TABLE 4.14.1.4–1.—*Comparison of Incidence Rates for Pantex Plant and Industry (National Averages)*[1]

OPERATION	INCIDENCE RATE (PER 100 FULL-TIME WORKERS PER YEAR)		
	TOTAL RECORDABLE CASES	LOST WORKDAY CASES	LOST WORKDAYS
Pantex Plant	5.1	2.2	74.3
General Industry	8.4	3.9	86.5
Manufacturing Industry	12.7	5.6	121.5
Chemical Industry	6.4	3.1	62.4

[1]Incidence rates refer to workplace injuries that may or may not result in lost work time.
Sources: DOE 19941; Pantex 1995e

cases, incidence rates at Pantex Plant are below industrial averages, with the exception of lost workdays, where Pantex Plant exceeds chemical industry incidence rates.

To minimize worker radiation and chemical exposures, a number of mitigation measures are in place at Pantex Plant. These measures reflect an overall defense-in-depth safety philosophy to prevent or minimize potential releases from internal or external initiating events. Essentially, this philosophy imposes multiple barriers between sources of radiation and the public. Typically at Pantex Plant, three separate types of barriers are imposed: cladding, packaging, and plant facilities. Cladding refers to the actual material covering radionuclides. Metallic pit cladding is used for the plutonium in pits. For tritium, the effective cladding is the reservoir. Though not completely passive, the only active component found on some tritium reservoirs is a small explosive squib that operates the valve mechanism used to release the tritium from the reservoir. Protective covers are installed over the squibs which include shorting plugs and/or shunts. These plugs and shunts provide protection against accidental firing of the squib.

The plutonium in radioisotopic thermoelectric generators has an exceptionally robust cladding designed to withstand high pressures and temperatures. Tests of radioisotopic thermoelectric generators have demonstrated their ability to withstand an exposure of 1,000 ˚C (1,832 ˚F) for 1 hour.

Packaging refers to the containers used for transporting and staging the clad radionuclides. The use of these qualified protective containers, when special operations are not being performed, is an important aspect of minimizing the frequency of operational accidents that could result in the release of radioactive materials.

In the unlikely event that cladding and packaging should be breached, the facilities themselves serve as the final barrier for the defense-in-depth philosophy. Regarding releases of radionuclides from the cells, where a large part of the operations take place, steel blast doors protect the equipment passageway and are expected to remain intact and closed. The blast valves in the intake and exhaust air supply ducts, as well as the contaminated waste isolation valve system, prevent radioactive particles from escaping through these pathways.

Within the bays, any accident involving a breach of cladding integrity will shut down the heating, ventilating, and air conditioning through the Radiation Alarm Monitoring System interlock upon detection of alpha radiation, thus limiting the potential