

**Responses to Questions from Senator Maria Cantwell  
Letter of March 30, 2011**

**1. Does the accumulated amount of radioactive contamination from the Fukushima Daiichi nuclear complex that has been detected within Washington State so far pose any level of short- or long-term health risk?**

No. The U.S. Environmental Protection Agency (EPA) has a national monitoring system in place that provides real-time environmental radiation measurement data. Although EPA monitors have detected the presence of trace amounts of radioactivity in Washington State from the Fukushima Daiichi nuclear complex, none of the measured radioactivity levels approaches a level of concern or risk to public health in the U.S. Earlier precipitation samples collected by EPA also have shown trace amounts of radioactivity. We expect similar findings in the coming weeks and these results should continue to represent no short- or long-term public health concern. The NRC will continue working as part of a multi-agency effort to monitor and assess the domestic impact of the recent events in Japan.

**2. What is the likelihood that larger amounts of radioactive contamination will reach Washington State and what risk might this radiation pose to human health in both short and long term?**

The likelihood is extremely small that radioactive contamination from the Fukushima Daiichi nuclear complex will reach Washington State in amounts that would cause short- or long-term public health concerns. For comparison purposes, based on the most recent report by the United Nations Scientific Committee on the Effects of Atomic Radiation, the estimated radiation doses to distant European countries from the Chernobyl event were found to be of little radiological significance. The levels of radioactive contamination measured in the United States from Chernobyl were much lower than those measured in Europe. The present measurements of radiation in the U.S. from the Fukushima incident are even lower and are not expected to increase dramatically.

**3. What would be the possible impacts of a total core meltdown in one or more of the damaged reactors on human health, agriculture, fisheries, or ecosystems within Washington State?**

We would expect little to no impact on human health, agriculture, fisheries, and ecosystems within Washington State from a total core meltdown at Fukushima Daiichi. The Chernobyl core melt and radiation releases in 1986 were the result of an explosion and graphite fire within the reactor itself that forcefully ejected and dispersed radioactive materials over a large distance and resulted in minimal radiation in the U.S., as noted above. From what we currently know, the impacts of a core meltdown in one or more of the units at Fukushima would likely have negligible impacts on Washington State.

**4. How much monitoring for ionizing radiation is occurring within Washington State and what entities are undertaking these activities? Do monitors only detect amounts of xenon-133, cesium-137, and iodine-131, and if so are there potentially additional risks from other unmonitored radioactive particles?**

The NRC is familiar with several monitoring programs for radioactivity within Washington State that collectively monitor all major radionuclides that could be released from a commercial nuclear power plant. These include EPA's RadNet program and the radiological environmental monitoring program (REMP) for the Columbia Generating Station outside of Richland, Washington. RadNet continuously monitors the nation's air and regularly monitors drinking water, milk, and precipitation for environmental radiation. EPA's website contains specific details of current RadNet activities, detection methods, and results for monitoring stations within Washington State. A complete list of all the radionuclides measured by RadNet also can be found at the EPA website. All U.S. plants are required to have a REMP in the surrounding communities to sample the environment for releases of radioactive material at specific intervals and analyze the samples in a laboratory as part of its routine offsite monitoring program. NRC regulations require nuclear power plants, including the Columbia Generating Station, to report any radiation levels detected at the plant that could be harmful to the public. This would include radiation levels that are generated by the plant or by an external source. We also are aware that the Washington State Department of Health has been conducting environmental monitoring.

**5. Given current risks and uncertainties regarding a fluid situation, what precautionary and preparatory measures do you recommend the public take?**

Given the great distances between Fukushima and the United States (approximately 2,500 miles to Alaska and 4,400 miles to Washington State) and the large amount of dilution and dispersion that occurs over this distance, we believe that the U.S. public need not take any precautionary and preparatory measures. We also base this belief on actual experience from atomic weapons testing from the 1950s to the 1980s, the Chernobyl incident in 1986, and the accidents at Kyshtym in Russia (1957), Windscale in the United Kingdom (1957), and Tomsk in Russia (1993).

**6. Many of the thousands of U.S. expatriates and military dependents currently being evacuated from Japan will transit through Seattle-Tacoma International Airport. Is it likely that these refugees will require treatment for exposure to radiation and radioactive materials, and does their return present any health risks to the broader U.S. public?**

U.S. citizens returning to the United States from Japan are not anticipated to require any medical attention or treatment for exposure to radiation and radioactive materials, and these individuals do not represent a health risk to other members of the public. On March 16, 2011, the U.S. Government recommended that U.S. citizens evacuate to areas located outside 50 miles from the Fukushima Daiichi nuclear power plant site. This recommendation was conservative and was made based on many factors, including unknown but apparently deteriorating plant conditions, uncertainty about the ability of the local infrastructure to support evacuation orders, and predictive winds that would result in a plume over land. Based on the 50-mile travel advisory, we do not foresee the return of U.S. citizens to the U.S. presenting any health risks to the broader U.S. public. We are also aware that U.S. Customs and Border Protection is monitoring developments in Japan and using radiation detection equipment in its

operations at both air and sea ports. These measures provide assurance that the return of U.S. evacuees does not pose a risk to the American public.