

## CHERNOBYL: CAN IT HAPPEN HERE?

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The answer to the question posed by the title depends on just what the question means. If it means, "Can radiation emergencies happen here?" the answer is "Yes." We have already had emergencies at nuclear reactor sites, but most have been trivial. One (at Three Mile Island) was serious, although no personal injuries or severe overexposures occurred. If the question means, "Is a catastrophe the magnitude of Chernobyl likely at a commercial nuclear reactor site in this country, then the answer is "No."

There are three reasons for confidence in my answer. These are: (1) our elaborate efforts for prevention of accidents; (2) extensive planning for mitigation of accidents if they occur; and (3) the excellent safety record of the nuclear power industry in the Western World.

## PREVENTION

All doctors know that an ounce of prevention is worth a pound of cure. Reactor safety has two elements of prevention: engineering and operating procedures and training.

## Engineering

U.S. reactors are very different from those at Chernobyl. Key differences include the following: a flammable runaway reaction occurs when coolant is lost in Chernobyl-type reactors, but U.S. reactors automatically shut down when coolant is lost. Reactor shutdown requires 25 seconds there and 2 seconds here. In Chernobyl, there was an industrial-type roof over the reactor. In the United States, there is a leak-proof concrete containment (6 feet thick).

The massive release of radioactivity that occurred in the Soviet Union resulted from lack of containment, ie, lack of a massive concrete structure surrounding the reactor. At Three Mile Island, containment prevented all but an insignificant release of radioactivity. In addition, the containment creates the opportunity for fission products to be soaked up in the large amount of water existing in the containment. Since several fission products, such as iodine and cesium, are water soluble, they will be retained in the reactor building instead of dispersed into the atmosphere.

## Operating Procedures

The second line of defense is the existence of operating rules. These procedures govern the operation of the reactor and are crucial to

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