

January 15, 1992

Docket No. 50-223

Dr. Leon Beghian  
Associate Vice President  
for Research  
University of Lowell  
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Dear Dr. Beghian:

SUBJECT: ISSUANCE OF AMENDMENT NO. 10 TO FACILITY OPERATING LICENSE  
NO. R-125 UNIVERSITY OF LOWELL

The Commission has issued the enclosed Amendment No. 10 to Facility Operating License No. R-125 for the University of Lowell Research Reactor. The amendment consists of changes to the Technical Specifications (TS) in response to your submittal dated January 15, 1991.

The amendment consists of changes to the TS to have the control rod blade removal inhibited rather than the regulating rod when the reactor period is less than 15 seconds and to remove the pool water level channel from being classified as a measuring channel.

A copy of the related Safety Evaluation supporting Amendment No. 10 is enclosed.

Sincerely,

/S/

Theodore S. Michaels, Project Manager  
Non-Power Reactors, Decommissioning and  
Environmental Project Directorate  
Division of Advanced Reactors  
and Special Projects  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 10
2. Safety Evaluation

cc w/enclosures:  
See next page

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University of Lowell

Docket No. 50-223

cc: Mayor of Lowell  
City Hall  
Lowell, Massachusetts 08152

Mr. Thomas J. Wallace  
Nuclear Reactor Supervisor  
University of Lowell  
One University Avenue  
Lowell, Massachusetts 01854

Office of the Attorney General  
Environmental Protection Division  
19th Floor  
One Ashburton Place  
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

UNIVERSITY OF LOWELL

DOCKET NO. 50-223

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 10  
License No. R-125

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment filed by the University of Lowell (the licensee), dated January 15, 1991, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied; and
  - F. Prior notice of this amendment was not required by 10 CFR 2.105(a)(4) and publication of notice for this amendment is not required by 10 CFR 2.106(a)(2).

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2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the enclosure to this license amendment, and paragraph 2.C.(2) of License No. R-125 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 10, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Seymour H. Weiss, Director  
Non-Power Reactors, Decommissioning and  
Environmental Project Directorate  
Division of Advanced Reactors  
and Special Projects  
Office of Nuclear Reactor Regulation

Enclosure:  
Appendix A Technical  
Specifications Changes

Date of Issuance: January 15, 1992

ENCLOSURE TO LICENSE AMENDMENT NO. 10

FACILITY OPERATING LICENSE NO. R-125

DOCKET NO. 50-223

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

REMOVE

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INSERT

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IV-18

places a reasonable upper limit on the worth of all experiments which is compatible with the allowable excess reactivity and the shutdown margin and is consistent with the functional mission of the reactor.

### 3.2 REACTOR INSTRUMENTATION

#### Applicability

This specification applies to the instrumentation which must be available and operable for safe operation of the reactor.

#### Objective

The objective is to require that sufficient information be available to the operator to assure safe operation of the reactor.

#### Specification

The reactor shall not be operated unless the measuring channels listed in the following table are operable:

<u>Measuring Channel</u>	<u>Minimum Required</u>	<u>Operating Mode in Which Required</u>
<del>Pool Water Level</del>	<del>1</del>	<del>All modes</del>
Startup Count Rate	1	All modes (during reactor startup)
Log N (Period)	1	All modes
Power Level (Linear N)	2	All modes
Reactor Coolant Inlet Temperature	1	Forced convection
Coolant Flow Rate	1	Forced convection
Reactor Pool Temperature	1	Natural convection

### Bases

The neutron detectors assure that measurements of the reactor power level are adequately displayed during reactor startup and low and high power operation.

The temperature and flow detectors give information to the operator to prevent the exceeding of a Safety Limit.

## 3.3 REACTOR SAFETY SYSTEM

### Applicability

This specification applies to the reactor safety system channels.

### Objective

To require the minimum number of reactor safety system channels that must be operable in order to assure safe operation of the reactor.

### Specification

The reactor shall not be operated unless the reactor safety system channels described in the following table are operable.

<u>Reactor Safety System Component/Channel</u>	<u>Minimum Required</u>	<u>Function</u>	<u>Operating Mode in Which Required</u>
Startup Count Rate	1	Prevent blade withdrawal when N count rate $\leq$ 2 cps	Reactor startup in all modes
Reactor Period	1	Automatic reactor scram with $\leq$ 3 sec period control blade inhibit $\leq$ 15 sec period	All modes



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 10 TO

FACILITY OPERATING LICENSE NO. R-125

UNIVERSITY OF LOWELL

DOCKET NO. 50-223

1.0 INTRODUCTION

By letter dated January 15, 1991, the University of Lowell (licensee) requested that two Technical Specification (TS) changes be made to their reactor Facility Operating License No. R-125. The first change would have the control rod blade removal inhibited rather than the regulating rod when the reactor period is less than 15 seconds and the second change would remove the pool water level channel from being classified as a measuring channel.

2.0 EVALUATION

The first change would alter the table in Section 3.3 of the TS, which deals with the reactor period. Specifically, the present TS requires that the regulating rod be prohibited from removal from the core if the reactor period is less than 15 seconds. The licensee proposes to change the TS to substitute the control blade rather than the regulating rod. The licensee points out that the regulating rod has never had any automatic safety features and is not considered part of the safety system. The licensee also states this was an error that was missed when the license was rewritten for renewal in 1984 and that the automatic withdrawal prohibit has always been applied to the control blade rather than the regulating rod. This is reasonable, since the control blade worth is greater than the regulating rod which has minimum worth and is only used for fine control of the power level. The staff finds this change acceptable and the change does not affect the health and safety of the public.

The second change would remove pool water level (PWL) from the list of measuring channels required in Section 3.2 of the TS. The PWL channel is a float operated device which causes a reactor scram when the pool is below a certain level. It is more of an interlock rather than a measuring channel. Removal of the PWL from the measuring channel section of the TS would not remove the need for a PWL scram from the TS since it is also included in the reactor safety system (RSS) interlocks in Section 3.3 of the TS. Removal of the PWL scram from the measuring channel section however, would remove the requirement for a channel test of this channel as required by Section 4.2.2 of the TS, which requires that a channel test of each measuring channel in the RSS be performed prior to each day's operation or prior to each operation extending more than one day.

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Since the PWL channel is still part of the RSS and since the PWL interlock will be tested semi-annually in accordance with TS 4.2.8, as are other interlocks of the RSS, the staff finds that removal of the PWL from being classified as a measuring channel is acceptable and the change does not affect the health and safety of the public.

### 3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes in a requirement with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and there is 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.

### 4.0 CONCLUSION

The staff has concluded, based on 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: Theodore S. Michaels

Date: January 15, 1992