

September 29, 1998

SCHOOL OF  
ENGINEERING & APPLIED SCIENCE



DEPARTMENT OF MECHANICAL, AEROSPACE  
AND NUCLEAR ENGINEERING

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Subject: Proposed Set of Amendments to UVAR Technical Specifications (TS); University of Virginia Reactor, Docket No 50-62, License R-66.

Dear Mr. Adams:

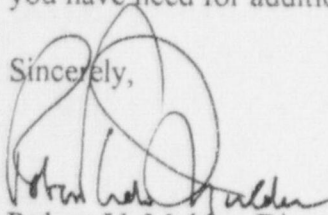
Enclosed please find a series of proposed amendments to UVAR Technical Specifications. These changes are being requested to permit the evolution of the status of the UVAR from an operational facility to one that has been permanently shut down in preparation for decommissioning.

As was previously communicated to the NRC, the University of Virginia Reactor was operated at power for the last time on June 30, 1998. Currently all reactor fuel elements have been unloaded from the gridplate and spent fuel shipments to Savannah River are in an advanced stage of preparation. Given these developments, a number of TS changes are needed in short order to relieve the reactor staff from surveillance and other license requirements which either are no longer possible or necessary. Additional amendment requests address changes the University wishes to make to Reactor Facility administrative controls.

Details concerning these amendments are presented in the enclosures. Please find in attachment a listing of and justifications for the proposed changes, together with a charter for the new UVAR Decommissioning Committee and a copy of the desired UVAR TS should they be amended as requested. Please contact me at (804) 982-5440 or by e-mail sent to [rum@Virginia.EDU](mailto:rum@Virginia.EDU) should you have need for additional information.

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A020

Sincerely,

  
Robert U. Mulder, Director  
U.Va. Reactor Facility &  
Assoc. Prof. of Nuclear Eng.

City/County of Albemarle  
Commonwealth of Virginia

I hereby certify that the attached document is a true and exact copy of a letter, presented before

me this 29<sup>th</sup> day of Sept, 1998  
by Robert Mulder

  
Vickie J. Thomas  
Notary Public

cc: Mr. Craig Basset, NRC Region II, Atlanta, Ga.  
Document Control Desk, NRC, Washington DC ✓

My commission expires 2/28 19 2002

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# LISTING OF AND JUSTIFICATIONS FOR PROPOSED CHANGES TO UVAR TECHNICAL SPECIFICATIONS

## Definitions Section of UVAR TS

It is proposed that four new definitions be added to the UVAR Technical Specifications (TS) to support present and future changes to the TS expected to be related to UVAR permanent shutdown, decontamination and decommissioning. The proposed TS changes are expressed in bold italic print immediately below:

*Note: Definitions have been added to Section 1 (in bold and italic print) for use during the time the reactor is permanently shutdown and subject to or in the process of decommissioning.*

*Decommissioning: Decommissioning means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits: (1) release of the property for unrestricted use and termination of the license; or (2) release of the property under restricted conditions and termination of the license (10CFR50.2). Decommissioning does not include storage or removal of fuel, or non-radiological demolition activities.*

*Decontamination: Decontamination are the activities employed to reduce the levels of radioactive and/or hazardous contamination in or on material, structures and equipment.*

*Reactor Facility: Reactor Facility refers to the immediate site-area surrounding and including the reactor building which houses the University of Virginia Reactor (UVAR). The site boundary is demarcated by a chain link fence and gates.*

*Permanent Reactor Shutdown: A reactor is in a permanent shutdown state when all reactor fuel elements have been removed from the reactor gridplate and an administrative order is in place to prevent a reloading of the core.*

## Justification:

The definition for "decommissioning" is a standard definition taken from NRC regulations. The definition for "decontamination" is in common use. The definition for "Reactor Facility" codifies the historical use of that phrase which had not previously been defined formally. The concept of "permanent reactor shutdown" is used in the proposed TS changes and needed definition.

## Cobalt-60 Facility

The Cobalt-60 facility heretofore has been used and stored in the UVAR pool. Eventually the reactor pool will have to be drained, in which case the cobalt first should be removed from the pool for dry storage in shielded containers or in a shielded location, as appropriate. It is anticipated that the cobalt will be held by U.Va. for decay until it is shipped offsite as waste at some future time. Once removed from the UVAR pool, the cobalt will not be used in experiments under the UVAR license; rather, it will be held for decay and eventual disposal. The modifications to the present TS shown below in bold italic print would permit removal of the cobalt from the pool for shielded storage.

### 3.6.6. Cobalt Facility

The Co-60 rods possessed under the UVAR Operating License *when* used and stored in the UVAR pool *shall be* at distances greater than 5 feet from the operating UVAR reactor. Gamma irradiation facilities utilizing the Co-60 rods shall be designed to prevent physical damage to the Co-60 rods. *When the Co-60 rods are in the pool*, UVAR pool water samples shall be subjected to gamma spectroscopy for the presence of Co-60 on a monthly frequency, (interval not to exceed six weeks) to assure that substantial leakage of Co-60 from the rods to reactor pool water does not occur.

Bases: (TS 3.6.1 - 3.6.5) The limitations on experiments specified in TS 3.6.1 through TS 3.6.5 are based on the irradiation program authorized by Amendment No. 3 to License No. R-66 dated August 13, 1962. The reactivity of less than 0.13\$ that can be inserted or removed with the reactor in operation is to accommodate experiments in the rabbits.

(Co-60 Facility) *When the Co-60 rods are in the UVAR pool they shall* be kept a safe distance away from the UVAR reactor when it is operated, to avoid neutron activation and possible failure of the rod cladding, which may result in leakage of Co-60 to the reactor pool water. The Co-60 rods and the gamma irradiation facilities in which they are used will not be used in conjunction with the UVAR.

The monthly reactor pool water sampling frequency, adopted to monitor possible Co-60 leakage from the rods, is the same as that used in the U.S. AEC Safety Evaluation that was performed for these rods by the Division of Reactor Licensing on August 4, 1971. This is a reasonable frequency, for the most likely damage to the rods would be caused by cladding corrosion leading to pin holes. Co-60 leakage under these circumstances would proceed very slowly, into a large pool of water. Therefore, a monthly water sampling and analysis frequency should be adequate to indicate contamination levels before they become significant. *UVAR poolwater need not be sampled and analyzed for Co-60 leakage if all rods have been removed from the pool.*

## Emergency Decay Heat Removal Tanks

The justification for the change (deletion) of TS 3.10 is self-documented in the proposed text.

### 3.10. Emergency Removal of Decay Heat

*This TS has been deleted because the reactor core has been permanently unloaded. The emergency decay heat removal system is designed to only cool elements located on the gridplate. As fuel will never be placed on the gridplate again, this TS is no longer needed.*

## UVAR Primary Coolant

It is proposed that TS 3.11 not be applicable following removal of the Cobalt-60 facility and all UVAR fuel from the pool because its purpose then will no longer exist. The basis for this TS has been expanded to justify the change in applicability.

### 3.11. Primary Coolant Condition

Applicability: *Technical Specification 3.11 applies until all reactor fuel elements and Co-60 pins have been removed from the UVAR pool. Following their removal, TS 3.11 is not applicable during the permanent shutdown and decommissioning period. A substitute TS for this period is unnecessary.* This specification applies to the quality of the primary coolant in contact with the fuel cladding.

Objectives: The objectives are (1) to minimize the possibility for corrosion of the cladding on the fuel elements and (2) to minimize neutron activation of dissolved materials.

#### Specifications:

##### 3.11.1. Conductivity

Conductivity of the pool water shall be no higher than  $5 \times 10^{-6}$  mhos/cm.

##### 3.11.2. Water pH

The pH of the poolwater shall be between 5.0 and 7.5.

Bases: A small rate of corrosion continuously occurs in a water-metal system. To limit this rate, and thereby extend the longevity and integrity of the fuel cladding, a water cleanup system is required. Experience with water quality control at many reactor facilities has shown that maintenance within the specified limits provides acceptable control.

By limiting the concentrations of dissolved materials in the water, the radioactivity of neutron activation products is limited. This is consistent with the as low as is reasonably achievable (ALARA) principle, and tends to decrease the inventory of radionuclides in the entire coolant system, which will decrease personnel exposures during maintenance and operations.

*Following removal of all fuel elements and Co-60 pins from the pool, fuel cladding and Co-60 pin jacket corrosion due to improper poolwater conditions is no longer possible. Also, activation of dissolved minerals in the poolwater cannot occur if the reactor does not operate. Consequently, primary water quality conditions can be relaxed and need not be specified in the Technical Specifications once all fuel element and cobalt pins are removed from the pool.*

#### Surveillance Requirements

It is proposed that TS 4.1 through TS 4.9 be deleted, with the adoption of the following text to self-document and justify the deletions:

#### 4.0. SURVEILLANCE REQUIREMENTS

*TS 4.1 through 4.3 and TS 4.5 through 4.9 have all been deleted. The justification for each deletion is given below. TS 4.4 has been modified with respect to its applicability.*

- 4.1 *This TS has been deleted because surveillance requirements on shim rod operation, rod drop times, reactivity measurements and rod physical condition are not possible, necessary nor appropriate if the reactor has been permanently and completely unloaded from the core gridplate.*
- 4.2 *This TS has been deleted because a reactor safety system only is necessary for an operating or operable reactor. Safety system channel tests, checks, calibrations, and a core heat balance are not possible, necessary nor appropriate if the reactor has been permanently and completely unloaded from the core gridplate.*
- 4.3 *This TS has been deleted because the emergency core spray system does not need to be checked and its flow rate measured if the reactor has been permanently and completely unloaded from the core gridplate.*
- 4.4 *The wording as to the applicability of this TS has been changed to recognize that once the reactor fuel has been completely removed from the Facility, and the Co-60 pins are no longer stored in the UVAR pool, an area radiation monitoring system will no longer be needed because it will then be impossible to generate very high radiation levels.*
- 4.5 *This TS has been deleted because maintenance and surveillance of reactor control or safety systems is not possible, necessary or appropriate if the reactor has been permanently and completely unloaded from the core gridplate.*
- 4.6 *This TS has been deleted because surveillance of the reactor room closure equipment operability is not necessary or appropriate if the reactor has been permanently shut down and completely unloaded from the core gridplate. Fueled experiments cannot be run, and the fission product levels in the fuel are far below the levels in an operating reactor.*

- 4.7 *This TS has been deleted because surveillance of the airborne effluent monitor of the ventilation duct from the ground floor experimental area is not necessary or appropriate with the reactor permanently and completely defuelled. No experiments producing airborne effluents in association with the reactor can be run.*
- 4.8 *This TS has been deleted because primary coolant condition requirements are set in TS 3.11, and those requirements will remain only until all fuel elements have been removed from the pool. The surveillance frequency of coolant quality conditions is appropriately addressed in UVAR SOPs.*
- 4.9 *This TS has been deleted because secondary system coolant surveillance is not possible or needed if the reactor is permanently shut down. The surveillance relies on the regular production of Na-24 in the primary coolant by an operating reactor. At this time, all Na-24 has decayed away. Also, with the reactor shutdown a leak in the heat exchanger would result in secondary coolant flow into the primary coolant, and not the other way around as is the case when the reactor is being operated with the primary coolant pump on.*

#### Area Radiation Monitoring Equipment

It is proposed that the applicability section of TS 4.4 be amended as shown below. Now that the UVAR fuel elements have been unloaded permanently, only the bridge radiation monitor of the area radiation monitoring equipment will still be useful during the removal of Co-60 pins from the pool and for the shipment of UVAR fuel. There will be no further use for the bridge radiation monitor once these radiation sources are gone,

#### 4.4. Area Radiation Monitoring Equipment

Applicability: TS 4.4 applies to the bridge radiation monitor referenced in Table 3.1. This TS will cease to apply once all UVAR fuel elements have been removed from the Reactor Facility and all Co-60 pins have been taken from the UVAR pool for shielded storage elsewhere.

#### UVAR Confinement

It is proposed that TS 5.2 be deleted, with the adoption of the following text to self-document and justify the deletion:

#### 5.2. Reactor Building

*TS 5.2 has been deleted, for the specifications on confinement, ventilation and reactor room free volume have been required to restrict leakage of radionuclides produced during reactor operation at power. The UVAR is no longer operated.*

## UVAR Fuel Use and Storage

It is proposed that the applicability of TS 5.3 be amended, with the adoption of the text shown below which will cover the period before and after completion of spent reactor fuel shipments. Following shipment of the reactor fuel NRC permission is needed for the possession of small amounts of plutonium on-site under the UVAR license which is in the form of start-up sources, sources, irradiation targets, flux foils and fission chambers.

### 5.3. Fuel Use and Storage

Applicability: *With the exception of Technical Specification 5.3.2, TS 5.3 applies until all reactor fuel elements have been removed from the UVAR Facility. Following their removal, TS 5.3 is not applicable during the permanent shutdown and decommissioning period. A substitute for TS 5.3.2 for this period, TS 5.3.2.A., is presented.* The specifications below apply to University of Virginia Reactor fuel used and/or stored at the University of Virginia Reactor Facility.

#### 5.3.2.A. Plutonium Possession Limit

Applicability: *TS 5.3.2.A. is applicable during the period following the removal of all reactor fuel elements from the Reactor Facility.*

*All plutonium present in start-up sources, sources, irradiation targets, flux foils and fission chambers may be possessed and used.*

## Changes to Facility Administration

It is proposed that TS 6 be amended as suggested below to take into account new changes in administrative controls desired by the university. These changes are necessary now that the UVAR has been permanently shutdown and the university prepares for its decommissioning. During the pre- and decommissioning periods, additional university administrators will be assigned roles and responsibilities as described below. The roles of the reactor staff, reactor director and the Reactor Safety Committee need to be modified as the preparatory steps for decommissioning are completed. For example, administrative functions related to an operational or operating reactor are no longer relevant with the reactor in permanent shutdown. (Obs: Safety limits cannot be exceeded with the UVAR in permanent shutdown.) Other functions related to reactor safety will cease once all reactor fuel has been shipped off-site.

## 6.0. ADMINISTRATIVE CONTROLS

## 6.1. Organization

Applicability: The specifications listed below in TS 6.1.1 through TS 6.1.4. apply to the organizational structure of the University of Virginia as it relates to the *activities conducted at the Reactor Facility during the permanent shutdown and decommissioning period.*

Objective: The objective is to describe the chain of command having responsibility for the *safe shutdown, defueling, decontamination and decommissioning* of the Reactor Facility. At the various administration levels, the functions, assignments, responsibilities and associated professional background, training and requalification requirements are listed, as applicable.

Specifications:

### 6.1.1. Structure

The Reactor Facility shall be an integral part of the University of Virginia. The organizational structure of U.Va. relating to the Reactor Facility is shown in Figure 6.1. *The Vice President for Research and Public Service (Level 1) shall have overall responsibility for management of the Facility.*

The UVAR Decommissioning Committee *Chair (Level 2)* shall be responsible for advising the *Vice President for Research and Public Service (Level 1)* on all matters pertaining to the decommissioning and decontamination of the University of Virginia Reactor Facility. The committee members shall be appointed by the U.Va. Provost and may include reactor *staff* from Levels 2 and 3 and employees from the Office of Environmental Health and Safety. The Chair of the UVAR Decommissioning Committee also serves as the Director of the Office of Environmental Health and Safety and as Chair of the Radiation Safety Committee.

### 6.1.2. Responsibility

*During the UVAR permanent shutdown and decommissioning period, the Chairman of the Reactor Decommissioning Committee (Level 2) shall be responsible for the direction of decommissioning activities at the Reactor Facility.*

*The Reactor Director shall be responsible for the overall facility operation (Level 2). After permanent shutdown of the reactor, the Reactor Director shall also assist the DC Chairman. During periods when the Reactor Facility Director (Level 2) is absent, the Director's responsibilities are automatically delegated to the Reactor Supervisor (Level 3).*

The Reactor Facility Director shall have at least a bachelor's degree in science or engineering and have a minimum of 5 years of experience in the nuclear field. A graduate degree may fulfill 4 years of experience on a one-for-one time basis.

*The Reactor Supervisor shall be responsible for the day-to-day activities at the UVAR and ensuring that these are conducted in a safe manner and within the limits prescribed by the facility license. During periods when the Reactor Supervisor is absent, his responsibilities are delegated to a person holding a Senior Reactor Operator license (Level 4).*

A Reactor Supervisor shall have the equivalent of a bachelor's degree in science or engineering and



have at least 2 years of experience in Reactor Operations at this facility, or an equivalent facility, or at least 6 years of experience in Reactor Operations. Equivalent education or experience may be substituted for a degree. Within nine months after being assigned to the position, the Reactor Supervisor shall obtain and maintain an *NRC Senior Reactor Operator license if reactor fuel is still at the Facility, or an NRC Reactor Operator license if all reactor fuel has been shipped offsite.*

#### 6.1.3. Staffing

*A licensed Senior Reactor Operator shall supervise any movement of reactor fuel. One or more health physicists, organizationally independent of the Reactor Staff as shown in Figure 6.1, shall be responsible for radiological safety at the Reactor Facility.*

#### 6.1.4. Selection and Training of Personnel

The selection, training and requalification of personnel shall *follow* the American National Standard for Selection and Training of Personnel for Research Reactors, ANSI/ANS-15.4-1988, Sections 4-6, *to the extent applicable to the decommissioning status of the facility. The selected criteria for the personnel will be contained in the NRC-approved Operator Requalification Program, as amended.*

Bases: Sections 6.1, 6.1.1, 6.1.2, 6.1.3 and 6.1.4 of the American National Standard ANSI/ANS 15.1-1990 "The Development of Technical Specifications for Research Reactors," describe a generic and generally acceptable organizational structure for U.S. research reactors. They provide the bases for TS 6.1 above. *Some of the ANSI standard recommendations apply to operable or operating reactor facilities, and are not necessarily valid for staff hired to perform decommissioning activities.* 6.2

### 6.2 Reactor Safety Committee and Reactor Decommissioning Committee

#### 6.2.A. Reactor Safety Committee

Applicability: *The specifications 6.2.A.1 through 6.2.A.3 apply to the expert group who will provide specific reviews and audits of Reactor Facility operations.*

Objective: To describe the makeup, responsibilities, and authority of the Reactor Safety Committee.

Specifications:

##### 6.2.A.1. Composition and Qualification

*There shall be a Reactor Safety Committee (ReSC) to review and audit reactor operations and ensure that the Reactor Facility is operated in a safe manner within the terms of the reactor license. However, reactor safety concerns will end once all reactor fuel elements have been*

*permanently shipped from the Reactor Facility. At that time the need for a Re SC shall cease, and any remaining radiation safety issues shall be referred to and be addressed by the University's Radiation Safety Committee. The Technical Specification requirement for a Reactor Safety Committee shall cease following the shipment of all reactor fuel elements off-site.*

*The Reactor Safety Committee shall be part of the Radiation Safety Committee (Ra SC) and report to its Chairman, who is the coordinator for all licenses involving the use of radioactive materials and radiation producing equipment. The Committee shall be composed of at least four members, and shall include the Radiation Safety Officer of the University and the Director of the Reactor Facility. The Reactor Director shall be the sole reactor staff representative on the Committee. Collectively, the committee members shall represent a broad spectrum of expertise in the research-reactor field. The membership of the Committee shall be such as to maintain a degree of technical proficiency in areas relating to reactor safety. The members may be drawn from within or outside the operating organization.*

*The Re SC shall advise the Vice President for Research and Public Service and the Director of the Reactor Facility on reactor safety concerns in the operation of the facility. The Re SC reviews and audits are designed to uncover deficiencies that affect reactor safety.*

#### 6.2.A.2. Charter and Rules

- (1) A quorum of the Committee shall consist of not less than the majority of the full committee. The Chair can designate another member from the Committee to preside in his absence.
- (2) The Committee shall meet at least semiannually and shall be on call by the Chair. Minutes of all meetings shall be disseminated as designated by the Chair.
- (3) The Committee shall have a written charter defining such matters as the authority of the Committee, the subjects within its purview, and other administrative provisions as are required for effective functioning of the Committee.

#### 6.2.B. Reactor Decommissioning Committee

*Applicability: The specifications 6.2.B.1 through 6.2.B.3 apply to the expert group who will have responsibility and oversight for decommissioning planning and execution activities at the Reactor Facility.*

*Objective: To describe the makeup, responsibilities and authority of the Reactor Decommissioning Committee.*

#### Specifications:

##### 6.2.B.1. Composition and Qualification

*There shall be a Reactor Decommissioning Committee (Re DC) to plan and execute the decommissioning of the Reactor Facility in a safe, legal and timely manner. Collectively, the*

*committee members shall represent broad spectrum of expertise in the research-reactor and health-physics fields, who provide experience in reactor operations, radiochemistry, radiological safety and university administration. Committee members may be drawn from within or outside the University of Virginia. The Committee shall be composed of at least four members, and shall include the Radiation Safety Officer of the University and the Director of the Reactor Facility.*

*The Reactor Decommissioning Committee shall report to the Vice President for Research and Public Service (Level 1), and advise him on all matters impacting the decommissioning of the Reactor Facility.*

*6.2.B.2. Charter and Rules*

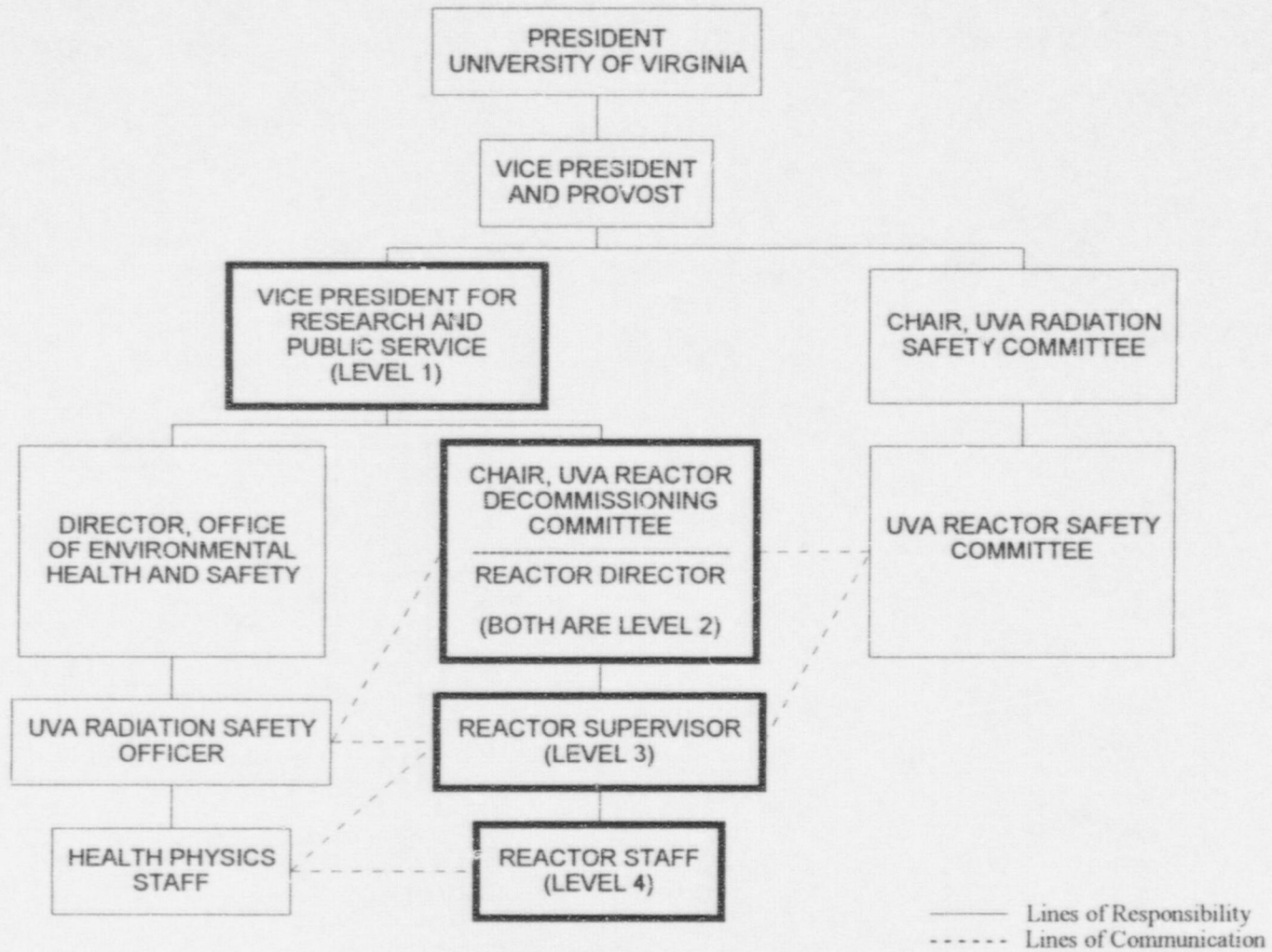
- (1) A quorum of the Decommissioning Committee shall consist of not less than the majority of the full committee. The Re DC Chair can designate another member from the Committee to preside in his absence.*
- (2) The Decommissioning Committee shall meet at least quarterly and shall be on call by the Chair. Meeting minutes shall be disseminated as required in the DC Charter.*
- (3) The Decommissioning Committee shall have a written charter defining such matters as the authority of the Committee, the subjects within its purview, and other administrative provisions as are required for effective functioning of the Committee.*

*6.2.B.3. Decommissioning Committee Functions*

*As a minimum the responsibilities of the Reactor Decommissioning Committee include:*

- (1) Review and approval of proposed changes to the Reactor Facility in accordance with 10CFR50.59(a).*
- (2) Review and approval of proposed changes to Technical Specifications and the reactor license, with the exception of changes to the organizational structure. The responsibility and authority for the organizational structure for the Reactor Facility resides with the Vice President and Provost.*
- (3) Administration of the Decommissioning Plan, including the selection, control and auditing of decommissioning work subcontractors.*
- (4) Maintain complete decommissioning records.*

*See enclosed revised Figure 6.1 Organizational Structure of U.Va. Relating to Reactor Facility*



UVA REACTOR FACILITY  
ORGANIZATIONAL CHART  
FIGURE 6.1

### 6.3.2. Changes to SOPs

Substantive changes to approved procedures shall be made only with the approval of the Reactor Safety Committee (*or the Reactor Director and the Radiation Safety Officer after the Re SC ceases to exist.*)

Basis: Section 6.4 of American National Standard ANSI/ANS 15.1-1990, "The Development of Technical Specifications for Research Reactors," suggests acceptable procedural controls to applied to *operating* U.S. research reactors.

### 6.6. Required Actions

Applicability: The specifications below apply to instances where radiologically unsafe situations have been, or were likely to have been, generated.

Objective: The objective is to report *unsafe conditions*, study their causes and consequences, determine their effect on the health and safety of personnel and the public, and take corrective action to prevent recurrence.

Specifications:

6.6.1. Action To Be Taken in the Event of a Reportable Occurrence

*A reportable occurrence is any of the following conditions:*

- (1) *An observed inadequacy in the implementation of either administrative or procedural controls, such that the inadequacy could have caused the existence or development of an unsafe condition at the Reactor Facility.*
- (2) *Abnormal and significant degradation in reactor fuel, and/or cladding, coolant boundary, or containment boundary (excluding minor leaks) where applicable that could result in exceeding prescribed radiation-exposure limits of personnel and/or environment.*
- (3) *Major damage to the Co-60 rods resulting in Co-60 concentrations in reactor pool water in excess of  $1 \times 10^3$  micro-curies/ml.*

*In the event of a reportable occurrence, the following action shall be taken:*

- (a) *Ongoing activities shall cease until the occurrence has been resolved.*
- (b) *The Director of the Reactor Facility or his designee shall be notified as soon as possible and corrective action taken as foreseen in the procedures.*
- (c) *A written report of the occurrence shall be made which shall include an analysis of the cause of the occurrence, the corrective action taken, and recommendations for measures to preclude or reduce the probability of reoccurrence. This report shall be submitted to the Director and the Reactor Safety Committee and/or the Radiation Safety Officer for review.*
- (d) *A report shall be submitted to the Nuclear Regulatory Commission in accordance with Section 6.7 of these specifications.*

Bases: National Standard ANSI/ANS-15.1-1990, "The Development of Technical Specifications for Research Reactors," describes in sections 6.6 and 6.7 acceptable specifications for required actions related to safety limits violations, actions to be taken upon their discovery, and reporting requirements. These form the bases for the above specifications.

6.7.1. Reporting of Incidents

- (1) Immediate notification should be made by telephone, to the U.S. Nuclear Regulatory Commission Headquarters Operations Center of:
  - (a) Personnel total effective dose equivalent of 25 rem or more.

- (b) The release of radioactive material, inside or outside of a restricted area, that results, or could result, over a 24 hour period, in personnel intake of 5 times the annual limit on intake specified in 10 CFR 20.
- (2) A special report should be made by telephone as soon as possible, but no later than the next working day, to the U.S. Nuclear Regulatory Commission Headquarters Operations Center of:
    - (a) Personnel exposures or releases of radioactive material greater than the limits in 10 CFR 20.
    - (b) Reportable occurrences as defined in Section 6.6.2 of these specifications
    - (c) Violation of a safety limit.
  - (3) A special written report should be sent by mail within 14 days to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, D.C. 20555
    - (a) Accidental off-site release of radioactivity above 10 CFR 20 limits, whether or not the release resulted in property damage, personal injury, or exposure.
    - (b) Reportable occurrence as defined in Section 6.6.2 of these specifications.
    - (c) Violation of a safety limit.
  - (4) A special written report should be sent by mail within 30 days to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, D.C. 20555, of:
    - (a) Accidental off-site release of radioactivity above 10CFR20 limits, whether or not the release resulted in property damage, personnel injury, or exposure.
    - (b) Reportable occurrence as defined in Section 6.6.2 of these specifications.
    - (c) *Changes in personnel serving as Vice President For Research and Public Service, Decommissioning Committee Chairman, Reactor Facility Director, or Reactor Supervisor.*

#### 6.7.2. Routine Reports

A routine report will be made by March 31 of each year *following a year during which the reactor was operated. The report should be sent to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, D.C. 20555, providing the following information:*

September 11, 1998

**FUNCTION AND RESPONSIBILITIES  
(CHARTER)  
OF THE  
UNIVERSITY OF VIRGINIA  
REACTOR DECOMMISSIONING COMMITTEE**

**I. AUTHORITY**

The Reactor Decommissioning Committee (hereafter called the Decommissioning Committee or Committee) is appointed by the Vice President and Provost of the University of Virginia and reports to the Vice President for Research and Public Service. The organizational chart for the University of Virginia Reactor Facility is shown in the attached Figure 6.1 taken from the UVAR Technical Specifications.

**II. PURPOSE**

The purpose of the Decommissioning Committee is to review, audit and control licensed activities and decommissioning work conducted at the Reactor Facility so as to ensure that the UVAR and CAVALIER reactors are shut down, defueled, decontaminated and decommissioned in a manner consistent with public safety, federal regulations and within the terms of the reactor and materials licenses.

The general requirements and functions of the Decommissioning Committee are specified in Section 6.2.B of the Technical Specifications for the two reactors. The purpose of this Charter is to provide guidance concerning the functions and responsibilities of the Committee as required by the reactor licenses (specifically, the Technical Specifications).



### III. ADMINISTRATIVE PROCEDURES

#### *A. Membership*

As a minimum, the Reactor Decommissioning Committee is composed of at least four members and includes the Radiation Safety Officer and the Reactor Director. The membership of the Committee shall be such that technical proficiency is maintained in areas relating to radiation safety and decommissioning of nuclear facilities. The Chair of the Decommissioning Committee (DC Chair) shall appoint a Secretary to the Committee charged with making, distributing and keeping written minutes of all meetings.

#### *B. Meetings*

The Committee shall meet at least quarterly. Additional meetings can be called at any time by the DC Chair, provided that members are informed of the meeting by written notice, telephone call or e-mail message sent out at least one day prior to the meeting. Typed minutes of all meetings will be disseminated to the Vice President and Provost, the Vice President for Research and Public Service, all Committee members, and to any other people as requested by the Committee Chairman.

#### *C. Action on Recommendations*

Items which require approval from the Committee will be reviewed and voted on at a meeting of a quorum of the Committee. A quorum of the Committee shall consist of not less than a majority of the full committee and shall include the Chairman or his designee.

Normally, action to approve items brought before the Committee requires a favorable vote by a majority of the full committee. When a quorum is not present, items may be approved if members provide prior written or electronic medium approval of an item to the DC Chair, and a) the number of favorable votes by members present and absent is a majority of the entire committee, b) comments included in written approvals are incorporated or resolved, and c) changes to the original item requested by the members present are more conservative than the original item.

*C. Action on Recommendations (cont.)*

However, items of a minor nature with respect to the decommissioning activities at the Reactor Facility may be approved by letter votes without a formal meeting of the Committee, provided no member of the Committee requests in writing that a meeting be held for the purpose of taking action on the item in question.

*D. Recommendations Approved by DC Chair*

As noted in Section IV of this Charter, recommendations for changes to work procedures, equipment, etc... not requiring a change to the facility licenses, not adversely affecting the safety or cost of licensed and decommissioning activities at the facility, and not violating the intent of controls specified by the Committee in this document or in the Technical Specifications, can be approved by the DC Chair without prior Committee approval. All such approvals shall be documented and subsequently reviewed by the Committee.

**IV. RESPONSIBILITIES**

*A. Audits*

Members of the Committee, or qualified personnel appointed by the Committee, will perform periodic audits as necessary to ensure quality and compliance with applicable regulations and license conditions.

*B. Review and Approval of Decommissioning Work Procedures*

The Committee shall review and approve selected decommissioning work procedures prior to use.

*C. Review and Approval of Changes to the Reactor Facility*

The Committee shall review and approve changes to the Reactor Facility during reactor shutdown and decommissioning.

*D. Review and Approval of Documents Requiring NRC Approval*

The Committee shall review and approve documents requiring NRC approval prior to their remittal to the NRC. The following documents, and changes thereto, require NRC approval:

1. Reactor Licenses and associated Facility Licenses
2. Technical Specifications
3. Emergency Plan
4. Security Plan
5. Changes to the Facility involving unreviewed safety questions (10CFR50.59).

*E. Review of Unusual and Reportable Occurrences*

The Committee shall review unusual occurrences and, if warranted, recommend corrective actions. Unusual occurrences include the following:

1. Reportable occurrences as identified in the Technical Specifications
2. Unexpected release of radioactive materials to the environment or releases in excess of NRC limits
3. Significant abnormalities or deviations from normal performance of Facility equipment that may affect radiation or personnel safety
4. Possible items of noncompliance with license requirements as identified by NRC inspectors or other audits and proposed corrective actions.

*F. Record-Keeping and Reporting to the NRC*

The Committee shall be responsible for the collection and maintenance of complete records of decommissioning activities. The Committee shall also see to it that annual or other necessary reports are prepared and remitted to the NRC as per license and regulatory requirements.