At Three Mile Island a cooling pump circuit malfunctioned leading to increasing temperatures and pressure in the reactor. Safeguard valves opened to release the pressure, however the valve never closed properly. Operators believed there was too much pressure in the system and shut down the water pumps to lower the coolant levels. They allowed the coolant level to get too low and expose the core which partially melted. The superheated coolant created a lot of pressure. That contaminated steam was released into the environment. According to reports over the next 40 years, no significant effects on the local environment has ever been detected.

The Chernobyl was created by incompetence. Engineers were performing experiments on the reactor. Like a stress test , that went bad. They turned off safeguards that were put into place. Several of the reactors at Chernobyl were already known to be unstable before these low power experiments were conducted. The coolant pump system failed and high steam pressure blew the cover lid off the rector building , blowing highly radioactive gasses for nine days. Chernobyl and Three Mile were both the result of Human error. However Chernobyl had known defects when they ran these experiments, and the lasting impact of the contamination will last hundreds of years.

Fukushima was the result of a natural disaster. An earthquake off the coast of japan caused a Tsumani. All three reactors were successfully shut down however the reactors lost power. The cooling systems were not able to pump, thus heat caused the fuel rods to partially melt. The heat was so intense it melted a hole in the bottom of the reactors. Workers flooded the reactors with Sea water in attempts to cool the rods and reduce the radiation exposure. Past accidents at Three mile and Chernobyl helped formulate many of the safeguards in Fukushima that helped prevent a catastrophe. The effects of the radiation leak into the ocean will be studied for decades.