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December 5, 2003

Docket 50-62

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United States Nuclear Regulatory Commission  
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One White Flint North  
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Rockville, Maryland 20852-2783

Attention: Mr. Daniel E. Hughes, Project Manager  
Operating Reactor Improvements Program

Subject: Request for Approval of Final Status Survey Plan coverage consistent with  
MARSSIM requirements for the University of Virginia Reactor (License R-66)

References: 1. Amendment No. 26 to Amended Facility Operating License No. R-66 for  
the University of Virginia Research Reactor, Docket 50-62  
2. Transmittal R. U. Mulder to D. E. Hughes, "Transmittal of the University  
of Virginia Reactor Decommissioning Project Master Final Status Plan, UVA-  
FS-002, Rev 0, March 2003" dated April 4, 2003  
3. Multi-Agency Radiation Survey and Site Investigation Manual  
(MARSSIM), Rev 1, August 2000

Dear Mr. Hughes,

The University of Virginia requests Approval of Final Status Survey Plan coverage consistent with MARSSIM requirements. Amendment 26 (Reference 1) to Amended Facility Operating License R-66 for the University of Virginia Reactor Facility includes approval of the Decommissioning Plan submitted by the licensee. Item 3.(4) b. of that Amendment stipulates changes to the Decommissioning Plan, which require Nuclear Regulatory Commission approval; one of the changes requiring regulatory approval - item (iv) - is "Reduce the coverage requirements for scan measurements". The scan coverage requirements, specified in Section 4.4.3 of the Decommissioning Plan, are 100% for Class 1 and Class 2 surfaces and 25% for Class 3 surfaces.

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As described in the *Multi-Agency Radiation Survey and Site Investigation Manual* (MARSSIM), Reference 4, scanning is used to identify locations within the survey unit that exceed the investigation level and the level of scanning effort should be proportional to the potential for finding areas of elevated activity. MARSSIM-recommended scan coverage (Table 5.9) is 100% for Class 1 surfaces, 10 to 100% (10 to 50% for upper walls and ceilings) for Class 2 surfaces, and "judgmental" for Class 3 surfaces. The level of scanning effort for Class 2 and Class 3 surfaces, specified in the Decommissioning Plan, is consistent with the most rigorous application of the MARSSIM recommendations. The *University of Virginia Reactor Decommissioning Project Master Final Status Plan*, Reference 2, proposes establishing a minimum scanning coverage, consistent with MARSSIM, during final status surveys of 25% for Class 2 surfaces and 10% for Class 3 surfaces.

The licensee believes that this lower level of scanning effort than that specified in the Decommissioning Plan is appropriate for the Class 2 and Class 3 surfaces of this facility for the following reasons:

- 1) Operating history indicates that radiological controls were effective in limiting contamination to areas of the facility identified as Class 1 for final status survey purposes.
- 2) At the start-up of the decommissioning efforts in April and May of 2002, baseline radiological surveys were conducted in accessible areas of the facility. These surveys were comprised of gamma scans, beta scans, measurements of total beta surface activity, measurements of removable alpha and beta surface activity, and measurements of direct dose rates throughout the building interior. Gamma scans were conducted over exterior site soil and paved surfaces, including areas of the roof adjacent to the reactor confinement structure. Although these surveys identified isolated locations of elevated direct gamma radiation in a few Class 2 and Class 3 areas, adjacent to Class 1 areas containing reactor components and systems and sealed or otherwise contained radioactive sources, contamination was not identified in the proposed Class 2 or Class 3 areas. These results confirmed the effectiveness of radiological controls in restricting contamination to designated areas.
- 3) Class 2 and Class 3 areas that could not be adequately evaluated during the baseline survey, due to their inaccessibility at this time or elevated direct radiation levels from adjacent sources, were surveyed later in the decommissioning effort as part of the continuing characterization activities. Examples included areas used for material storage (e.g., the Mezzanine Crawl Space) and upper surfaces of some rooms with floor and lower wall surfaces designated as Class 1 (e.g., Laboratory Rooms M005/5A and M008 and Reactor Room 131). These characterization surveys demonstrated that the proposed Class 2 and Class 3 surfaces had not been impacted by facility activities. These surveys also indicated that many Class 1 surfaces were not impacted to the extent initially estimated.
- 4) During the decommissioning activities, radiological control surveys were performed to assure that remediation efforts did not result in spread of contamination to adjacent areas. Routine weekly smear surveys were also performed in traffic areas throughout the facility. These surveys did not identify any impact of decommissioning activities on Class 2 or Class 3 areas.

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Based on these findings, the Licensee is of the opinion that a lower level of scanning effort than that specified in the Decommissioning Plan is justified. An amendment to the Decommissioning Plan, establishing a minimum scanning coverage, during final status surveys of 25% for Class 2 surfaces and 10% for Class 3 surfaces is therefore requested. This level of scanning effort is consistent with the potential for contamination in such areas, as demonstrated by the operating history and previous and recent radiological monitoring, and satisfies the guidance and recommendations of MARSSIM.

This request has been reviewed and approved by the University's Reactor Decommissioning Committee for submittal requesting approval by the Nuclear Regulatory Commission. If you have any questions please contact me at 434-982-5440.

Sincerely,



Paul Benneche  
Reactor Director  
University of Virginia

*I certify under penalty of perjury that the  
forgoing is true and correct.*



Paul E. Benneche, 12/05/03



Ralph Allen, Chair Reactor Decommissioning Committee  
University of Virginia

cc: Stephen Holmes, NRC