UNIVERSITY OF
MARYLAND

United States Nuclear Regulatory Commission
One White Flint North MS 12G13
11555 Rockville Pike
Rockville, Maryland 20852-2738
ATTN: Marcus Voth

August 28, 2006

Enclosed please find the University of Maryland's response to the request for additional information as it pertains to questions 54 - 57 and question 65 regarding the Safety Analysis Report (SAR) for the Maryland University Training Reactor.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on August 28, 2006

[Signature] Mohamad Al-Sheikhly, Director
University of Maryland Training Reactor
License Number R-70, Docket number 50-166

A020
NRR

Rec'd DCD 5/27/10

13.0 ACCIDENT ANALYSIS

54. Section 13.2.1, Maximum Hypothetical Accident, page 13-2. What is the reference for the isotopic loading in one fuel element of the MUTR after an infinite operation at 250 kW?
Response:
The calculations were based on NUREG/CR2387 which assumed a 1Mw TRIGA reactor operated at 100% power for one full year or 365 MWd. This model assumed a 50 element core as opposed to the [redacted] element core present at the MUTR. To maintain a conservative estimation, the inventory of the element was de-rated by 75% to account for the MUTR maximum operation of 91.25 MWd but was not de-rated by the [redacted] reduction of inventory due to the number of fuel elements being [redacted] as opposed to 50.

55. Section 13.2.1, Maximum Hypothetical Accident, page 13-3. What is the basis for assuming a value of 0.01 for the atmospheric dispersion factor (x/Q)? What are the release pathways to the environment for the HMA? If the release point is elevated, has the possibility been examined that the highest dose may be from overhead cloud shine instead of cloud immersion?
Response:
The calculations were based on NUREG/CR2387 section "Fuel Handling Accident". This is the same value used in the NUREG.

56. Section 13.2.1, Maximum Hypothetical Accident, page 13-4. What is the basis for assuming a release fraction of 1x10 -6 for cesium and strontium?
Response:
The calculations were based on NUREG/CR2387 section "Fuel Handling Accident". This is the same value used in the NUREG.

57. Section 13.2.1, Maximum Hypothetical Accident, page 13-4. Are the fission product activities, listed in Tables 13.1 to 13.3, derived from NUREG/CR-2387?
Response:
The calculations were based on NUREG/CR2387 which assumed a 1Mw TRIGA reactor operated at 100% power for one full year or 365 MWd. This model assumed a 50 element core as opposed to the [redacted] element core present at the MUTR. To maintain a conservative estimation, the inventory of the element was de-rated by 75% to account for the MUTR maximum operation of 91.25 MWd but was not de-rated by the [redacted] reduction of inventory due to the number of fuel elements being [redacted] as opposed to 50.

65. Section 13.3, Summary and Conclusions, page 13-9. The conclusion of Chapter 13 contains a statement that if the ventilation system were to function as designed, actual doses would be significantly reduced. Please discuss further.
Response:
These scenarios were run assuming failure of confinement (that is the exhaust fans are running). If the exhaust fans are off, then the external dose is limited to what radiation penetrates the building plus what ever isotopes leak out of the non-air tight building (a far smaller amount than with the fans running).