Reactor Nuclear power plant	Radioactive water leak; 3,000 gallons			Yes
26	1981 (March)	Salem 1: NJ Reactor Nuclear power plant	Radioactive gas leak			Yes
27	1982	Rochester, NY Nuclear power plant	Coolant spill, broken pipe; 15,000 gallons of radioactive coolant spilled onto plant floor			Yes
28	1982	Salem 1: NJ Reactor Nuclear power plant	Radioactive gas leak			Yes
29	1982	International Nutronics, Dover, New Jersey Product irradiation facility	Pump malfunctioned, siphoning radioactive water onto floor & into town's sewer system			Yes
30	1983	Tennessee Nuclear power plant	Coolant release into river			Yes
31	1983	Salem 1: NJ Reactor Nuclear power plant	Automatic shutdown failure (twice, 3 days apart)			
32	1984	Oak Ridge, Tennessee, Fernald Uranium Plant	Cumulative, varied, multiple incidents over 30 years			Yes (see Endnote)
33	1986	Virginia: Surrey 2 Nuclear power plant	Feedwater pipe rupture	4	4	
34	1986	Chernobyl (Russia) Nuclear power plant	Explosion & fire	49	Thousands	Yes 50-80 million curies (I-131)
35	1986	Hamm, Germany Nuclear power plant	Fuel pebbles became lodged in the pipe feeding the fuel to the reactor			Yes
36	1986	Gore, Oklahoma Sequoyah Fuels Corp, Uranium Processing Plant	A container of highly toxic gas exploded	1	130	
37	1988	Decatur, Georgia Radiation Sterilizers, Inc	Leak from one or more of the 252 Cesium-137 irradiation canisters	10		Yes 70,000 medical supply containers & milk cartons recalled
38	1992	Rajasthan, India	Rupture of an inlet hose on primary heat transport filter			Yes Four tons of heavy water spilled
39	1993	Severesk (Russia) Nuclear power plant	Explosion			Yes



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		(120 sq km contamination)				
40	1993	Narora, Rajasthan, India Nuclear power plant	Turbine fire			No
41	1994	Long Island, NY Nuclear research facility	Fire		7	Yes
42	1997	Richland, WA Hanford Engineer Works Plutonium production for nuclear weapons	Explosion			Yes (~30,000 gallons of plutonium-contaminated water)
43	1999	Tokaimura (Japan)	Mishandling of uranium	2	40	Yes
44	2000	New York: Indian Point reactor Nuclear power plant	Steam generator rupture			Yes
45	2000	Richland, WA Hanford Engineer Works Plutonium production for nuclear weapons	Wildfire hit the highly radioactive waste disposal trenches			Yes (airborne plutonium particles raised radiation levels in two nearby cities to more than 1,000 times normal)
46	2002	Ohio Nuclear power plant	Foot-long cavity eaten into reactor wall			
47	2004	Mihama (Japan) Nuclear power plant	Broken pipe	5	7	
48	2005	Erwin, TN (1 of 9 violations or "test failures" since 2005) Nuclear power plant	Leak of highly enriched uranium; could have caused an uncontrolled nuclear reaction	0	1	35 liters (9.25 gallons)
49	2007	Kashiwazaki-Kariwa (Niigata, Japan) [World's largest reactor] Nuclear power plant	Fire started by earthquake	0	0	Yes 350 gallons
50	Jun 5, 2008	Krsko Nuclear Power Plant, Croatia	Leak in the reactor's primary coolant system	0	Unknown	Unknown
51	Aug 27, 2008	Leningrad Nuclear Power Plant, Number 3 Reactor, St. Petersburg, Russia	Possibly catastrophic technical malfunction avoided; reactor was shut down when a crack was discovered that had developed in the accumulator of a feed pump	0	0	No
52	Oct 28, 2008	Mayak (Russia) Plant 20	A technical catch tank lost its hermetic sealing during welding work.	0	3	Yes
53	Feb 16, 2009	Indian Point, Unit 2 New York	A leak was discovered in a buried pipe. A one-and-a-half-inch hole caused by corrosion allowed about 100,000 gallons of water to escape from the main system that keeps the reactor cool immediately after any shutdown.	0	0	No
54	Mar 11, 2014	Fukushima Daiichi, Units 1, 2 & 3 Okuma, Fukushima, Japan	The event was initiated primarily by the tsunami following the Tōhoku earthquake on 11 March 2011. Immediately after the earthquake, the active reactors automatically shut down their		no fatalities linked to radiation due to the accident; however, the eventual number of cancer deaths,	Yes



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		sustained fission reactions. However, the tsunami disabled the emergency generators that would have provided power to control and operate the pumps necessary to cool the reactors. The insufficient cooling led to three nuclear meltdowns, hydrogen-air explosions, and the release of radioactive material in Units 1, 2, and 3 from 12 March to 15 March.			

<sup>1</sup> After an incident in 1984 that caused a shutdown of the plant, a subsequent investigation revealed that during the past 30 years the plant had released 230 tons of radioactive material into the Greater Miami River; 39 tons of uranium dust had been released into the atmosphere; 83 tons had been discharged into surface water; and 5,500 tons of radioactive and other hazardous substances had been released into pits and swamps where they seeped into groundwater. In addition, 337 tons of uranium hexafluoride were found to be missing, their whereabouts completely unknown.