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STATE OF WASHINGTON

DEPARTMENT OF HEALTH

DIVISION OF RADIATION PROTECTION

Agricultural Center, Bldg. 5 • P.O. Box 47827 • Olympia, Washington 98504-7827

August 1, 1994

Mr. Steven H. Wisness, Acting Program Manager
Office of Environmental Assurance,
Permits, and Policy
Department of Energy
Richland Field Office
P. O. Box 550 MSIN A5-15
Richland, Washington 99352



Dear Mr. Wisness:

My staff and I have completed our initial review of the Notice of Construction (NOC) for the B Plant Vacuum Loader (referred to as the "Guzzler"). Based on the information provided in the NOC, we cannot approve this emission unit without changes and additional information.

We have determined that the potential-to-emit is greater than the figure provided in the NOC. A factor of $10E-3$ was used in the application for determining potential airborne radioactivity. In a traditional process, this is acceptable. However, in a vacuum system, like the Guzzler, the "vapor space" begins at the open vacuum hose. This results in all activity in the hose representing the "actual" source term, rather than the "potential" source term. There is no location in the system to apply the $10E-3$ release fraction. We have determined that the potential-to-emit, based on the source term provided, is greater than 0.1 mrem/year, resulting in the necessity for continuous monitoring and testable controls, as required in WAC 246-247. The basis for this decision was thoroughly discussed in a meeting with Steve Stites, of your staff, and Westinghouse Permitting staff on July 27, 1994.

A key question not addressed in the NOC was where or how the material collected in the vacuum system will be handled or disposed of safely. A verbal description of the process indicated that the material will be dumped as loose soil into an open burial ground. This seems to defeat the purpose of the extensive controls to avoid airborne radionuclides from the vacuum itself. This material represents a second

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source term that must be addressed in a modified NOC, along with maintenance of the contaminated systems in the truck when and if they are exposed to the air pathway.

The description of the source term in Section 2.2 needs back-up. We have little confidence in the numbers, as they are provided. A description of how the source term was derived is required. Additionally, the method described to ensure that the annual possession quantity is not exceeded is not adequate to actually perform its intended function. Simple surface surveys are inadequate for estimating beta emitters that are, or may be, partially shielded by soil. It would be very difficult to quantify annual quantities based on inefficient survey instrument readings. A better method must be described. This uncertainty alone is sufficient to require continuous monitoring, regardless of the potential-to-emit issue.

A better schematic diagram of the entire system is required, with reported efficiencies of all control devices, location of fans and monitoring devices. Section 4.2 will have to be rewritten to reflect the need for continuous monitoring. The Table 5 column on unabated doses will need to be recalculated.

No Best Available Radionuclide Control Technology assessment was provided. However, for this project, HEPAs are accepted as BARCT for particulates. In addition, the estimated lifetime of the unit was not included in the NOC, as required in Appendix A of WAC 246-247.

We welcome any questions on this issue, and will work with your staff to get the Guzzler approved as soon as is feasible. Please give me a call at (206) 586-0254.

Sincerely,



Allen W. Conklin, Head
Air Emissions and Defense Waste Section
Division of Radiation Protection

AWC/jr

cc: Rick Poeton, EPA
Dave Nylander, Ecology
T. R. Strong

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Subject: NOTICE OF CONSTRUCTION FOR THE B PLANT VACUUM LOADER

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