

Testimony of Dr. John Pearson, Oregon Chapter, Physicians for Social Responsibility

To Nuclear Regulatory Commission Petition Review Board
Petition to revoke GE Mark I & II operating licenses

Commissioners' Hearing Room, NRC Headquarters, Rockville, Maryland
By telephone – [1-888-603-9750](tel:1-888-603-9750) (Passcode 5506147)
May 2, 2013, 10:00 am to 12:00 noon (Pacific Time)

Good afternoon. My name is John Pearson, I am a medical doctor and am President of the Oregon chapter of Physicians for Social Responsibility.

I have been asked to represent both the Oregon and Washington State Chapters of Physicians for Social Responsibility today in support of the petition to revoke all the licenses of the nuclear power plants in the United States with GE Mark I and Mark II containment structures. We agree that the contention that a containment with a vent is not a true containment – especially if that vent is not required to filter out radioactive particles released in a reactor meltdown. Containments, by definition, are meant to contain, not to release radiation into their surrounding communities during an accident. The U.S. has prided itself in not allowing nuclear power plants to be licensed or operate without viable containment structures and we believe these Mark I and Mark II containments do not qualify for continued licensing by the NRC.

In addition, it should be noted that requiring these containment breaching vents does not guarantee that explosive gases will be vented in time to avoid catastrophic explosions, as occurred in March 2011 in Fukushima, Japan, when vents failed and three explosions occurred due to station blackout and loss of coolant accidents. GE Mark I and Mark II containments have been known to be undersized and vulnerable to these types of accidents since they were designed and built in the 1960s, 70s, and 80s. They should be relegated to the scrap heap and their power replaced by safer sources of electricity before they cause more harm to the public. As U.S. District Judge Alan A. MacDonald observed about GE's suppression of evidence about the inadequacy of its containments during a lawsuit by Washington Public Power Supply System (WPPSS) against GE in 1990, "the court can only view that as a fairly sophisticated form of Russian roulette."

Speaking of WPPSS, now known as Energy Northwest, I would like to address the particular problems and dangers related to its reactor, which operates in our region: the Columbia Generating Station nuclear power plant, located ten miles north of Richland, Washington on the Hanford Nuclear Reservation along the Columbia River.

First, it should be noted that the CGS nuclear plant has a GE Mark II containment structure, which, due to its construction, makes it nearly impossible to filter radioactive releases during a venting episode. This means that the Mark II reactors would have great difficulty reaching NRC containment standards even if the NRC required filters on vents. The design of the GE Mark II containment should, on its face,

disqualify it from continued operation until this problem is solved.

Secondly, to demonstrate that this threat of a catastrophic accident is not merely an academic exercise, I would also like to list some of the ways in which a breach of containment accident could occur at the Columbia Generating Station nuclear power plant.

One major threat to this plant is that of an earthquake at a greater magnitude than the 6.8 level for which the plant was originally rated. The Hanford Nuclear Reservation has 11 known fault lines. The Yakima Fold and Thrust Belt, which these fault lines are part of, is now believed by USGS researchers to be linked to the Cascadia subduction zone.

This means that much larger earthquakes are possible for central Washington, east of the Cascade Range, than had been previously believed.

Within recorded history, a 7.2 earthquake has already occurred on the eastern side of the mountains, in 1872, east of Lake Chelan, about one hundred miles north of the Columbia Generating Station, but only twenty miles away from the site of the Grand Coulee Dam.

This brings us to the next potential disaster scenario – the threat of a catastrophic flood. According to the NRC's own studies, a complete dam breach at Grand Coulee, whether through earthquake or terrorist act, would send a wall of water blasting out the seven dams below it on the Columbia River and reach the edges of the ultimate heat sink of the Columbia Generating Station. It would destroy all primary power and water intake to the site, threatening a station blackout. The amount of infrastructure damage to the site and the surrounding communities would make restoring normal power and water supply to the site next to impossible in the short run, causing the site to rely on emergency back ups for an extended period of time. Clearly, the reactor's cooling and the integrity of its containment would be put in grave danger in such a scenario.

But station blackout can come in a variety of ways, and on the Hanford nuclear reservation, wildfire is another danger to knocking out power to the site. A recent fire there burned 3,000 acres and closed two highways.

In referring to the Grand Coulee dam breach scenario I mentioned a terrorist act as being a possible trigger, but terrorism also threatens the plant itself. A test of the CGS nuclear plant's security in 2005, in response to the 9-11 attack and potential threats to nuclear plants nationwide, resulted in a failing grade. The fake bomb was successfully delivered to the site without plant security knowing about it. Obviously, a real bomb could irreparably damage control of the CGS nuclear reactor, resulting in a breach of containment accident.

Finally, there is the problem of interaction with some of the highly radioactive sites that coexist with the CGS nuclear plant on the Hanford Nuclear Reservation.

These include

-the potential for hydrogen explosions and criticality accidents in the reprocessing tank waste on the

central plateau, or in the vitrification plant intended to harden these millions of gallons of tank sludge into glass logs;

- sizable number of broken down irradiated fuel rods, protected from catching fire by a shallow pond in the K-basin near the former K-reactors along to the Columbia River;

- and a massive amount of extremely hot cesium and strontium processed from the tank waste and kept in canisters in a pool of water in the Waste Encapsulation Storage Facility (WESF) near the B-plant.

The aforementioned flood, earthquake, wildfire, and terrorism threats equally apply to these vulnerable federal facilities and no study has been done about their potential interaction in case of major accident at any one of them or at the Columbia Generating Station nuclear plant. A worst case accident at one or more of these sites, which made staying on site a death sentence to workers, might result in multiple simultaneous accidents that would devastate the region and the contaminate the Columbia River and the Pacific Northwest for centuries.

It is these potential consequences that the NRC and its staff must consider when they think about whether or not to allow the licenses of these demonstrably defective GE reactors with their failure-prone containments to continue. Indeed, the NRC must decide whether it is an organization that permits nuclear power reactors without a robust containment to continue to operate. The Soviet Union before Chernobyl did not think that having a containment building was necessary for its nuclear power plants to be considered safe. I ask you, how would our actions be different, knowing what we know now about GE Mark I and Mark II reactor containments, if we allowed them to continue to operate in this country?

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