

November 2, 2000

Dr. Robert U. Mulder, Director  
Nuclear Reactor Facility  
University of Virginia  
P.O. Box 400322  
Charlottesville, VA 22904-4322

SUBJECT: UNIVERSITY OF VIRGINIA - REQUEST FOR ADDITIONAL INFORMATION  
RE: DECOMMISSIONING AMENDMENT REQUEST (TAC NO. MA8186)

Dear Dr. Mulder:

We are continuing our review of your decommissioning amendment request for Facility Operating License No. R-66 for the University of Virginia Reactor that you submitted on February 9, 2000, as supplemented on April 26, 2000. During our review of your amendment request, questions have arisen for which we require additional information and clarification. Please provide responses to the enclosed request for additional information within sixty days of the date of this letter. In accordance with 10 CFR 50.30(b), your response must be executed in a signed original under oath or affirmation. Following receipt of the additional information, we will continue our evaluation of your amendment request.

If you have any questions regarding this review, please contact me at (301) 415-1127.

Sincerely,

*/RA/*

Alexander Adams, Jr., Senior Project Manager  
Events Assessment, Generic Communications and  
Non-Power Reactors Branch  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No. 50-62

Enclosures: Request for additional information with 2 attachments

1. Surveys of Wastes Before  
Disposal From Nuclear  
Reactor Facilities
2. Control of Radioactively  
Contaminated Material

cc w/enclosures:  
Please see next page

University of Virginia

Docket Nos. 50-62/396

cc:

Department of Environmental Quality  
Office of Grants  
Management/Intergovernmental Affairs  
629 East Main Street, Sixth Floor  
Richmond, VA 23219

Dr. William Vernetson  
Director of Nuclear Facilities  
Department of Nuclear Engineering  
Sciences  
University of Florida  
202 Nuclear Sciences Center  
Gainesville, FL 32611

Office of the Attorney General  
101 North 8<sup>th</sup> Street  
Richmond, VA 23219

Virginia Department of Health  
Radiological Health Program  
P.O. Box 2448  
Richmond, VA 23218

Dr. Ralph O. Allen, Chairman  
Reactor Decommissioning Committee  
University of Virginia  
Environmental Health and Safety  
P.O. Box 3425  
Charlottesville, VA 22904

Mr. Paul E. Benneche, Supervisor  
Nuclear Reactor Facility  
Environmental Health and Safety  
University of Virginia  
P.O. Box 400322  
Charlottesville VA 22904-4322

November 2, 2000

Dr. Robert U. Mulder, Director  
Nuclear Reactor Facility  
University of Virginia  
P.O. Box 400322  
Charlottesville, VA 22904-4322

SUBJECT: UNIVERSITY OF VIRGINIA - REQUEST FOR ADDITIONAL INFORMATION  
RE: DECOMMISSIONING AMENDMENT REQUEST (TAC NO. MA8186)

Dear Dr. Mulder:

We are continuing our review of your decommissioning amendment request for Facility Operating License No. R-66 for the University of Virginia Reactor that you submitted on February 9, 2000, as supplemented on April 26, 2000. During our review of your amendment request, questions have arisen for which we require additional information and clarification. Please provide responses to the enclosed request for additional information within sixty days of the date of this letter. In accordance with 10 CFR 50.30(b), your response must be executed in a signed original under oath or affirmation. Following receipt of the additional information, we will continue our evaluation of your amendment request.

If you have any questions regarding this review, please contact me at (301) 415-1127.

Sincerely,

*/RA/*

Alexander Adams, Jr., Senior Project Manager  
Events Assessment, Generic Communications and  
Non-Power Reactors Branch  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No. 50-62

Enclosures: Request for additional information with 2 attachments

1. Surveys of Wastes Before Disposal From Nuclear Reactor Facilities
2. Control of Radioactively Contaminated Material

cc w/enclosures:  
Please see next page

**DISTRIBUTION:**

PUBLIC	REXB r/f	PDoyle	TDragoun
MMendonca	AAdams	TMichaels	LMarsh
OGC	EHylton	SHolmes	CBassett
DMatthews	WEresian	Plsaac	

ACCESSION NO: ML003763767  
ENCLOSURE ACCESSION NO: ML003763638

TEMPLATE #: NRR-065  
PACKAGE NO. ML003766069

OFFICE	REXB:LA	REXB:PM	REXB:BC
NAME	EHylton:rd	AAdams	LMarsh
DATE	10/31/2000	11/01/2000	11/01/2000

C = COVER

E = COVER & ENCLOSURE  
OFFICIAL RECORD COPY

N = NO COPY

REQUEST FOR ADDITIONAL INFORMATION  
UNIVERSITY OF VIRGINIA RESEARCH REACTOR  
DOCKET NO. 50-62

1. Section 1.2, "Background," Page 1-10. Is the pond included in the category of site environs? If not, please explain.
2. Section 1.2, "Background," Page 1-10. A number of rooms are not included in the scope of the Decommissioning Plan (DP). What is the basis for not including these rooms in the scope?
3. Section 1.2.1.5, "Reactor Decommissioning Overview," Page 1-12. It is stated that onsite interim storage of the waste is an option if there is no licensed disposal facility available. Please discuss all aspects of that storage (i.e. Where will it be? How will it be monitored and controlled?).
4. Section 1.2.4.1, "Quality Assurance Responsibilities," Page 1-15. This section contains a statement that the contractor has overall responsibility for the QA Plan implementation and is responsible for verifying the effective implementation of the plan. Please confirm that as licensee UVA has ultimate responsibility for the QA Plan implementation and is responsible for verifying the effective implementation of the plan.
5. Section 1.2.4.2, "Instrument Calibration," page 1-15. This section discusses calibration requirements for field instruments, associated detectors, and laboratory instruments. Should these surveillances be included in the Technical Specifications (TSs)? If not, please justify.
6. Section 1.2.4.2, "Instrument Calibration," Page 1-15. Is the "LLD < 50% of the release limits" a QA requirement?
7. Section 1.2.4.3, "Sample Analysis," Page 1-17. Please confirm that UVA has ultimate responsibility for ensuring that the sample analysis specifications and laboratory capabilities will meet requirements for data quality.
8. Section 2.2.1, "Facility Operating History," Page 2-2. Identify all locations, inside and outside the facility, where radiological spills, disposals, operational activities, or other radiological accidents/incidents occurred and could have resulted in contamination of structures, equipment, laydown areas, or soils (subfloor and outside area). Please give a brief description of the radiological spills, disposals, operational activities, or other radiological accidents/incidents that were considered.
9. Section 2.3.1.1.3, "Decontamination of the Facility," Page 2-5. It is stated that neutron activation is not expected in the surrounding soil volumes. Please list the references and experiences that were used as the bases of that determination.
10. Section 2.3.1.1.3.2, "Reactor and Pool," Page 2-8. The reactor pool had a history of leaks. Please discuss how leakage paths will be handled during decommissioning activities.

Enclosure

11. Section 2.3.1.1.3.5, "Outdoor Areas, Drains & Sewers," Page 2-10. This statement does not appear to be consistent with the information presented in Appendix A, Summary of Characterization Results, pages A-3 through A-6 which indicate areas of elevated activity. Please review, explain, and amend as necessary.
12. Section 2.3.1.2, "Dismantling Sequence," Page 2-11. The statement that the control rods are expected to have the highest levels of induced radioactivity does not appear to be consistent with section 2.2.2.2 on page 2-2. Please review, explain, and amend as necessary.
13. Section 2.3.1.2, "Dismantling Sequence," Pages 2-11 to 2-13. This section discusses setting up a confinement barrier to surround the reactor pool with a ventilation system to ensure a negative pressure, maintaining the Reactor Room at a negative pressure when necessary, and the continuous monitoring of radiation levels. Please propose TSs or discuss why these requirements need not be TSs.
14. Section 2.3.1.2, "Dismantling Sequence," Page 2-13. The plan states that the pool will be backfilled and capped with a concrete slab and the hole from excavating the waste tanks will be backfilled. Please confirm that these activities will occur after these areas are released for unrestricted use by NRC.
15. Section 2.3.1.2, "Dismantling Sequence," Page 2-13. Please discuss how the exposed condition of the pool pit will be maintained for the 3 to 4 months (approximate time from Figure 2-3) between remediation and the final release survey.
16. Section 2.3.1.2, "Dismantling Sequence," Page 2-14. Please discuss how the exposed condition of the buried tank area will be maintained after remediation until the final release survey. Please discuss the remediation of the Pond. When is it scheduled?
17. Section 2.4, "Decommissioning Organization and Responsibilities," Page 2-15. Please discuss the responsibilities and authority of the Radiation Safety Officer during decommissioning.
18. Section 2.4.1, "Contractor Assistance," Page 2-15.

If a contractor(s) has been selected:

Please show the organization structure of the contractor(s).

Please list the key positions in the organization and specify the responsibilities and authority of the person in that position.

Please discuss the qualifications and experience of the contractor(s).

If a contractor has not been selected:

Please specify the minimum qualifications and experience that a contractor must meet to be acceptable.

19. Section 2.4.1, "Contractor Assistance," Page 2-15. If the decommissioning contractor is not GTS Duratek and Merrimac confirm that the Xtreme PM<sup>SM</sup> System will be available for use by UVAR and the selected decommissioning contractor. If not, what process will be used to perform the functions of the System?
20. Section 2.4.1, "Contractor Assistance," Page 2-15. Please discuss how it is assured that the Xtreme PM<sup>SM</sup> System is used effectively and accurately during the decommissioning. What position has the responsibility for its effective and accurate use?
21. Section 2.4.3, "Reactor Supervisor," Page 2-19. The minimum qualifications for the reactor supervisor position differ from those in the TSs. Please address.
22. Section 2.4.4, "Radiation Safety Officer," Page 2-19. Should the minimum qualifications and duties of the RSO be described in the TS? If not, please justify.
23. Section 2.5, "Training Program," Page 2-19. Please specify the qualifications of the training instructors.
24. Section 2.5, "Training Program," Page 2-19. Please discuss details of the training provided for the users and reviewers of the Xtreme PM<sup>SM</sup> System.
25. Section 2.5.2, "Radiation Worker Training," Page 2-20. Please discuss the scope of ALARA program training.
26. Section 2.7, "Facility Release Criteria," Page 2-22. You have identified isotopes as being present on site beyond those listed in Table 2-6. Please address.
27. Section 3.1.1, "Ensuring As Low As Reasonably Achievable (ALARA) Radiation Exposures," Page 3-1. 10 CFR 20.1402 contains a requirement that residual radioactivity be reduced to levels that are ALARA. Please discuss how you plan to show compliance with this part of the regulation.
28. Section 3.1.3, "Radioactive Materials Controls," Page 3-13. The NRC standard for the release of materials as clean waste is no detectable activity. Please review the information in IE Circular 81-07, "Control of Radioactively Contaminated Material," May 14, 1981, and IE Information Notice 85-92, "Survey of Wastes Before Disposal From Nuclear Reactor Facilities," December 2, 1985 (attached). Your proposed values based on license termination screening values are too high.
29. Section 3.1.4, "Dose Estimate," Page 3-14. Please discuss how the task-specific dose estimates shown on Table 3-2 were calculated.
30. Section 3.2.2, "Radioactive Waste Disposal," Page 3-17. This section of the DP discusses a UVA approved Project-Specific Quality Assurance Plan. Is this plan written to meet the requirements of 10 CFR Part 71, Subpart H? If so, has it been submitted to NRC for approval?

31. Section 3.4, "Radiological Accident Analysis," Page 3-19. Please discuss the specific contractor experience referred to as justification for classifying handling accidents as low risk. Could activated and/or contaminated components be dropped during handling resulting in an airborne release? If so, please analyze this event. Please justify the statement that the radiological hazard resulting from a fire would be minimal.
32. Section 4.2, "Background Survey Results," Page 4-2. Please discuss the "activities of other licensees" considered as possible sources contributing to man-made background radiation.
33. Section 4.0, "Proposed Final Radiation Survey Plan," Pages 4-1 through 4-6. Please provide more detail of the proposed Final Status Survey Plan.
  - a. Provide plots, diagrams, and facility layout drawings to illustrate the classification of the survey units. For each type of survey unit, discuss unit sizes, grid spacing, scan area selection (when less than 100%), and static measurement number, location, and spacing.
  - b. Please discuss facility history, characterization survey results, and evaluations to support the classification of the survey units.
  - c. Please list and discuss the proposed DCGLs and how they were selected. If DandD was used to estimate the DCGLs please provide a copy of the DandD report which shows the version used. Please discuss the input parameters used and justification for using those parameters. If other modeling software was used to develop site-specific DCGLs, please discuss the use of that software. What pathway scenario was used? Please show how the DCGLs meet the 10 CFR 20.1402 dose limits. Were surrogate ratio DCGLs used to develop DCGLs for "hard-to-detect" radionuclides? If so, please discuss. If you developed any gross activity DCGLs or elevated measurement comparison DCGLs, please discuss.
  - d. Please discuss the method which will be used to reclassify a survey unit.
  - e. Please discuss how changes in the proposed final survey will be made.
  - f. Please provide a description of the access control procedures to prevent recontamination of clean areas.
  - g. Please discuss the assessment of your survey data including statistical tests and data conclusions.
34. Section 4.5.1, "Laboratory/Radiological Measurements Quality Assurance," Page 4-7. Please discuss the development of the QA Approved Suppliers List. What position is responsible for its maintenance?
35. TS 6.2.A.2 (1), Page 41. Please discuss the role of the ex-officio members of the Radiation Safety Committee.

36. Environmental Report, Section 1.0, "Purpose and Need for Action," Page B-4. Please describe the need for the action of approving a decommissioning amendment for the University of Virginia Research Reactor. Why is the University asking for the amendment?
37. Environmental Report, Section 2.2, "Proposed Action and Alternatives," Page B-12. Please discuss the environmental impact of a proposed action of taking no action.
38. Environmental Report, Section 3.2.4, "Biology," Page B-26. Are there any endangered or threatened Federal or State species on site? What is the basis for your conclusion?
39. Environmental Report, Section 4.1.2, "Potential Exposures," Page B-28. What are the potential exposures to the decommissioning staff and the public from potential accidents?
40. Environmental Report, Section 4.2.3, "Non-Hazardous Solid Waste," Page B-30. Please estimate the volume of construction debris that will be sent to the local sanitary landfill.