



PRESS RELEASE

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Suppression of Nuclear Safety Concerns Intensifies at Hanford's Waste Treatment Plant

DOE Scientists and Engineers go public with graphic evidence of design flaws as DOE management approves Bechtel's fabrication of faulty equipment over their objections.

Richland, WA: DOE engineers and scientists are now, for the first time, publicly blowing the whistle on the internal suppression of safety concerns related to the planned fabrication of nuclear waste mixing tanks at Hanford's Waste Treatment Plant (WTP) whose design, they say, is flawed. The WTP facility aims to solidify nuclear waste in glass form (vitrification). DOE engineers are raising the alarm externally after internal systems failed to address and actively suppressed their concerns.

The American Federation of Government Employees Local 788 surfaced evidence that small-scale tests in December of 2010 demonstrated that the tanks and pulse jet mixers designed to mix waste in the pretreatment plant of the WTP suffered severe erosion and related malfunctions. Despite strong evidence of design failure, and a Stop Work issued by the concerned DOE engineers and scientists, Bechtel got the go ahead from DOE to complete fabrication of the flawed tanks on Aug 3, 2011. The union believes that it is critical that the fabrication be stopped.



Pulse Jet Mixers show gaping holes after only five tests. Will they really last for 40 years without maintenance? Click [here](#) for a higher resolution image.

“The suppression of concerns within DOE raises the specter of a broken safety culture to a new level and begs the question, why are such serious concerns being pushed aside?” said Tom Carpenter, the director of Hanford Challenge. The group works with concerned employees to ensure a safe and effective cleanup of Hanford¹.

Local 788's August 5, 2011 [grievance](#) alleges that DOE and Bechtel are covering up multiple failures of critical equipment called pulse jet mixers (PJM's), which are designed to mix high-level nuclear waste in

tanks in preparation for vitrification. The rigorous schedule for complex projects like this one in which each phase of the project, design, fabrication and installation of the equipment in the plant all require confirmatory testing, first on a small-scale and then on a large scale. Each of these phases is “on hold” and must remain on hold until the testing confirms a robust design. Local 788 scientists and engineers claim that DOE over-rode the hold on the fabrication, despite their objections that the welding of faulty pulse jet mixers on the tanks would lead to complications down the road.

The union states it is concerned that DOE is ignoring the legal requirements fully knowing the small-scale tests showed failure of the equipment, pointing out that Bechtel was operating outside of the license, called the Authorization Basis. If faulty equipment continues to be fabricated and installed, it will certainly lead to increased cost and a further delayed schedule of this critical project.

The concerns come on the heels of a federal watchdog agency investigation (the Defense Nuclear Facilities Safety Board, or DNFSB) which [found](#) in June 2009, “expressions of technical dissent affecting safety at WTP, especially those affecting schedule or budget, were discouraged, if not opposed or rejected without review. Project management subtly, consistently and effectively communicated to employees that differing professional opinions counter to decisions reached by management were not welcome and would not be dealt with on their merits.” The Board warned, “The flawed safety culture currently embedded in the project has a substantial probability of jeopardizing that mission.” The WTP project is currently projected to cost \$12.3 billion, is 240% over budget and 10 years behind schedule.

Because of the extremely radioactive nature of the wastes, the process of pre-treatment will occur in “black cells,” which, when operational, will be so radioactive that no human being will be able to access the area. If there is equipment failure or a leak within the black cells, it will be impossible to repair the problem. The equipment in the black cells is supposed to operate for 40 years of operation without any kind of intervention or maintenance.

The black cells are where the pulse jet mixers and tanks would be installed if DOE continues to override the legal requirements. Small-scale tests in Dec 2010 showed severe erosion leading to gaping holes in all of the pulse jet mixers after only five tests.

Additionally, significant erosion was found on equipment called “wear plates” installed at the bottom of the tank that were meant to prevent the tanks from leaking, failure of which could lead to a leak of highly-radioactive waste from the tank and a failure of the black cell. Other issues include that the tests showed a significant build-up of the simulated high-level waste sludge at the bottom of the tank. In an operational tank, such an accumulation increases the risks of a sudden nuclear chain reaction, called a criticality, or the build-up of flammable gases like hydrogen, which could catch on fire or explode.

The union grievance states that on August 2, 2011 the DOE Nuclear Safety Division reviewed and rejected Bechtel’s justification for a nuclear safety design and performance waiver. Once the tank heads are welded, the defective equipment cannot easily be replaced or modified.

On August 3, 2011, the day after DOE’s Nuclear Safety Division denied Bechtel’s justification to complete fabrication of the defective tanks, the DOE Federal Project Manager, Dale Knutson, issued a letter granting Bechtel permission to override the schedule and weld the defective pulse jet mixers and wear plates to the tanks, completing their fabrication prior to large-scale testing. The same day, Richard McNulty, President of the Local 788, filed a Stop Work request, which was quickly overridden by management. The union subsequently filed the grievance alleging DOE management violation of DOE

safety orders and regulations in authorizing Bechtel to complete fabrication of the defective tanks without an approved authorization basis change. The grievance states that DOE site management has refused to acknowledge the failed testing or the structural penetration of the PJMs and wear plate wear problems due to fluid pumping.

According to the union, the issue goes beyond the issue of these tanks, and represents the systemic breakdown of the safety culture at the DOE's Office of River Protection at Hanford. Scientists and engineers are complaining that their technical issues are ignored, and that they are feeling significant pressure to remain silent, putting the plant and the public in jeopardy.

Hanford Challenge's Tom Carpenter called upon Secretary Steven Chu to "issue an immediate stand-down of all work on the pretreatment plant portion of the WTP until an independent and thorough investigation is conducted by a credible investigative team outside the agency." Carpenter stated, "It is apparent that the DOE management has abandoned its own technical staff and decided to allow the contractor to proceed with fabricating a system whose design is fatally flawed. The logical result of such decisions is a facility that will not work as planned. The public demands an effective and safe solution for treating Hanford's high-level nuclear wastes. Our future depends on it."

ⁱ Hanford is a former military production facility whose mission was to make plutonium for the nation's nuclear arsenal. Hanford's nuclear waste legacy makes the site the nation's most contaminated facility. It is operated by the U.S. Department of Energy, which hires contractors to engage in the decade's long cleanup effort.