

July 19, 2017

Dr. Partha Chowdhury, Director  
Nuclear Radiation Laboratory  
University of Massachusetts-Lowell  
One University Avenue  
Lowell, MA 01854

SUBJECT: UNIVERSITY OF MASSACHUSETTS AT LOWELL RESEARCH REACTOR –  
REGULATORY AUDIT FOR DIGITAL INSTRUMENTATION AND CONTROL  
UPGRADE (CAC NO. MF7199)

Dear Dr. Chowdhury:

The U.S. Nuclear Regulatory Commission (NRC) is continuing its review of your application for the renewal of Facility Operating License No. R-125, for the University of Massachusetts at Lowell Research Reactor (UMLRR) dated October 20, 2015 (a redacted version of the application is available on the NRC's public Web site at [www.nrc.gov](http://www.nrc.gov) under Agencywide Documents Access and Management System (ADAMS) Accession No. ML16042A015). This application includes a digital instrumentation and control (I&C) upgrade for the UMLRR.

The NRC staff will conduct an onsite regulatory audit to review the UMLRR digital I&C upgrade on July 26-28, 2017. The intent of the audit is to gain understanding of your application and status of your facility. In addition, the regulatory audit will identify information that will be required to be docketed in order to support the basis of the licensing decision and will allow the NRC staff to more efficiently gain insights on the UMLRRs I&C upgrade. An audit schedule, a list of personnel and their assignments participating in the audit, and a list of information and other material necessary for the regulatory audit are provided in the enclosure. Additionally, the NRC staff will use the open items list (ADAMS Accession No. ML17193A373) during the audit to discuss and close relevant items identified for discussion during the audit.

At the completion of the regulatory audit, a regulatory audit summary will be prepared and provided to the University of Massachusetts at Lowell. You will have the opportunity to modify and supplement the application, if necessary, to provide additional information or the option to withdraw the portion of the license renewal application related to the digital I&C upgrade application. If you choose not to pursue the I&C upgrade, you may submit a separate license amendment application in the future pursuant to Title 10 of the *Code of Federal Regulations* Section 50.90, "Application for amendment of license, construction permit, or early site permit," for the University of Massachusetts at Lowell digital I&C upgrade.

We appreciate your support in providing space, the requested documentation and access to the necessary personnel and other materials that will assist in an efficiently conducted audit. Should you have any questions on this matter, please contact me at 301-415-3724 or by electronic mail at [Duane.Hardesty@nrc.gov](mailto:Duane.Hardesty@nrc.gov).

Sincerely,

**/RA/**

Duane Hardesty, Senior Project Manager  
Research and Test Reactors Licensing Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

Docket No. 50-223  
License No. R-125

Enclosure:  
As stated

cc w/enclosure: See next page

University of Massachusetts – Lowell

Docket No. 50-223

cc:

Mayor of Lowell  
City Hall  
Lowell, MA 01852

Mr. Leo Bobek  
Reactor Supervisor  
University of Massachusetts - Lowell  
One University Avenue  
Lowell, MA 01854

Department of Environmental Protection  
One Winter Street  
Boston, MA 02108

Jack Priest, Director  
Radiation Control Program  
Department of Public Health  
Schrafft Center, Suite 1M2A  
529 Main Street  
Charlestown, MA 02129

John Giarrusso, Planning and Preparedness Division Chief  
Massachusetts Emergency Management Agency  
400 Worcester Road  
Framingham, MA 01702-5399

Test, Research and Training  
Reactor Newsletter  
P.O. Box 118300  
University of Florida  
Gainesville, FL 32611

SUBJECT: UNIVERSITY OF MASSACHUSETTS AT LOWELL RESEARCH REACTOR –  
REGULATORY AUDIT FOR DIGITAL INSTRUMENTATION AND CONTROL  
UPGRADE DATED: JULY 19, 2017

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**ADAMS Accession No.: ML17192A851; \*concurrence via e-mail**

<b>OFFICE</b>	NRR/DPR/PM	NRR/DPR/LA*	NRR/DPR/BC	NRR/DPR/PM
<b>NAME</b>	DHardesty	NParker	AAdams	DHardesty
<b>DATE</b>	07/17/17	07/13/17	07/17/17	07/19/17

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**UNIVERSITY OF MASSACHUSETTS AT LOWELL RESEARCH REACTOR (UMLRR)  
AUDIT SCHEDULE**

Wednesday July 26, 2017

1:00 p.m.	Arrive and prepare for Entrance Meeting
1:30 p.m.	Entrance Meeting and Introductions Current project status Schedule for project completion
2:30 p.m.	Facility tour specific to instrumentation and control (I&C) systems and human factors
3:30 p.m.	UMLRR Audit; review of <i>Open Items List</i> .
5:00 p.m.	End for the day

Thursday July 27, 2017

8:00 a.m.	Resume Audit
8:30 a.m.	Demo of select pre-startup reactor checkout procedures, channel checks and technical specification required tests
12:00 p.m.	Break for lunch
1:30 p.m.	Resume Audit
5:00 p.m.	End for the day

Friday August 4, 2017

8:00 a.m.	Resume Audit
11:30 a.m.	Exit Meeting – Summary of audit, general overview of observations, and discussion of open items
12:00 p.m.	Conclude audit

**INFORMATION AND OTHER MATERIAL NECESSARY FOR THE REGULATORY AUDIT:**

- (1) A current schedule, showing what has been completed, and what remains to be done for the I&C upgrade.
- (2) A list of all digital I&C documents that will be applicable to the upgrade.
  - (a) Identification of those documents that have been or will be docketed.
  - (b) Identification of any docketed documents that have been or will be superseded.
- (3) List and short description of UMLRR digital I&C project participants (name and position) for purposes of interviews.
- (4) Responses to the open items list (Agencywide Documents Access and Management System Accession No. ML17193A373) to allow the NRC staff to develop our safety evaluation supporting the digital I&C upgrade as part of the UMLRR license renewal.

**STAFF ASSIGNMENTS**

Duane Hardesty, Senior Project Manager, Research and Test Reactors Branch  
Michael Muhlheim, Oakridge National Laboratory, Department of Energy Contractor  
Edward Helvenston, Project Manager, Research and Test Reactors Branch  
Alexander Adams, Jr., Chief, Research and Test Reactors Branch