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Department of Energy

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Office of General Counsel
M.S. 15B18
Washington, D.C. 20505

SUBJECT: NRC's Prescription of Standards to Define Transuranic Waste (TRU)
Pursuant to the West Valley Demonstration Project Act (Act)

Dear Mr. Wolf:

Pursuant to our discussion in West Valley, NY on December 4, 1991, the Department of Energy (DOE) would like the Nuclear Regulatory Commission (NRC) to prescribe, in accordance with provisions of the Act, a different concentration of transuranic elements for the definition of TRU.

1. NEED FOR REDEFINITION

- A. Generation of Project waste. As you know, one of the primary objectives of the West Valley Demonstration Project (Project) is to vitrify the high level waste contained in storage tanks on site. In order to achieve this objective with the least amount of vitrified waste, DOE is processing the liquid in the tanks, separating out the high level waste, and then ultimately solidifying the remaining low level effluent in a cement waste form contained in square 71-gallon drums. These drums are currently being stored in the on-site, above-ground drum cell (WVDP waste). The 10,300 plus drums already produced contain radioactive waste in concentrations of less than 100 nanocuries per gram (nCi/g); in fact, most of the drums have concentrations of under 80 nCi/g. These cemented wastes have been subjected to considerable developmental efforts and a testing program all aimed at their qualification as an acceptable waste form under 10 CFR Part 61.
- B. Statutory background. The Act directs DOE to dispose of low level radioactive waste (LLW) and TRU produced by the solidification of the high level waste under the project "in accordance with applicable licensing requirements". The Act defines TRU as "material

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contaminated with elements which have an atomic number greater than 92 . . . and which are in concentrations greater than 10 nanocuries per gram, or in such other concentrations as the Commission may prescribe to protect the public health and safety." (Emphasis added)

There is a regulatory gap not only with regard to the waste in general at West Valley, but specifically with regard to TRU. Although 10 CFR Part 61 deals with the shallow land disposal of radioactive waste, the definition of waste under Part 61 expressly excludes TRU. Consequently, absent a redefinition of TRU by NRC pursuant to the provisions of the Act, it appears the bulk of the WVDP waste could not be disposed of as LLW either at West Valley or at any licensed facility elsewhere. Even so, Part 61 defines a class of wastes that are referred to as low level wastes that may contain transuranic radionuclides in concentrations up to 100 nCi/g. We also note that the definition of "waste" under Part 61 is set out in the context of shallow land burial, but without reference to any particular geographic location or parent source.

In addition to Part 61, other regulations lend support to defining the threshold of TRU as 100 nCi/g, thereby defining as LLW that waste containing less than 100 nCi/g. The U.S. Environmental Protection Agency (at 40 CFR 191.02(h)(i)) and the New York State Department of Environmental Conservation (at 6 NYCRR 382.2(a)(6)) both define TRU as waste containing more than 100 nCi/g transuranic radionuclides. DOE also has defined TRU as waste containing more than 100 nCi/g transuranic radionuclides. See DOE Order 5820.2A. All of these definitions have been established without regard to the source of the wastes or the geography of their disposal site.

- C. DOE's inability to dispose of TRU. In preparing the joint EIS, DOE fully intends to consider all appropriate options for disposal of the LLW and TRU; one of these options is the on-site disposal of LLW. The legislative history of the Act reveals that such disposal made the most sense to Congress at the time the Act was adopted; however, in deference to the National Environmental Policy Act, Congress made clear that all appropriate options, including off-site disposal, should be considered. Yet, as demonstrated above, without a redefinition of TRU to include a threshold level of transuranic elements of 100 nCi/g, DOE will not be able to dispose of the bulk of the WVDP waste on site, assuming the on-site disposal alternative is selected.

2. ACTION BY NRC

Based on the foregoing, you can see that the most appropriate way to resolve the disposal dilemma is for NRC to prescribe, as contemplated by

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Congress in the Act, the threshold limit of TRU to be 100 nCi/g, thereby making all waste of less than 100 nCi/g fall within the definition of LLW. As discussed above, such a threshold limit is not without regulatory precedent; the issue also has been the subject of a substantial amount of NEPA evaluation.

NRC staff apparently also have considered the propriety of increasing the threshold concentration limit of TRU to 100 nCi/g. See the enclosed document entitled Evaluation of West Valley TRU and Waste Classification Limits (Evaluation).

Initially, the Evaluation suggests that 10 CFR Part 61 does not apply directly to waste at West Valley "since wastes resulting from the reprocessing of spent nuclear fuel were not analyzed as a part of the source term used in the Environmental Impact Statement (EIS) that provides the decision basis for 10 CFR Part 61."

The Evaluation goes on to state:

This is not to say that 100 nCi/gm may not be an acceptable concentration limit for the disposal of WVDP wastes. However, before NRC staff considers accepting a concentration limit other than 10 nCi/gm for transuranic radionuclides, DOE must conduct additional analyses to support its proposed use of any other concentration limit. This support should address: the specific physical, chemical and radiological properties of the WVDP wastes; the proposed methods of disposal; and the site conditions. The support should also provide reasonable assurance that DOE's disposal of the WVDP wastes will adequately contain the radionuclides to meet all of the performance objectives in 10 CFR Part 61.

In his letter of August 18, 1987 to DOE, Malcolm Knapp of the NRC validated this provision of the Evaluation. See enclosed copy of the letter.

The Evaluation describes in detail the types of analyses that would be appropriate for NRC review prior to any formal decision by NRC to increase the threshold concentration limits of TRU waste. DOE is prepared to perform these analyses in the context of the Phase II EIS and provide them to NRC.

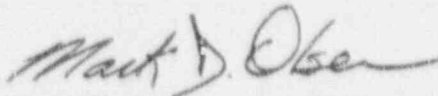
At our meeting on December 4, 1991, you indicated that rulemaking might be the most appropriate means to close the regulatory gap. We agree. Therefore, we would like to discuss the means by which DOE formally requests that NRC commence rulemaking procedures to increase, pursuant to provisions of the Act, the threshold concentration of TRU waste to 100 nCi/g. In future meetings, we may wish to discuss how the joint EIS, to which NRC is a participating agency, could be used to support NRC's rulemaking.

James R. Wolf, Esq.

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If you have any comments or would like additional information, please contact me at FTS 583-0277.

Sincerely,

A handwritten signature in cursive script that reads "Mark D. Olsen". The signature is written in dark ink and is positioned above the typed name.

Mark D. Olsen, Counsel
Office of Chief Counsel

cc: Hal Brodie
Dan Sullivan
Brett Bowhan