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Francesca McCann, Staff Director
Office of the Secretary of Energy Advisory Board (AB-1)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

Dear Ms. McCann:

In reviewing the Nov. 9, 2000 draft report of the SEAB Panel on Emerging Technological Alternatives to Incineration, I noted that there was considerable uncertainty among members regarding the amount of buried transuranic waste at the Idaho National Engineering and Environmental Laboratory. The Institute for Energy and Environmental Research (IEER) has been discussing the problem of data quality regarding buried TRU waste and contaminated soil with the DOE since 1997, when IEER published a report on clean-up in the nuclear weapons complex. I am sending you three copies of that report, entitled *Containing the Cold War Mess*, with this letter for the Panel's use and three copies of the issue of IEER's newsletter, *Science for Democratic Action*, that summarizes the report.

I applaud the Panel for taking up the issue of buried waste, however briefly, and pointing out its seriousness. The Panel is entirely right to be concerned about the effect of buried TRU waste on one of the most important aquifers in the country and by far the most important one in the region. In addition, I urge you to note that the policy of spending vast resources on WIPP, whose net effect is to move to a repository waste that is relatively safely stored now, is depriving a far more threatening and pressing environmental problem-leaking, buried wastes-of the needed financial and technological resources and institutional attention that it deserves. We are all aware that there are political agreements in place that cause WIPP to be on a fast track, but future generations who have to deal with contaminated water resources in the West are unlikely to be forgiving of such a rationale.

In *Containing the Cold War Mess*, we showed that, with the partial exception of INEEL, DOE data on buried TRU waste and contaminated soil lacked any technical rationale, to say nothing of a sound scientific foundation. In June [July] of this year, Assistant Secretary of Energy Carolyn Huntoon, sent me a letter agreeing with this IEER conclusion, and also a DOE report with new estimates for these wastes. The DOE now states that buried TRU wastes are 30 percent of the radioactivity contained in the retrievable waste destined to be sent to WIPP, up from 3 percent in 1987 (page 2 of the June 2000 DOE report). Moreover, the current waste figures do not include information for contaminated soil, other than the fraction that was contaminated by liquid discharges. I am enclosing a copy of Assistant Secretary Huntoon's letter and the June 2000 DOE

report. The latter is also available on DOE's web site. Ms. Huntoon's letter and my reply are on IEER's web site.

The table below summarizes the data in the June 2000 report. The data in the table are reported radioactivity data, uncorrected for decay. I have reproduced them below for your convenience and also so that I can provide you with some commentary on the data. Please note that the DOE's own assessment is that the quality of this data is still "low to medium" (p. 1).

DOE Estimates of Buried TRU-Contaminated Wastes as of June 2000, in curies (Note 1)

Site	Buried Waste, shallow	Intermediate depth disposal	Soil contaminated by liquid discharges	Comments (IEER)
Hanford	67,800	not applicable	25,400	See note 2
INEEL	634,000 (Note 3)	not applicable (Note 4)	not applicable	
LANL	21,000	7,690	10	
NTS	229	343	86	does not include 295,000 curies of TRU radionuclides as part of residues for nuclear tests
ORNL	6	2,100	53	direct injection was employed for intermediate depths
SRS	21,900	not applicable	not applicable	

Notes (by IEER):
1. Curie amounts include all waste with TRU contamination greater than 10 nanocuries per gram. Pu-241 and Cu-244 have been included also.
2. The Hanford estimate for total TRU-contaminated waste appears to be at considerable variance from what was reported in 1983, the last time that integrated data for wastes with more than 10 nanocuries per gram of TRU contamination were reported. As can bee seen in the chart on page 72 *of Containing the Cold War Mess*, the radioactivity content for such waste reported in 1983 was 820,100 curies. In 1984, the radioactivity content for waste with more than 100 nanocuries per gram was reported as 92,100 curies. The difference presumably was the waste containing between 10 and 100 nanocuries per gram.
3. The range for this waste provided by the site in 1995 was 640,000 to 900,000 curies. See page 81 of *Containing the Cold War Mess*.
4. Direct injection of wastes was employed for a period at INEEL. The "not applicable" assertion statement that should be treated with caution and due skepticism.

The Hanford data are especially puzzling. About two-thirds of US military plutonium was produced at Hanford, where a variety of reprocessing techniques were used, along with egregious dumping practices, notably in the first two decades. Prior data, cited in Note 2 to the table above and in *Containing the Cold War Mess*, indicate an estimate of over 700,000 curies of TRU radionuclides content Hanford alpha low level waste (between 10 and 100 nanocuries per gram of TRU radionuclides) alone. Similarly, the "not applicable" statement in regard to transuranic disposal at intermediate depths for Idaho should be verified before it is accepted since INEEL employed direct injection of radioactive waste for many years.

Past management assumptions that the amounts of radioactivity in buried TRU waste was very low relative to stored wastes and that transuranics would migrate very slowly in the soil have been invalidated by data and experience. Yet the DOE is spending $19 billion on a nuclear waste shell game to move wastes that are relatively safely stored and putting them in WIPP while neglecting the far more urgent and dangerous problem of dealing with the leaky barrels and contaminated soil.

In response to my letter and to press inquiries, the DOE has agreed to request the National Academy of Sciences to set up a committee to review its policies on the buried TRU waste issue. It is crucial for the Panel to reinforce this decision and to stress the urgency for DOE to move ahead with this request and for the NAS to proceed expeditiously. The NAS committee should be set up with broad terms of reference to address priorities and remedies in the entire field of TRU waste management, including TRU-contaminated wastes with concentrations between 10 and 100 nanocuries per gram, which were excluded from the TRU waste category in 1984.

Thank you for having taken up the issue of buried TRU waste. I hope that this information is useful to you. If I can provide you with more information or materials, please let me know.

Yours sincerely,

Arjun Makhijani, Ph.D.
President