

## **Tritium Forum 2025 Aug 20, NukeWatch NM Comments and Concerns**

NWNM Response to:

Flanged Tritium Waste Container Depressurization Independent Technical Report

August 12, 2025

[https://cdn.lanl.gov/files/nnsa-ftwc-independent-technical-report-20250812-final\\_2f154.pdf](https://cdn.lanl.gov/files/nnsa-ftwc-independent-technical-report-20250812-final_2f154.pdf)

The Independent Technical Review should be reassessed after the Public Meeting and the Tribal Consultations. The public and tribal comments must be addressed and responded to.

The 40 alternatives must be listed.

### **1. Background**

More history is needed. When were the FTWCs created? What was the original plan for disposal?

### **2. Approach for the Independent Technical Review**

“This report uses the term “depressurize” to describe the controlled process to relieve pressure in the FTWCs headspace, i.e., controlled venting, and “vent” to describe the unplanned, unmitigated release of pressure from the FTWCs.”

Why do we need this difference?

### **3. Evaluation of Alternatives**

“The contents are well documented, and calculations indicate that the FTWCs contain a flammable hydrogen/oxygen mixture and that the headspace pressure is estimated to increase at a rate of ~5 psi per year.”

What is the current psi?

#### **3.3 Depressurize Then Transport**

“The LANL team considered forty (40) different alternatives under these broad categories.”

These alternatives must be listed. Comparisons must be made.

#### **4.1 Radiation Exposure to the Public**

“CAP88 was designed for longer term or continuous releases. LANL is working to mitigate concerns about using it for a short-term release by using the more conservative of the wind conditions at the time of release and average conditions appropriate to continuous releases. LANL is in dialogue with EPA over this approach. CAP88 has relatively recently added the capability to calculate age-dependent radionuclide doses; however, EPA regulations do not require the use of the most restrictive values, and standard practice within the DOE and wider CAP88 user community is to use the adult values assumed in EPA regulations.”

Sounds like the CAP88 issue for short-term releases is not resolved. What were the concerns?

#### **4.2 Worker Safety Considerations**

“Standoff distances are established and increase with time as the FTWCs pressure increases.”

What are the current standoff distances?

### 4.3 Controlled Depressurization Process

‘During the evaluation, the SME inquired about off-normal events and possible problems that may occur, such as changes in weather conditions, or equipment failure. In those situations, operations will be paused and actions taken to ensure safe and stable conditions.

Who makes the decision?

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TEWA WOMEN UNITED has also been working hard on this issue: **See the following talking points on the Report, provided to TWU by Dr. Arjun Makhijani, president of the [Institute for Energy and Environmental Research](#):**

- **The Report is not by an independent, third party.** It was done by the ESH branch of NNSA at its headquarters. The report was requested by LANL-NNSA, which is a part of NNSA, and Triad, which is a contractor. Tritium expertise was provided by Savannah River Laboratory, which is owned by NNSA/DOE. These are not independent entities; nor can they be reasonably be described as third parties. In fact, *they are parts of the same organization, or are its contractors.*
- The Savannah River Site, of which the Laboratory is a part, as the main tritium site for DOE. The Site has an extensive record of polluting streams onsite, the Savannah River, and groundwater outside the Site with tritium. See Chapter III on tritium of the 2004 IEER report on the Savannah River Site, [Nuclear Dumps by the Riverside](#).
- The Report states that a reviewer (chosen by NMED) had extensive comments on a draft. But those comments are not described; nor is there a discussion of how the Report’s authors addressed his comments.
- The Report’s reviewer has a consulting company in Oak Ridge, where there is a major DOE/NNSA facility. The report does address conflict of interest issues, such as whether the consulting company’s principal clients are DOE/NNSA facilities and/or their contractors or subcontractors.
- **The 40 LANL alternatives mentioned in the Report are not listed, much less evaluated, with reasons given for rejection of all except the LANL chosen option.**
- **LANL told EPA that there are 53 alternatives. The Report appears not to have looked at or even been aware of the other 13.**
- The Report appears to treat all FTWCs as having the same contents (“The contents are well documented, and calculations indicate that the FTWCs contain a flammable hydrogen/oxygen mixture and that the headspace pressure is estimated to increase at a rate of ~5 psi per year” , p. 3). A uniform pressure increase in the FTWCs is surprising, given the miscellany of things put in the FTWCs.

- **There is no indication that the Report's authors independently verified LANL's pressure calculations.**

- Given that plastic bags and miscellaneous radioactively contaminated items were put in the FTWCs, the Report should have examined whether the initial loading was done according to regulations with due regard to the potential for radiolysis.

- The Report has not published the documentation about the initial loading of the FTWCs.

- The Report does not discuss differential risk between FTWCs even though the tritium content of the FWC most loaded with tritium is almost two-and-a-half times that of the least loaded one.

- There are no results shown of any independent CAP88 model runs, whether any were done (and if so how many and with what parameters). An independent review would have checked all the parameters to verify that.

- **There is no indication that the Report reviewed the four reports commissioned by TWU and CCW or any mention of the analysis in them if it did.**

- While the Report correctly notes the conservative assumptions made by LANL in its modeling, it does not note where the assumptions were not conservative. The reports prepared for TWU on CAP88 modeling and Subpart H of Clean Air show that LANL's choices of parameters for modeling a single-day release were not conservative, for instance regarding humidity assumptions. The estimated dose factor with conservative assumptions was significantly higher than that calculated by LANL.

- **The Report states that "depressurization would only be performed in favorable weather conditions" and lists "calm winds" as one of the favorable conditions (p. 7). However, calm winds constitute an unfavorable weather condition** because, other things being equal, tritium concentrations at the maximum exposure point would be higher with calm winds.

- The report states that under the plan of venting one FTWC at a time "does not pose a reasonable likelihood of challenging the 8 mrem emission budget LANL has assigned it." This is a rather weak statement. Subpart H requires compliance, not just a "reasonable likelihood" of compliance. Moreover, the TWU-commissioned reports show that under conservative assumptions, including about humidity, there is a reasonable likelihood that the 8 millirem limit would be significantly exceeded even for adults and much more so for infants.

- The report justifies LANL's calculating doses for adults by stating "EPA regulations do not require the use of the most restrictive practices". It has been EPA practice to allow adult-only dose calculations. But that is not in the regulation, which requires the

protection of “any member of the public.” LANL and the EPA have been implicitly saying that children and infants are not members of the public. We do not agree.

- **Failure to calculate infant doses or even to point out explicitly that they would be much higher makes the report incompatible with the stated objective to “Maximize the protection of the public....” (p.3).**

- It is disingenuous for the Report to say that “CAP88 has relatively recently added the capability to calculate age-dependent radionuclide doses”; in fact, that capability was added in Version 4 of CAP88, which was published a decade ago, in 2015.

- **The Report should have assessed whether conservative assumptions and doses for infants would result in doses above 8 mrem.**

- The Report states that the maximizing protection of the environment is an objective (p. 3). But it does not evaluate protection of groundwater from radioactive rainfall, for instance.

- **The absence of a discussion of ALARA requirements is a notable omission.** Specifically, the Report did not evaluate whether LANL’s venting proposal would comply with the ALARA (“as low as reasonably achievable”) requirements of DOE Order 458.1. That order requires groundwater protection, among other things. The Report does not address or even mention that groundwater would be at risk, much less evaluate how environmental protection might be maximized in this regard or in other regards, such as protection of streams and the Rio Grande waters in the LANL vicinity.

- The Report notes that transport might be possible “prior to depressurization.” For that, the “headspace pressure and gas mixture would have to be analyzed and approved for the increased hazards.” But this is ruled out on the same grounds that LANL refused to sample the headspace: “There is little benefit to incurring the risk in transportation when alternatives exist to reduce the risk by depressurizing prior to transport.” But the alternatives involve radiation exposure of the public. If sampling shows that one or more containers pose no explosion risk, they could be transported without venting.

- **Failure to sample the headspace may be a violation of ALARA if one or more FTWCs could be transported without venting.**

- **Failure of the Report to recommend sampling of the headspace is a clear indication of inattention to compliance with ALARA requirements.**

- **Overall, the Report appears to be repetition of LANL’s assumptions, statements, and conclusions rather than an independent review.**