

Fuel or Waste

There are two ways to deal with plutonium that was made for weapons but is no longer needed for that purpose. One is to dispose of it; the other is to use it in reactors to produce energy.

DISPOSING OF PLUTONIUM



To ensure the plutonium is not stolen, it is mixed with other radioactive waste so that it is too dangerous to handle.

The waste is then sealed in glass logs.

The logs are ideally buried deep underground.

USING PLUTONIUM AS FUEL



The plutonium can be mixed with purified uranium to create fuel, called mox, for nuclear reactors.

Mox may be between 6 and 40 percent of the fuel used in a reactor.

Once the fuel has been used in the reactors, it can be recycled and some of it used again.

RADIATION RISKS



Nuclear fuel produces a number of radioactive products that can be released in an accident. The radioactive products of uranium fuel that usually raise the most concern are iodine 131 and cesium 137. Mox produces the same materials, but plutonium is much more toxic if it enters the body.

	TYPE OF RADIATION	HALF-LIFE	ENTRY INTO BODY	WHERE IT ACCUMULATES
Iodine 131	Beta, gamma	8.1 days	Inhalation, ingestion, open wounds	Thyroid
Cesium 137	Beta, gamma	30 years	Inhalation, ingestion, open wounds	Kidneys
Plutonium 239	Alpha	24,000 years	Inhalation	Lungs, bones, liver, testicles

Source: Department of Health and Human Services