



Oregon

Kate Brown, Governor



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Dear Ms. Smith, Ms. Buelow and Mr. Franco:

We recently received an *agreement in principle* on negotiations related to, among other things, the continued storage of Hanford's cesium and strontium capsules. We are greatly concerned about a proposed date within this document.

Since 2013, Oregon has been advocating for the transfer of the cesium and strontium capsules from pool storage in the Waste Encapsulation Storage Facility (WESF), to dry storage. Our concern is that the concrete walls of the WESF pools may have suffered a loss of structural integrity due to high radiation exposure. These concerns were outlined in detail in a July 22, 2013 letter to DOE.

To briefly summarize our concerns, the limited data that exists indicates that dry concrete may be more prone to serious embrittlement from high radiation exposure than wet concrete, and at far lower doses. A CH2M Hill report, "Structural Evaluation of WESF Concrete Degradation Due to Radiation," asserts that while the stainless steel liner separates the concrete from the water in the capsule pools (potentially leading to a "dry concrete" situation), it also causes residual moisture to be retained in the concrete to effectively create a moist environment. The report therefore used data for damage to wetted concrete; however, its assertion of moisture status for the concrete has not been validated with real data. Given the apparently much lower radiation dose required to degrade dry concrete, the assumption that the WESF concrete is responding as wet concrete is not conservative, could seriously underestimate the degradation of concrete at WESF, and in turn seriously underestimate potential risks to the facility.

Risks at WESF derive from potential loss of coolant to the basins. If the concrete is appreciably weakened by radiation, stresses from an earthquake could lead to direct failure of the walls or the basin

bottom, causing a drain down of the pools. Due to the loss of water, the ultimate release from such an event may include a significant fraction of the inventory of cesium 137 and strontium 90 stored in the facility, because of overheating and thermal failure of the capsules. When Fluor Hanford calculated the potential impact of just such an event in 2000, they concluded that the resulting high dose fields in and around the capsule pool area would result in an effective loss of control of the facility. Though the capsules were re-arranged in 2012 in hopes of reducing thermal build-up after a loss of cooling water, the risk remains.

DOE's response to our July 2013 letter was that while DOE believed the capsules are stored safely, transferring the capsules to dry storage was a "high priority" for DOE.

During the past several years, in a variety of forums, DOE and its regulators have indicated repeatedly that moving the cesium and strontium capsules continues to be a high priority. And, given that DOE expected to be able to utilize off-the-shelf technology for the dry casks, we had every expectation that this would be accomplished within the next several years.

Needless to say, we were quite disappointed to see a proposed interim milestone in which the transfer of the cesium and strontium capsules to a new interim safe storage facility would not be completed until August 31, 2025. That is more than seven and a half years from now and more than 12 years since we raised our concerns to DOE and its regulators.

This isn't a burial ground with unknown hazards. This is a relatively straightforward project without the need to design exotic equipment or procedures. DOE has extensive experience with handling and moving these capsules, and even transporting them across the country.

We understand the date in this document is draft. We strongly encourage DOE and its regulators to support a milestone well in advance of 2025 and eliminate the risk posed by water storage of the cesium and strontium capsules.

Should you want to discuss our comments, please contact me at 503-378-4906.

Sincerely,



Ken Niles
Assistant Director for Nuclear Safety

C.c. Matt Johnson, Confederated Tribes of the Umatilla Indian Reservation
Rose Longoria, Yakama Indian Nation
Jack Bell, Nez Perce Tribe
Oregon Hanford Cleanup Board
Hanford Advisory Board