



recycle purposes. In this connection, you may wish to contact NRC- Office of International Programs for further information.

In reviewing the application, we found that some clarification and more information is needed to process your application to completion. Therefore, it is requested that you fully address the issues outlined below at your earliest convenience.

1. On, page S-2 of your registration application, you stated that the dimensions of the storage area were 10 ft. x 10 ft. x 14 ft., located within a larger area of 30,000 square feet. These dimensions and the air exchange rates in the storage areas and the warehouse appear to be identical to the information supplied in HESCO's application. Is this space intended to be a generic bounding model for analysis purposes, or does this representative an actual storage area ? Please clarify the basis of the physical dimensions and air exchange rates you used in your calculations.
2. In your dose calculation on page S-13, concerning the maximum credible accident, you assumed that there would be a 50% release of the maximum quantity authorized, 750 Curies of tritium. A persuasive argument can be made that any condition which may cause a 50% release, such as a severe fire, would likely cause a 100% release, (i.e gross failure of glass containment of sources at an elevated temperature). Subsequently in your calculations, you mitigate the total dose received with an assumption that only 2% of the tritium would be in a tritiated water form which would be available for ingestion and that the 98% of the tritium remaining in gaseous form would not be ingested. This assumption appears to be reasonable for a single device failure, but does not appear to be reasonable for the gross failure in a enclosed room situation postulated in your application.

The dose received is also dependent on the time spent in the airborne radiation space and particularly the storage space. A higher dose than you calculated could be achieved by the release of 10% of the tritium into the volume of the storage room, and personnel remaining in the room more than five times as long (more than five minutes). The occurrence of a smaller quantity, longer exposure time, scenario is more likely to occur since other factors (such as noxious gases or extreme heat) would not discourage personnel from remaining in the vicinity. Therefore, please demonstrate how the probability is negligible that a person would not receive an external radiation dose or dose commitment in excess of the dose to the appropriate organ as specified in Column IV of the Table 10 CFR 32.24.

If you have any questions, please contact me at (301) 415-7894 or by email at [USB@NRC.GOV.](mailto:USB@NRC.GOV), or William Ward at (301) 415-7038, or by email at [WRW1@NRC.GOV.](mailto:WRW1@NRC.GOV)

Sincerely,

Ujagar S. Bhachu, P. Eng., C. Eng., F. I. Mech. E.

**CC:** Ujagar Bhachu

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**Creation Date:** Tue, Dec 26, 2000 10:41 AM  
**From:** William Ward

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