Comment #2 of Patricia K Townsend PhD

 May 25, 2018

Mr. Martin Krentz

West Valley Demonstration Project

US Department of Energy

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Sent via email to martin.krentz@emcbc.doe.gov

Dear Mr. Krentz:

Subject: Comments on Scoping for dSEIS with respect to research needs

1. **Gaps in Phase 1 studies** that need to be addressed if the dSEIS recommends anything less than full exhumation and removal, as well as for interim storage of wastes on site:
2. The Exhumation Report mentions European work relevant to exhumation but did not go the extra mile to get the details on the technology used. Nor did the team explore methods being used in the cleanup at Fukushima.

When one considers the cutting-edge (pardon the pun) work done in robotic and laser surgery right here in Western New York, it makes one wonder if a broader approach to explore robotic and laser technologies outside of the nuclear industry should not be considered rather than simply looking at tired old examples from other DOE sites.

The exhumation process will occur over several decades and during this time a vigorous pursuit of new technologies is required and indeed would be encouraged by a commitment to sitewide cleanup of this site.

1. The seismology work needs to be revisited. Comments by Vaughn and other geologists suggest that does not take into account newly described faults in the area.

A future society desperate to extract the last drop of fossil carbon from both the Marcellus and Utica Shale may drill wells from extraction or disposal that induce multiple small earthquakes (recent Oklahoma experience suggests that **either** type may do so), creating multiple fractures that facilitate leaking of radionuclides as well as degrading site stability.

1. The recently released EWG report falls far short of what would be needed to justify anything less than site-wide removal. While it may represent state of the art modelling and large amounts of computer time, its simplifications render it useless for making decisions at West Valley.

The authors are frank in admitting many of these limitations, ways in which computing capacity required simplification:

* The model does not consider widening of valleys.
* It cannot model hydrology in 3 dimensions.
* It has no basis for considering the effects of fossil fuel emissions after 100 years or erosion past 10,000 years: both far short of the half-lives of much (how much?) of the nuclear waste underground on this site.
* It is limited to sitewide surface erosion and does not consider the scenario of a catastrophic landslide, which is precisely what most concerns me as a resident of Western New York.

 Others with sophistication in geology and/or modeling will doubtless find limitations or flaws that the authors have not specified, but those above render the study useless as input into the PPA.

1. In an earlier scoping comment (e-mail of April 23, 2018), before the EWG modelling report was released, I discussed my concerns about climate change.

The low levels at which an increase in intensity and frequency of rainy days are included in the EWG model does not reassure me; recent research indicates a doubling of storm intensity may not be far off the mark. My understanding and experience of erosion (from both my farm background and tropical field research) is that intensity over a short interval is most significant. The model mutes the significance of rare extreme events. A single heavy rainfall on already saturated soil is likely to produce high runoff contributing to gully formation and landslides.

I do not see evidence in the EWG report of awareness of the complexity of a WNY setting that includes **lake effect rain and snow**.

**B**. **Broader recommendations for study**

 Re-reading the West Valley Demonstration Project Act leads me to a set of comments that build on the notion that this project was intended to **demonstrate** that nuclear waste was a problem that could be solved. If it cannot be solved, it only **demonstrates** that citizens have a responsibility to shut down nuclear plants and to refuse to fund further nuclear weaponry that creates more waste. These are comments directed at policy-makers and DOE generally rather than the DSEIS.

It was the great success of the WVDP that it successfully vitrified liquid nuclear waste in the tank during the period 1996-2002. However, the task specified in the act has not been completed until the rest of the waste resulting from reprocessing has been taken care of.

Relative to sites like Hanford, the WVDP is both small and unique due to the act of Congress that established it. For the DOE to clean it up promptly and fully, absorbing some costs by pilot-testing technological innovations would surely be cost effective. If successful, it would rid the government of the continuing costs of managing a perpetually low-priority site while testing technology that might be useful at larger sites.

Similarly, the Blue Ribbon Commission on America’s Nuclear Future in 2012 opened up the possibility of a pilot study of deep hole disposal of nuclear wastes. The Commission declared it to be particularly suitable for smaller amounts of waste that do not need to be retrievable, specifically mentioning the West Valley vitrified wastes. It could be put into effect much more quickly than a geological repository. Even if and when a geological repository is developed in a dry site in a western state, deep hole repositories in one or more eastern states would help to balance the perception of injustice. The Blue Ribbon report said that **every** state has geologically suitable sites. Yet, after brief exploration, that effort was abandoned by defunding it in 2017 without even considering a site in New York or a state near the West Valley site that would accommodate these wastes without long shipping distances. Perhaps we even have NY State Forest land that would be suitable, since trees could be replanted above the hole. Why should it always be “Not in My Back Yard?”

The Blue Ribbon Commission report refers to the collection of fees from utilities that are designated for waste disposal but are not spent for that purpose, resulting in a huge government liability. It strikes me that generously funding creative research, design, and demonstration of new technologies for the exhumation, packaging, storage, and disposal of nuclear wastes would be a very good use of some of this money.

1. **Need for social science research**

As a social scientist by training, one of the first things I did some months ago was a bibliographic search for material relevant to the West Valley nuclear site. Despite the abundant research in geology and engineering, I found virtually nothing in sociology, anthropology, political science, history, psychology, public health. (Economics is a partial exception, with the important full-cost accounting study funded by New York State.)

The lack of social research was particularly striking to me because West Valley emerged as an issue in the same time frame as Love Canal and both received the attention of environmental activists. You might expect that they would have attracted similar interest among social scientists over the years. The bibliography of Love Canal is huge—I know because I contributed to it, having used it as one of 3 case studies in a small EPA-grant funded study to the Society for Applied Anthropology in 2000-2001 of the participation of religious organizations at Superfund sites.  [https://www.sfaa.net/files/8913/7329/3950/niagra.pdf](%20https%3A//www.sfaa.net/files/8913/7329/3950/niagra.pdf)

Since then, Love Canal has continued to attract the attention of historians—an ever-expanding list of references.

Explaining the lack of research on the West Valley nuclear site might itself be a researchable topic, but, more to the point, the gap in research will challenge the preparers of the SEIS, because for any alternative that leaves nuclear waste on site they will need to deal with monitoring the long-term implications for **community character, socioeconomic wellbeing,** and **public health**, including psychological, cultural, and spiritual aspects of health as well as the direct impact of radiation as a cause of cancer and genetic damage. The diverse communities downstream of the site that would be threatened by the continued presence of eroding or entombed nuclear wastes include rural residents, Seneca Indians, and urban and suburban residents of Buffalo and Niagara Falls, as well as Ontario, Canada.

As I sat at the May 23 Quarterly Public Meeting, it occurred to me that the only people at the meeting who were not required to be there by their employment were retirees with a Ph. D. or equivalent. How many citizens have the education or time to follow the issues as presented by DOE and its contractors? This helped crystalize for me the extreme challenge presented for serious public involvement in the decisions to be made at this site. Many reports are virtually unreadable, even if you can find them in the poorly constructed maze of web sites. The language at public meetings is also challenging because of the number of acronyms. (I’m glad that someone finally asked what a “frack tank” is, too.)

I know that the USEPA has made a variety of attempts to encourage responsible public involvement in their cleanups, ranging from social research to Technical Assistance Grants to community groups to education for their staff in communication skills. I am unaware of comparable efforts in DOE (perhaps just a failure on my part to find them) but the NEPA process requires public input. Perhaps **at state level** we can do more to make these issues intelligible to more New Yorkers. As a volunteer with NY Interfaith Power and Light, WNY Interfaith Climate Justice Community, the Sierra Club, and the Presbyterian Church, this is a task I have set for myself in my writing and speaking this year.

**D. Conclusion**

As a scoping comment, I recommend the completion or revision of the woefully inadequate Phase 1 studies to the degree that this is deemed necessary to prioritize and conduct a sitewide exhumation and cleanup efficiently and safely.

As a broader matter of policy, I recommend expansion of this entire area of federal research. Dealing with the end of the nuclear fuel cycle in a safe and economic manner is never going to be a priority for industry’s R & D and therefore would be a government responsibility even if we were immediately to abandon nuclear power as an alternative.

Based on the current state of our scientific understanding and policies, I continue to believe that the only responsible option is for the federal and state governments is the

**Sitewide Removal Alternative.**

Thank you for the opportunity to comment.

Respectfully yours,

Patricia K. Townsend, Ph. D.