U.S. Department of Energy
Office of River Protection
P.O. Box 450
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03-ORP-009

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Mr. Michael A.Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
1315 W. Fourth Avenue
Kennewick, Washington 99336

Dear Mr. Wilson:

TECHNETIUM (Tc-99) REMOVAL IN THE HANFORD WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP)

Thank you for your letter dated January 15, 2003, regarding Tc-99 removal in the WTP. The U.S. Department of Energy (DOE) Office of River Protection (ORP) and the State of Washington Department of Ecology (Ecology) share a mutual interest in the protection of human health and the environment, and recognize that DOE exercises regulatory responsibility under the Atomic Energy Act of 1954 for the source, special nuclear, or byproduct materials components of radioactive mixed waste, including the Tc-99 contained in Hanford tank waste. My response to your letter is designed to respond to your concerns, improve your understanding of our forward path to eliminate Tc-99 removal from the WTP, and establish a basis for further dialogue.

Tc-99 is a fission product that resulted from the nuclear materials production at the Hanford Site. The total quantity of Tc-99 in the Hanford tanks is currently projected to be 25,500 curies (Ci) (adjusted from the Best Basis Inventory to account for past releases and materials transferred away from the Hanford Site), which represents less than 0.02 percent of the 190 million Ci total inventory of radioactive materials in the Hanford tanks. If Tc-99 removal is not performed in the WTP, the Tc-99 would remain at the Hanford Site in the Immobilized Low-Activity Waste (ILAW). We recognize the potential for long-term environmental impacts due to the mobile forms of Tc-99 in a groundwater pathway, and the need for public discussion of changes regarding the Hanford tank waste treatment and disposal approach. We will provide opportunities for public involvement through activities performed in accordance with the National Environmental Policy Act (NEPA) and other public outreach processes at Hanford. We remain committed to proposing compliant solutions that are protective of human health and the environment.

I have provided the following summary responses to your comments in the order they were presented in your letter:

Response to Ecology Comment Number 1:

Eliminating the Tc-99 removal from the WTP does not affect the current DOE Incidental Waste Determination that was reviewed by the Nuclear Regulatory Commission (NRC). The DOE Incidental Waste Determination did not assume removal of Tc-99 from the Hanford tank waste. DOE started a dialogue with the NRC in the 1980s regarding the treatment of Hanford tank waste. The result of this dialogue was a criterion of technically and economically practical waste processing, applied to separating radioactive materials of interest. In the latest NRC response to the Department (1997), the NRC stated that:

"To comply with this criterion, available separation technologies were identified for each of the main radionuclides of interest and individually evaluated to determine the status of the technology and the radionuclide removal efficiency. Three separation technologies were deemed both technically and economically practical. Currently, it is expected that all three will be used. The three technologies include (1) a simple solids-liquid separation, (2) removal of transuranics wastes from selected tanks, and (3) single-cycle ion exchange removal of cesium-137 from certain wastes." (Individual sections in this quote are underlined for emphasis.)

Please note that the Tc-99 inventory in Hanford tank waste is projected to be approximately 20 percent less than previously estimated. As part of our dialogue with the NRC, we will continue to provide the NRC updates on our plans, current information, and progress. Our continued dialogue with the NRC is designed to prevent divergence from our agreements with the NRC. In response to your concern regarding key radionuclides and the Nuclear Waste Policy Act (NWPA), the phrase "key radionuclides" is associated with DOE Manual 435.1-1, not the NWPA.

Response to Ecology Comment Number 2:

The Department will continue to assess environmental impacts and make final decisions regarding the Hanford tank waste treatment and disposal approach using the NEPA process. The Record of Decision (ROD) on the Tank Waste Remediation System (TWRS) Environmental Impact Statement (EIS) provides for a phased implementation alternative, in order to balance short- and long-term environmental impacts, meet regulatory requirements, address uncertainties, and provide the flexibility to accommodate future changes in our plans in response to new information and technology development.

New information has been learned since the TWRS EIS and ROD were completed. As DOE considers this new information, we will evaluate the analyses contained in the TWRS EIS and ROD. Should either or both of those documents require revision, DOE will prepare the required NEPA documentation.

ORP and the DOE Richland Operations Office have proposed to consolidate the ILAW and other Hanford radioactive waste disposal activities into the Hanford Solid Waste EIS. ORP has also issued a Notice of Intent for a supplemental EIS to address tank closure and alternative tank waste technologies; the scope of this latter EIS will include the disposal of the waste products from the alternative technologies. Both NEPA actions are designed to support informed decision-making and regulatory commitments for waste management activities at the Hanford Site.

Response to Ecology Comment Number 3:

ORP has raised the topic of time and points of compliance with Ecology to start a meaningful dialogue on this topic, and provided your staff with some bounding case information from our performance assessment work. We propose that decisions reached regarding the time and points-of-compliance should be part of a total solution that is protective of human health and the environment, consistent with the long-term stewardship and groundwater protection strategies that we have discussed for the Hanford Site, and based on short- and long-term impacts, technical practicality, and cost.

Average Tc-99 concentrations in the Hanford tank waste are within the levels used by the NRC in its regulations for disposal of LLW (10 Code of Federal Regulations Part 61). We propose to develop disposal system performance requirements for the ILAW (and Tc-99) based on an updated performance assessment for the disposal system and the Hanford Site. The performance assessment will be conducted for a performance period of sufficient duration to conform to applicable requirements and to establish peak contaminant levels to assure acceptable performance. Please note that the Tc-99 concentration is less than 50 percent of the Class A LLW concentration limit (Class A is the lowest LLW category).

Response to Ecology Comment Number 4:

Our initial estimates of cost savings to eliminate the Tc-99 removal are based on current WTP design information and operational plans; the initial capital cost savings are estimated at $30 million, with life-cycle cost savings estimated in the $100s of millions based on the unique chemical process to remove Tc-99 and operational costs. Our proposal is to eliminate the equipment only, and reserve the space within the pretreatment facility to install the Tc-99 removal equipment should it be required at a future date.

We are currently working with multiple vendors to develop engineering information for alternative technologies in parallel with the preparation of data packages for the EIS. In addition, we are developing an Integrated Mission Acceleration Plan for all Tank Farm and WTP activities. Once these products are completed, additional information on disposal system performance, short- and long-term impacts, and costs will be available.

We are not minimizing fundamental WTP capability or performance. The WTP performance is greater than the performance levels established in the contract, and will meet early our Hanford Federal Facility Agreement and Consent Order commitments of treating and immobilizing 10 percent by mass and 25 percent by activity in 2018. In addition, we are working with the Tank Farm and WTP contractors to increase and optimize feed delivery, treatment, and immobilization to continue to improve performance and reduce schedule. Our forward path to eliminate Tc-99 removal from the WTP stops equipment acquisition and installation, but retains the space within the WTP facilities to maintain the flexibility to add Tc-99 removal in the future if required.

Risk-based approaches were a key element of discussion throughout our Cleanup Challenges and Constraints ("C3T") dialogue last year. We are very concerned that your letter proposes to exclude risk-based approaches for future actions to treat and dispose of the Hanford tank waste. Each component of the Hanford tank waste cleanup strategy must be compliant, consider risk, and be protective of human health and the environment. Cleanup stewardship requires full consideration of performance, environmental impacts, and required resources as appropriate cleanup pathways are established.

We look forward to further dialogue on our path forward regarding eliminating the Tc-99 removal from the WTP. We plan to cover a number of topics, including point-of-compliance, time-of-compliance, performance requirements for ILAW waste product, required permit changes, assessments of any safety basis/environmental requirements, and assessments to Hanford Site-level performance assessment.

Please contact Mr. Leif Erickson, Deputy Manager, (509) 376-7272, to schedule a meeting to continue the dialogue.

Sincerely,

Roy J. Schepens
Manager

ORP:LE

cc: See page 5.

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