

A Trip to America's Most Toxic Place

Inside Hanford

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The outback of the Hanford Nuclear Reservation in eastern Washington State is called the T-Farm. It's a rolling expanse of high desert sloping toward the last untamed reaches of the Columbia River. The "T" stands for tanks—huge single-hulled containers buried some fifty feet beneath basalt volcanic rock and sand holding, the lethal detritus of Hanford's fifty-year run as the nation's H-bomb factory.

Those tanks had an expected lifespan of thirty-five years; the radioactive gumbo inside them has a half-life of 250,000 years. Dozens of those tanks have now started to corrode and leak, releasing the most toxic material on earth—plutonium and uranium-contaminated sludge and liquid—on an inexorable path toward the Columbia River, the world's most productive salmon fishery and the source of irrigation water for the farms and orchards of the Inland Empire, centered on Spokane in eastern Washington.

Internal documents from the Department of Energy and various private contractors working at Hanford reveal that at least one million gallons of radioactive sludge have already leaked out of at least sixty-seven different tanks. Those tanks and others continue to leak and, according to these sources, the leaks are getting much larger.

One internal report shows the results from a borehole drilled into the ground between two of Hanford's largest tanks. Using gamma spectrometry, geologists detected a fifty-fold increase in contamination between 1996 and 2002. The leak from those tanks, and perhaps an underground pipeline, was described as "insignificant" a decade ago. Six years later that radioactive dribble had swelled up into a "continuous plume" of highly radioactive Cesium-137.

Obviously, there's been a major radioactive breach from those tanks, but to date the Department of Energy has refused to publicly report the incident. Even though it was reported by their own geologists.

A few hundred yards away, a tank called TY-102, the third largest tank at Hanford, is also leaking. Radioactive water is draining out of this single-hulled container and a broken subsurface pipe into what geologists call the "vadose zone," the stratum of subsurface soil just above the water table. In an internal 1998 report, the Grand Junction Office of the DOE detected significant contamination forty-two to fifty-two feet below the surface, and concluded in a memo to Hanford managers that the "high levels of gamma radiation" came from "a subsurface source" of Cesium-137, which likely resulted from leakage from tank TY-102.

This alarming report was swiftly buried by Hanford officials. So, too, was the evidence of leakage at tanks TY-103 and TY-106. Instead, the DOE publicly declared that portion of the tank farm to be "controlled, clean and stable."

No surprises here. The long-standing strategy of the DOE has been to conceal any evidence of radioactive leaking at Hanford, a policy that was excoriated in a 1980 internal review by the department's Inspector General, which concluded that "Hanford's existing waste management policies and practices have themselves sufficed to keep publicity about possible tank leaks to a minimum."

Needless to say, the Reagan years didn't augur a new forthrightness from the people who run Hanford. Seven years and several congressional hearings after the Inspector General's report was released, bureaucratic cover-up and public denial were still the DOE's operational reflex to any disturbing data bubbling up out of Hanford's boreholes. By 1987, Hanford officials had learned an important lesson in the art of concealment: The easiest way to avoid bad press and public hostility is to simply stop monitoring sites that seemed the most likely to produce unpleasant information.

It is now clear that the tanks began leaking as early as 1956, only a few years after the Atomic Energy Commission began pumping the poisonous sludge into the giant subterranean containers. It is also clear that the federal government covered up evidence of those leaks since the moment it learned of them.

How many tanks are leaking? How far has the contamination spread? The DOE isn't talking. It isn't even looking for answers. But geologists estimated that the faster migrating contaminants, such as uranium, will move from the groundwater beneath Hanford's central plateau to the Columbia in something like twenty-five years. That means that the first traces of radiated water could have started seeping into the Columbia in 2001.

This reckless strategy persists. In a document called "Official Characterization Plan of Hanford"—essentially a kind of 3-D map of contamination at the site—the DOE chose not to include Cobalt-60, a highly radioactive material that is present at deep levels across the tank farm. In addition, the Hanford plan fails to mention the fact that its own surveys have shown large amounts of Cesium-137 and Cobalt-60 forming radioactive pools in the geological stratum, called the plio-pleistocene unit, the last barrier between Hanford's soils and water table.

If the DOE remains locked onto this course it will never acknowledge or even investigate the potentially lethal flow of radioactivity toward the great river of the West. That's because the managers of Hanford say they will only research potential leaks if they detect a level of contamination several times higher than that ever recorded at Hanford—a standard clearly designed to shield them from ever having to pursue any subsurface leak investigation or publicly admit the existence of such leaks.

To help Hanford's managers avoid ever discovering such embarrassing leaks, the site plan calls for them to drill the penetrometer holes, through which contamination is measured, only to a depth of forty feet—or two feet above the bottom of the tanks, guaranteeing that they will avoid picking up any radioactive traces from the region of the most dangerous contamination.

There's a reason the Hanford managers want the public to believe that most of the contamination at the site is limited to the surface terrain. Theoretically, the topsoil can be scooped up and, with large government contracts, transferred to a more secure site or zapped into a glass-like substance through the big vitrification center now under construction. There's no way to de-contaminate groundwater or the Columbia River. Their only hope for containment is to contain the issue politically by plumbing the leaks from whistleblowers.

There's no question that the subsurface leakage is serious, extensive, and dangerous. The internal survey of Hanford by the Grand Junction Office detected high levels of C-137 deeper than 100 feet below the surface—and sixty feet deeper than the current plan calls for probing. That report concluded that both C-137 and CO-60 had "reached groundwater in this area of the tank farm."

Consider this. C-137 is a slow traveling contaminant. How far have faster moving radioactive materials, such as uranium, spread? No one knows. No one is even looking.

The DOE and Hanford's contractors want to close down the C Quadrant of the tank farm and declare it cleaned up, even though more than 10 percent of the waste at that site remains in tanks with documented leaks. There is mounting evidence that a plume of Tritium-contaminated sludge has recently penetrated the groundwater there as well.

John Brodeur is one of the nation's top environmental engineers and a world-class geologist. In 1997, after a whistleblower at Hanford disclosed evidence that the groundwater beneath the central plateau had been contaminated by plumes of radioactivity, Hazel O'Leary commissioned Brodeur to investigate how far the contamination had spread. It proved to be a nearly impossible assignment since the DOE and its contractors had taken extreme measures to conceal the data or avoid collecting it entirely.

A decade later, Brodeur has once again been asked to assess the situation at one of the most contaminated sites on earth, this time for the environmental group Heart of the Northwest. His conclusions are disturbing.

"There remains much that we don't know about the subsurface contamination plumes at Hanford," says John Brodeur. "The only way to solve this dilemma is to identify what we don't know up front and get it out on the table for discussion. This is difficult to do in the chilling work environment where bad data are commonplace, lies of omission are standard practice and people lose their jobs because they disagreed with some of the long-held institutional myths at Hanford."

This essay is adapted from a chapter in [Born Under a Bad Sky: Notes from the Dark Side of the Earth](#) (CounterPunch/AK Press).

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