

March 26, 2002

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

SUBJECT: UNIVERSITY OF VIRGINIA CAVALIER RESEARCH REACTOR - AMENDMENT  
RE: MATERIAL POSSESSION LIMITS AND PHYSICAL SECURITY PLAN  
(TAC NO. MB3021)

Dear Dr. Mulder:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 10 to Facility Operating License No. R-123 for the University of Virginia Cooperatively Assembled Virginia Low-Intensity Educational Reactor (CAVALIER) Facility. This amendment modifies the facility operating license in response to your application of September 17, 2001, as supplemented on December 19, 2001.

Specifically, the amendment removes the authority under the facility operating license to possess special nuclear material and removes the requirement to implement and maintain a physical security plan. In addition, as discussed with and agreed to by you, the amendment removes the authority to operate the facility.

A copy of the safety evaluation supporting Amendment No. 10 is also enclosed.

Sincerely,

*/RA/*

Alexander Adams, Jr., Senior Project Manager  
Research and Test Reactors Section  
Operating Reactor Improvements Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No. 50-396

Enclosures:

1. Amendment No. 10
2. Safety Evaluation

cc w/enclosures: Please see next page

University of Virginia

Docket Nos. 50-62/396

cc:

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Office of Grants Management and  
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UNIVERSITY OF VIRGINIA

DOCKET NO. 50-396

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 10  
License No. R-123

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that
  - A. The application for an amendment to Facility Operating License No. R-123, filed by the University of Virginia (the licensee) on September 17, 2001, as supplemented on December 19, 2001, conforms to the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the regulations of the Commission as stated in Chapter I of Title 10 of the *Code of Federal Regulations* (10 CFR);
  - B. The facility will be decommissioned in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance that (i) the activities authorized by this amendment can be conducted without endangering the health and safety of the public and (ii) such activities will be conducted in compliance with the regulations of the Commission;
  - D. The issuance of this amendment will not be inimical to the common defense and security or the health and safety of the public;
  - E. This amendment is issued in accordance with the regulations of the Commission as stated in 10 CFR Part 51, and all applicable requirements have been satisfied; and
  - F. Prior notice of this amendment was not required by 10 CFR 2.105, and publication of a notice for this amendment is not required by 10 CFR 2.106.

2. Accordingly, paragraphs 2.B.(1) through 2.B.(3) of Facility Operating License No. R-123 are hereby amended to read as follows:
  - (1) Pursuant to Section 104c of the Act and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to possess the reactor on the University's campus at Charlottesville, Virginia, in accordance with the procedures and limitations set forth in this license;
  - (2) Pursuant to the Act and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," the University of Virginia shall not be authorized to possess any special nuclear material in conjunction with its R-123 license for the CAVALIER reactor; and
  - (3) Pursuant to the Act and 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," to possess such byproduct material as may have been produced by the operation of the reactor.
3. Facility Operating License No. R-123 is also hereby amended by deleting paragraphs 2.C.(1) and 2.C.(3).
4. This license amendment is effective as of the date of its issuance.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Patrick M. Madden, Section Chief  
Research and Test Reactors Section  
Operating Reactor Improvements Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Date of Issuance: March 26, 2002

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 10 TO

FACILITY OPERATING LICENSE NO. R-123

THE UNIVERSITY OF VIRGINIA

DOCKET NO. 50-396

1.0 INTRODUCTION

By letter dated September 17, 2001, as supplemented by letter dated December 19, 2001, the University of Virginia (UVA or licensee) requested that the U.S. Nuclear Regulatory Commission (NRC) amend Facility Operating License No. R-123 for the Cooperatively Assembled Virginia Low-Intensity Educational Reactor (CAVALIER). The requested changes would remove the authority to possess special nuclear material, as well as the requirement to implement and maintain a physical security plan.

2.0 EVALUATION

The CAVALIER is one of two research reactors located in the UVA reactor facility near Charlottesville, Virginia; the other is the University of Virginia Research Reactor (UVARR). Both reactors are permanently shut down and are to be decommissioned. The NRC issued an order on February 3, 1992, authorizing UVA to dismantle the CAVALIER facility and disposition its component parts. The licensee delayed decommissioning of CAVALIER until the UVARR is decommissioned.

The licensee has proposed that the NRC amend the CAVALIER facility operating license to remove the authority to possess special nuclear material. As part of the preparation for decommissioning, the licensee has returned the majority of the special nuclear material in its possession to the U.S. Department of Energy (DOE). The remaining special nuclear material under the CAVALIER license has been transferred to the UVARR license or the UVA materials license.

License condition 2.B.(2) currently reads as follows:

- (2) Pursuant to the Act and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," to receive, possess and use up to 3.6 kilograms of uranium-235 and 16 grams of plutonium in a sealed plutonium-beryllium neutron source in connection with operation of the reactor; and

The licensee has proposed that the NRC change this license condition to read as follows:

- (2) Pursuant to the Act and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," the University of Virginia shall not be authorized to possess any special nuclear material in conjunction with its R-123 license for the CAVALIER reactor; and

License condition 2.B.(3) currently reads as follows:

- (3) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear materials as may be produced by the operation of the reactor.

While the licensee's application stated that "special nuclear material needs [sic] not be possessed on the CAVALIER license; therefore, the amount listed in the R-123 license can and should be reduced to zero," the application did not specifically address license condition 2.B.(3). During a telephone conversation on February 12, 2002, between the reactor facility director and the NRC project manager, the licensee confirmed that the above statement also applies to license condition 2.B.(3). It was agreed that the condition would be amended to read as follows:

- (3) Pursuant to the Act and 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," to possess such byproduct material as may have been produced by the operation of the reactor.

Because the licensee no longer possesses the special nuclear material authorized under CAVALIER license conditions 2.B.(2) and 2.B.(3), and the licensee has no plans to acquire special nuclear material under this license in the future, the proposed changes to the license conditions are acceptable to the staff.

The licensee has requested that the NRC delete license condition 2.C.(3), "Physical Security Plan," from the license. That license condition currently reads as follows:

- (3) Physical Security Plan

The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security plan, including all amendments and revisions made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p), which are part of the license. This plan, which contains information withheld from public disclosure under 10 CFR 2.790, is entitled "University of Virginia Nuclear Reactor Facility Physical Security Plan."

The requirements for a physical security plan are given in 73.67(c)(1) and other fixed site security requirements are given in 73.67(f). Both of these regulations are based on the possession of special nuclear material. Because special nuclear material is no longer possessed under the license, the physical security plan is no longer needed and the deletion of license condition 2.C.(3) is acceptable to the staff. The regulations in 10 CFR Part 20,

Subpart I, "Storage and Control of Licensed Material," are applicable to the remaining byproduct material possessed by the licensee.

During a telephone conversation on February 12, 2002, the reactor facility director and the NRC project manager agreed to delete the authority to operate the reactor, which reads as follows in license condition 2.C.(1):

(1) Maximum Power Level

The licensee is authorized to operate the facility at power levels not in excess of 100 watts (thermal).

It was also agreed during the telephone conversation to modify the related license condition 2.B.(1) by removing authority to use and operate the reactor.

License condition 2.B.(1) currently reads as follows:

- (1) Pursuant to Section 104c of the Act and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to possess, use and operate the reactor on the University's campus at Charlottesville, Virginia, in accordance with the procedures and limitations set forth in this license;

License condition 2.B.(1) is hereby amended to read as follows:

- (1) Pursuant to Section 104c of the Act and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to possess the reactor on the University's campus at Charlottesville, Virginia, in accordance with the procedures and limitations set forth in this license;

With the removal of all special nuclear material from the license and the issuance of the order to decommission the CAVALIER, the facility will never operate again. Deleting license condition 2.C.(1), and modifying license condition 2.B.(1), are consistent with the condition of the facility and is acceptable to the staff. Hence, license condition 2.C.(1) is hereby deleted from Facility Operating License No. R-123 and license condition 2.B.(1) is modified as discussed above.

### 3.0 ENVIRONMENTAL CONSIDERATION

Parts of this amendment involve changes in the installation or use of a facility component located within the restricted area, as defined in 10 CFR Part 20, or changes in inspection and surveillance requirements. The staff has determined that this amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released off site, and no significant increase in individual or cumulative occupational radiation exposure. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

Parts of this amendment involve changes related solely to safeguards matters (i.e., protection against sabotage or loss or diversion of special nuclear material). The staff has determined that the amendment or approval does not involve any significant construction impacts. The amendment or approval is confined to (i) organizational and procedural matters, (ii) modifications to systems used for security and/or materials accountability, (iii) administrative changes, and

(iv) review and approval of transportation routes pursuant to 10 CFR 73.37. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(12). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

#### 4.0 CONCLUSION

The staff has concluded, on the basis of the considerations discussed above, that (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously evaluated, or create the possibility of a new or different kind of accident from any accident previously evaluated, and does not involve a significant reduction in a margin of safety, the amendment does not involve a significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed activities; and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or the health and safety of the public.

Principal Contributor: A. Adams, Jr.

Date: March 26, 2002