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Carolyn Huntoon
Assistant Secretary for Environmental Management
Office of Environmental Management
U.S. Department of Energy
1000 Independence Ave., SE
Washington, DC 20585

Dear Ms. Huntoon,

Thank you very much for sending me the DOE's new report, *Buried Transuranic-Contaminated Waste Information for U.S. Department of Energy Facilities*. When the Institute for Energy and Environmental Research (IEER) issued its report, *Containing the Cold War Mess*, in 1997, we had hoped, among other things, that the DOE would try to address the grave problems in the quality of the data on transuranic (TRU) waste that was dumped in shallow landfills at many sites in the DOE nuclear weapons complex prior to 1970. I am glad that the DOE has done so. But I am sorely disappointed in two other respects:

- Despite the substantial increase in DOE's aggregate estimate of the radioactivity in such wastes, you decided not to revisit established policy in regard to buried TRU waste. Your decision may have seriously adverse consequences for the health of some of the most precious water resources in the United States, such as the Snake River Plain aquifer, the Tuscaloosa aquifer, and the Columbia River.
- The quality of the data that the DOE has compiled remains low. Yet you have announced no systematic effort to remedy this problem.

Re-ordering priorities

The TRU waste report that you sent me has concluded that the 1987 DOE estimate that buried waste contained only 3 percent of the radioactivity relative to retrievably stored waste was wrong and that the figure should instead be 30 percent. This ten-fold increase in the proportion of estimated radioactivity in buried waste is particularly important when coupled with the increasing evidence of transuranic elements are migrating rapidly in the soil.

The DOE cannot assume that long-term stewardship policies for wastes containing relatively short-lived radionuclides will apply to very long-lived radionuclides such as

in the quality of the data. This situation should not be allowed to persist, since these wastes contain plutonium equivalent to hundreds of nuclear bombs and pose serious threats to precious water resources in several parts of the country.

The problem of TRU contamination as a result of underground testing at the Nevada Test Site is substantial. Indeed, it is the second largest of any site in the country (after Idaho). This problem must be viewed far more seriously than before, given the recent finding that plutonium has migrated much faster than anticipated from one test location.

In light of the above, it is essential and urgent that DOE should:

- assess the volumes, locations, and quantities of radioactivity in TRU contaminated soil
- improve the quality of the data on buried TRU waste volumes and radioactivity
- create an intensive program to map the TRU as well as fission product contamination and their spread at the Nevada Test Site, so that remediation requirements may be assessed on a more scientifically adequate basis.

My colleagues at IEER and I greatly appreciate the enormous effort that the U.S. Department of Energy (DOE) and its contractors have made. The TRU waste report represents the fulfillment of a commitment to address the problems of the lack of quality and uniformity in DOE buried TRU waste data that DOE made to IEER during IEER's press conference in 1998. In that context, I want to extend particular thanks to Jim Werner, Tom Longo, and Matt Zenkowich who coordinated the preparation of the DOE report, as well as the communications of DOE and the staffs of contractors with IEER's staff. I sincerely hope that you and your colleagues at the DOE will address the urgent policy recommendations that I have made above and not allow this problem to fester any longer.

Thank you again for sending me the TRU waste report. I stand ready to go on cooperating with you, your staff, and the rest of the DOE in order that we may achieve our shared goal of protecting the environment, including some of the most precious water resources in the United States. Please feel free to contact me for follow-up, should you wish it.

Yours sincerely

Arjun Makhijani, Ph.D.
President

plutonium-239 and neptunium-237. It is simply not enough to say that the DOE is going to go according to the Resource Conservation and Recovery Act and Superfund (CERCLA) on a site-by-site basis. A national program with the unified perspective of recovering dumped wastes isolating long-lived radionuclides from the environment is urgently needed. This need is being demonstrated time and again with new evidence of transuranic radionuclide migration, the most recent being the migration of plutonium at Paducah.

The greatest example of misplaced priorities that must be revisited is the resources being poured into processing and sending retrievably stored waste to the Waste Isolation Pilot Plant (WIPP) in New Mexico. While it focuses mainly on processing and shipping the most safely stored waste first (those designated to go to WIPP), the DOE is attending to the recovery and processing of buried wastes in a lackadaisical fashion, at best, or not at all.

As you know, IEER has long believed that this is a poor choice of priorities from the point of view of environmental protection, whatever other rationale DOE's policy may have. Now that the DOE has revised its own estimates of the amount of waste upward by ten-fold, it is clearly time to initiate a comprehensive TRU waste management review. Such a review should explicitly recognize the threats to water resources and other aspects of the environment posed by the huge amounts of buried TRU in the DOE weapons complex. If the current evidence on buried wastes and transuranic radionuclide migration is not enough, what is DOE's threshold for reviewing its policy, if there is any at all?

DOE's case-by-case approach to buried TRU waste and contaminated soil is incompatible with the concept of responsible long-term stewardship. I believe that Congress established the Office of Long-Term Stewardship with the idea that threats to the health and environment of future generations from such dangerous wastes should be minimized to the extent possible. The new report of the National Research Council of the National Academy of Sciences (*Long-term Institutional Management of U.S. Department of Energy Legacy Waste Sites*), IEER's prior work (*Containing the Cold War Mess*), the DOE's own findings about the magnitude of the buried TRU waste problem, and mounting data on rapid migration of transuranic elements in the environment should all provide a strong impetus for the DOE to abandon its site-by-site approach.

IEER's main recommendation regarding buried TRU waste is reinforced by analysis of the National Research Council study cited above, which was, as you know, funded by the DOE. In concluding that fencing off sites would not prevent the migration of contamination off-site and that many hazards would be difficult to predict, the NRC has called on the DOE to, among other things, do more to isolate wastes and to increase surveillance of wastes. I agree with these recommendations.

The DOE's current program on buried TRU waste and contaminated soil cannot even result in adequate surveillance, to say nothing of isolation. A minimally adequate surveillance program would long ago have resulted in reliable estimates of contaminated soil and buried waste. In my view, buried TRU wastes and contaminated soil are, along

with liquid high-level wastes and the associated soil and crib contamination, among the most serious threats to the environment posed by the radioactive and toxic legacy of the Cold War.

Buried TRU waste should become one of DOE's top clean-up priorities. It cannot be addressed adequately and comprehensively on a case-by-case basis. I recognize that DOE must comply with other laws and regulations, notably RCRA and CERCLA. But this cannot become an excuse for a failure to come to grips with the seriousness of the threat to the country as a whole posed by TRU buried waste and contaminated soil. Only a national, comprehensive assessment can result in a redirection of resources commensurate with the magnitude and urgency of the problem. DOE must show the leadership on the national level on this crucial issue if there is to be hope of alleviating the dangers from these wastes.

I urge you to give urgent attention to initiating a review that will result in a program for the isolation of currently buried TRU wastes and contaminated soil from the environment. This will involve recovery and some treatment of the waste, prior to storage, which is already an enormous challenge. The magnitude of that challenge is not going to decrease with time. On the contrary, by its nature, the problem will become more costly and difficult. Therefore, in the interests both of environmental protection and economy, it is high time that a serious and consistent effort be put into place now.

Quality and completeness of the data

In regard to the TRU waste data that you sent me, the report is a positive step towards providing a more uniform basis for data on the amount and radioactivity in buried transuranic waste. The information in this report allows us at least to begin addressing the issue of improving the quality and completeness of the data. But there is still much work to be done on these issues. As the report acknowledges, there are still essentially no data on the amount of TRU contaminated soil. Since radionuclides in contaminated soil present the most immediate risk of migration into ground and surface waters, this gap should be closed as soon as possible. We appreciate that DOE did not attempt to gather this information without first developing a clear methodology. Surely, this is a void that can be filled quickly with a modest but determined effort.

The department should seek to geographically map the location of the buried TRU waste. This is needed not only to allow workers and land users to take precautions about where they dig or draw water, but also to reach decisions that make sense in light of the location of the wastes. As the recent National Academy of Sciences reports notes, there is a "swiss cheese" phenomenon occurring right now because there are areas of high risk left in place amidst areas that are being cleaned up to relatively high standards. This greatly reduced the overall effectiveness of even those clean-up dollars that may be well-used in specific projects.

While there is now a uniform basis for eliciting data from the sites about TRU waste volumes and radioactivity, the report notes that there is only "low to medium" confidence