The Under Secretary of Energy
Washington, DC 20585

June 10, 1999

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue N. W.
Suite 700
Washington, D.C. 20004

Dear Mr. Chairman:

This is in response to your April 29, 1999, letter. I share your interest in ensuring appropriate radiation protection measures for detecting, controlling, and monitoring metal tritides and organically-bound tritium across the defense nuclear complex. Our ongoing efforts have been focused on resolving this issue at the Mound site to support work scheduled to begin in July 1999. Enclosure 1 provides the requested Department strategy on this matter, as it relates to Mound.

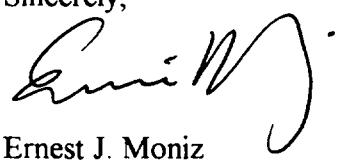
In parallel to ongoing efforts at Mound, the Department is evaluating radiation protection needs beyond Mound. Communications with the Radiological Control Coordinating Committee and the Tritium Focus Group indicate that no other site is conducting tritide operations on par with those at Mound. We plan to validate this information, and also identify the potential future need to work with stable metal tritides or organically bound tritium.

By September 30, 1999, the Department will provide an updated policy approach on radiation protection measures for metal tritides and organically-bound tritium. This approach will identify and describe any new requirements, guidance, or radiological control technical positions determined to be necessary, and provide a schedule for their publication. In addition, we will base this approach on a systematic determination of the extent of past, current, and planned Department of Energy operations involving metal tritides and organically-bound tritium compounds.

Enclosure 2 provides the Department's path forward for evaluating this issue throughout the complex and developing an updated technical approach. By July 1, 1999, we will take compensatory measures to remind Department of Energy sites of the possible presence of metal tritides, organically-bound tritium, and to inform the Department's sites of the current technical information available about these tritium compounds.

If you have any questions, please contact me or have your staff contact Mr. Rick Jones at (301) 903-6061 or Mr. Jay Thompson at (301) 903-2198.

Sincerely,



Ernest J. Moniz

Enclosures

Enclosure 1

Path Forward For Work With Stable Metal Tritides at Mound

Stable metal tritides (SMTs) have been handled, stored, and processed at Mound over the past thirty years, as a result of research and production campaigns that evaluated many exotic materials. Today's challenge is the Decontamination and Decommissioning (D&D) of the areas, gloveboxes, fumehoods, and ventilation systems potentially contaminated with legacy SMTs. Work in these areas is planned to start in July 1999. The D&D of tritium facilities is on the critical path for Mound closure.

The Department will focus on the following three areas: 1. Review of preparations by the Mound contractor, Babcock and Wilcox of Ohio (BWO), to carry on the work with SMTs, 2. DOE technical support to Mound in formulating the approach for work with SMTs, and 3. Oversight of readiness for work and of work progress at Mound.

1. Presently BWO is developing a characterization plan to identify the areas in which various SMTs may be encountered. The plan includes the extent of surveys, measurements performed, methods of analysis, and evaluation criteria. Technical basis for SMTs measurement and control are being developed to include various techniques for air monitoring, particle size distribution, variability associated with contamination survey methodology, entry conditions and protection criteria. Technical basis for internal dosimetry are also under development. As a first approximation, the dose conversion factors for the most restrictive forms of SMTs provided by the International Commission on Radiological Protection (ICRP) in Publication 71, is used. A BWO internal review of the SMT program is planned.

2. Because the ICRP recommendations are by definition generic and conservative, the dose per unit intake, as presented in ICRP 71 for tritium particulates is being reevaluated, to include new information on the self-absorption of the tritium beta particulates within the metal particle, bremsstrahlung production within the particle, particle size distribution, and tritium dissolution rates. This effort is based on research performed at Pacific Northwest National Laboratory and Lovelace Respiratory Research Institute. Funding the development of a real-time air monitoring system able to detect and quantify SMTs is under consideration. A special session at the June 1999 Annual Health Physics Society Meeting has been organized. This session, with international participation, will facilitate the peer review of the information used by Mound's approach in work with SMTs.

3. A comprehensive review of the readiness for work at Mound will be accomplished with participation of SMT experts and of other interested parties. During this work, periodic evaluations of lessons learned will be conducted. A tritium expert presently hired by DOE will supervise the work during the D&D of tritium facilities at Mound.

Enclosure 2

Evaluation of a DOE Corporate Need for Additional Guidance and/or Regulatory Changes to Address SMTs

The DOE will formally request information to identify if there are facilities, other than Mound, at which the potential exists for worker exposure to SMTs and organically-bound tritium. The DOE has already informally received feedback from the Radiological Control Coordinating Committee, Tritium Focus Group, and from the 1998 Bioassay Workshop that the Mound facility is the only facility with a current and time critical need to work with either SMTs or organically-bound tritium. To validate the information DOE has received to date, EM and DP will collect information on current and potential future need to work with either SMTs or organically-bound tritium. This information will be coordinated via Site/Project Managers. As a compensatory measure, the request for information will include a discussion of the radiation protection issues and provide guidance on the need to evaluate the radiation protection measures for individuals working with SMTs and organically-bound tritium. The letter will include a reference to information on dose conversion factors for SMTs and organically-bound tritium provided in International Commission on Radiological Protection Publication 71--*Age Dependent Doses to Members of the Public from Intake of Radionuclides*.

EM will also obtain input from the Tritium Focus Group. EH will assist with a similar request to the Radiological Control Coordinating Committee. EM will summarize the results from all these inputs by July 31, 1999.

The request for information will also request input concerning approaches taken at other sites (e.g., Los Alamos National Laboratory and Savannah River Site) in working with SMTs and organically-bound tritium. This information will also be compiled by EM and DP and will then be evaluated by EM, DP and EH to determine its applicability in developing guidance, technical positions or regulatory changes. This evaluation will be completed by August 31, 1999.

All of the information gained above, along with the lessons learned developed during the Mound work will be evaluated to determine if additional guidance, a technical position, or regulatory changes are needed. By September 30, 1999, the Department will provide an updated policy approach on radiation protection measures for metal tritides and organically-bound tritium. This approach will identify and describe any new requirements, guidance, radiological control technical positions determined to be necessary, and provide a schedule for their publication.