

Response to CEO of Energy North West's [Comments](#) on Tom Carpenter's [Op Ed in the Seattle Times](#) by [Robert Alvarez](#), Senior Scholar at the Institute for Policy Studies.

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After reading the reply by Mr. Mark Reddeman, CEO of Energy North West to an Op Ed by Mr. Tom Carpenter, regarding concerns about nuclear spent fuel pool storage at the Columbia Generating Station in eastern Washington, some additional comments are in order:

- First, with respect to the CGS pool capacity, a panel of the National Academy of Sciences requested by Congress to review vulnerabilities of spent nuclear fuel storage reported: "...nearly all pools contain high-density spent fuel racks. These racks allow approximately five times as many assemblies to be stored in the pool as would have been possible with the original racks, which had open lateral channels between the fuel assemblies to enhance water circulation."¹ CGS is not an exception.
- Second, according to Mr. Reddeman, the Columbia Generating Station is licensed to hold 2,658 spent reactor fuel assemblies and that the pool is at 66% of its storage capacity. This suggests that the CGS pool is currently holding about 558 metric tons.² This is about twice the amount in the Fukushima Unit 4 pool, which caught fire, and five times the amount in the Fukushima-Daiichi Unit 3 reactor.³
- Third, the reactor building can be called a containment structure by Mr. Reddeman, but as the National Academy panel noted "at U.S. commercial nuclear power plants, these pools are less well protected structurally than reactor cores... Almost all spent fuel pools are located outside of the containment structure that holds the reactor pressure vessel."⁴ CGS is no exception.
- Fourth, as the aerial photos of the Fukushima-Daiichi nuclear accident clearly show, spent fuel pools that sit several stories above ground at boiling water reactors, such as the CGS are vulnerable. A hydrogen explosion from the reactor vessel in Unit # 3 destroyed its concrete-reinforced reactor building, exposing the pool to the open sky. A second hydrogen explosion and fire occurred in the spent fuel pool at unit 4 after it lost water, which also destroyed the reactor building, described by Mr. Reddeman as "secondary containment."

In fairness to Mr. Reddeman and Energy Northwest, the Columbia Generating Station is operating under requirements by the Nuclear Regulatory Commission that allow for high-density

¹ Board on Radioactive Waste Management (BRWM), National Research Council Board on Radioactive Waste Management, Safety and Security of Commercial Spent Nuclear Fuel Storage: Public Report, 2006, p. 43.

² Qiao Wu, Introduction to Boiling Water Reactor, Department of Nuclear Engineering, Oregon State University, NE 113, Fall 2001. <http://classes.engr.oregonstate.edu/ne/fall2001/ne116/Bwr.ppt>. (a typical BWR core contains 746 assemblies weighing 155MT).

³ Ministry of Economy, Trade, and Industry, Japan, March 17, 2011. <http://www.ordons.com/reports-analysis/reports/23799-spent-fuel-pools-at-fukushima-daiichi-plant-22-march-2011-1800-utc-updated.html>

⁴ Op Cit Ref. 1, p. 36

storage of spent fuel. This mode of storage is permitted because it was expedient, given the assumption that a high-level nuclear waste repository would open in the near future. This is now unlikely and that we have to come to terms with decades-long storage of an ever accumulating amount of spent power reactor fuel. By placing all spent fuel greater than five years into dry, hardened storage modes, as Germany did 25 years ago, we can significantly reduce the vulnerabilities of some the largest concentrations of radioactivity on the planet.

Finally, the Fukushima earthquake has underscored the fact that nature has a way of exceeding the best judgments of scientists and engineers.

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