



March 14, 2011

Dear Friend,

We are all closely following developments in Japan following Friday's tragic 9.0 earthquake. In addition to the tragic loss of life and property damage, the country is now facing a series of potential nuclear meltdowns and releases of radioactivity. We fervently hope that the reactors can be brought under control and the worst averted.

Our thoughts are with the people of Japan during this time of crisis.

As the news continues to come in from Japan, I have received several inquiries about nuclear risks in Washington, and what the series of events in Japan might mean for the Hanford Nuclear Site and residents of Washington State. Here is what can be said at this time:

Radioactivity from Japan:

- It is unlikely that radiation that has leaked from the Japanese reactor accidents will reach the Pacific Northwest in significant amounts, based on what has been reported so far. This could change if there is an explosion and/or fire affecting one or more of the reactor cores.
- The accident at Chernobyl affected the entire Northern Hemisphere because of a massive explosion in the core, and an out-of-control fire that burned for days. This same scenario is unlikely in Japan.

Nuclear Power Production at Hanford:

- The Hanford Site hosts one operating nuclear reactor – the Columbia Generating Station. It is separately owned and not considered part of Hanford. However, its spent nuclear fuel pool is located above-ground, and is not behind any containment structure. A loss of coolant to this pool could cause the fuel to melt, catch on fire and release large inventories of radioactivity.
- Spent fuel ponds typically hold five-to-ten times more long-lived radioactivity than a reactor core. Large amount of cesium-137 in fuel ponds contain anywhere from 20 to 50 million curies of this radioactive isotope. With a half-life of 30 years, cesium-137 gives off highly penetrating radiation and is absorbed in the food chain as if it were potassium. A 1997 report for the Nuclear Regulatory Commission (NRC) by Brookhaven National Laboratory also found that a severe pool fire could render about 188 square miles uninhabitable, cause as many as 28,000 cancer fatalities, and cost \$59 billion in damage.
- Although the Hanford Site does not have any operating reactors of its own – all nine production reactors have been shut down and decommissioned – Hanford hosts the largest inventory of high level nuclear waste in the United States.

Nuclear Waste Storage at Hanford:



- 53 million gallons of this waste is stored in 177 ageing underground waste tanks. Because they are beyond their “design life,” a third of these tanks have failed and leaked. The radioactive waste in these tanks poses risks of potential explosion.
- In addition to the tank waste, Hanford stores large inventories of cesium-137 and strontium-90 in large storage pools. These pools contain over 100 million curies of radioactivity, and generate thermal heat as well.

Seismic Risk at Hanford:

- The Hanford Site, like all of the Northwest, is seismically active.
- A large earthquake of the kind that just hit Japan would be devastating to the Hanford Site, with the following foreseeable consequences: potential rupture of one or more of the underground waste tanks, which could lead to the release of tank contents to the atmosphere and/or to the groundwater; a loss of coolant accident at the Columbia Generating Station, potentially affecting the reactor core as well as the spent fuel pool; breach of one or more dams upstream of Hanford, could result in flooding of the Hanford Site.
- The Columbia Generating Station is built to withstand an earthquake of 6.9 magnitude.
- Every three hundred to five hundred years, a massive earthquake called “The Cascadian Event” occurs in the Pacific Northwest. The last such earthquake was estimated to be a “9” on the Richter scale, and occurred in the 1700’s.

Hanford Challenge will continue to monitor the situation in Japan and keep you updated. Check our [Facebook](#) page for more frequent updates.

Also, please put on your calendar an informative presentation by Dr. Alexey Yablokov, a preeminent Russian scientist who has studied the health effects of the nuclear industry on human health, particularly Chernobyl. He will address the nuclear issues now unfolding in Japan. His talk will be on March 28, 2011, at the University of Washington’s Kane Hall. [Click here](#) for more information and tickets.

Sincerely,

Tom Carpenter
Executive Director