



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
REGION I  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

April 15, 2013

Docket No. 05000057

License No. R-77

David Vasbinder  
Director  
Buffalo Materials Research Center  
University at Buffalo  
220 Winspear Avenue  
Buffalo, NY 14215

SUBJECT: NRC INSPECTION REPORT NO. 05000057/2013001, BUFFALO MATERIALS RESEARCH CENTER, UNIVERSITY AT BUFFALO, BUFFALO, NEW YORK

Dear Mr. Vasbinder:

On January 21-23 and March 19-20, 2013, the U.S. Nuclear Regulatory Commission (NRC) conducted a safety inspection at the Buffalo Materials Research Center in Buffalo, New York. The inspection was an examination of your licensed activities as they relate to radiation safety and to compliance with the Commission's regulations and the license conditions. The inspection consisted of observations by the inspectors, interviews with personnel, and a review of procedures and records. The findings of the inspection were discussed with you at the conclusion of the inspection, on March 20, 2013, and are described in the enclosed inspection report. No health and safety concerns were identified.

Current NRC regulations and guidance are included on the NRC's website at [www.nrc.gov](http://www.nrc.gov); select **Nuclear Materials; Med, Ind, & Academic Uses**; then **Regulations, Guidance and Communications**. The current Enforcement Policy is included on the NRC's website at [www.nrc.gov](http://www.nrc.gov); select **About NRC, Organizations & Functions; Office of Enforcement; Enforcement documents**; then **Enforcement Policy (Under 'Related Information')**. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

The NRC's Safety Culture Policy Statement became effective in June 2011. While a policy statement and not a regulation, it sets forth the agency's *expectations* for individuals and organizations to establish and maintain a positive safety culture. You can access the policy statement and supporting material that may benefit your organization on NRC's safety culture Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/safety-culture.html>. We strongly encourage you to review this material and adapt it to your particular needs in order to develop and maintain a positive safety culture as you engage in NRC-regulated activities.

D. Vasbinder

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No reply to this letter is required. Please contact Steve Hammann at 610-337-5399 if you have any questions regarding this matter.

Sincerely,

*/RA/*

Marc S. Ferdas, Chief  
Decommissioning Branch  
Division of Nuclear Materials Safety

cc w/enclosure:  
Alyse Peterson  
Charles Burns  
David O'Hehir  
Tim Rice  
Chief Roger Hill  
Chief Leo R. Henry

D. Vasbinder

2

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Inspection No. 05000057/2013001  
Docket No. 05000057  
License No. R-77  
Licensee: Buffalo Materials Research Center (BMRC)  
Location: 220 Winspear Avenue  
Buffalo, NY 14215  
Inspection Dates: January 21-23, and March 19-20, 2013

Inspectors: Stephen Hammann  
Senior Health Physicist  
Decommissioning Branch  
Division of Nuclear Materials Safety

Orysia Masnyk Bailey  
Health Physicist  
Decommissioning Branch  
Division of Nuclear Materials Safety

Approved By: Marc S. Ferdas, Chief  
Decommissioning Branch  
Division of Nuclear Materials Safety

## **EXECUTIVE SUMMARY**

Buffalo Materials Research Center  
NRC Inspection Report No. 05000057/2013001

Announced inspections were conducted on January 21-23 and March 19-20, 2013, at the BMRC, in Buffalo, New York. The inspections reviewed BMRC's decommissioning activities associated with their research and test reactor (RTR). The inspection consisted of observations by the inspectors, interviews with BMRC and contractor personnel, and a review of procedures and records. The NRC's program for overseeing the safe decommissioning of a RTR is described in Inspection Manual Chapter (IMC) 2545, "Research and Test Reactor Inspection Program."

Based on the results of this inspection, no findings of safety significance were identified.

## **REPORT DETAILS**

### **I. Summary of Facility Status**

The BMRC RTR is owned by the State University of New York at Buffalo and is located on the south campus of the University. The RTR was placed into operation in 1961 and operated until 1963 using materials testing reactor (MTR) type fuel with a maximum steady state power of 1 MWt. In 1963 the reactor was modified to use Pulse Training Assembled Reactor (PULSTAR) type fuel at power levels up to 2 MWt. The reactor was shut down in 1994, and in 1997 the license was amended to possession only. In 1998 the unused fuel was shipped to North Carolina State University, and in 2005 the spent fuel was shipped to the Idaho National Engineering and Environmental Laboratory.

On November 5, 2012, the Nuclear Regulatory Commission approved the decommissioning plan (DP) for the BMRC RTR (ML12286A352 and ML12290A694). During decommissioning activities Enercon Services Inc. (Design and Oversight Contractor (DOC)) is providing field management and industrial and radiological safety services. BMRC is also using LVI Services as the Demolition Contractor (DC) for the decommissioning activities.

In December 2012, BMRC began decommissioning activities, which included, mobilization and training of personnel and facility preparation (removal of clean debris and limited hazardous material removal). In January 2013, BMRC's DOC and DC removed reactor internal components and drained the pool. In February 2013, the thermal columns and moveable blocks were removed; and removal of the bioshield, hot cell, and reactor building ductwork are in progress.

### **II. Research and Test Reactor Decommissioning**

#### **a. Inspection Scope (Inspection Procedure 69013)**

Announced inspections were conducted on January 21-23 and March 19-20, 2013, at the BMRC, in Buffalo, New York. The inspections reviewed BMRC's decommissioning activities associated with their RTR. The inspections verified that dismantlement and decontamination activities were being conducted safely and in accordance with regulatory requirements, licensee commitments, and the NRC-approved DP. The inspection consisted of observations by the inspectors, interviews with BMRC and contractor personnel, and a review of procedures and records. The NRC's program for overseeing the safe decommissioning of a RTR is described in Inspection Manual Chapter (IMC) 2545, "Research and Test Reactor Inspection Program."

The inspectors reviewed BMRC's organization and temporary staffing to determine if it satisfied the DP requirements, license, and technical specification (TS) requirements. The inspectors verified that BMRC adequately provided oversight and control of the DOC and DC. The inspectors verified that pre-job briefs reviewed work plans/instructions and radiological and industrial hazards in the work areas. The inspectors reviewed training material and interviewed personnel to ensure they were adequately trained and knowledgeable for their assigned work activities. The inspectors

reviewed work plans and procedures and observed decommissioning activities to determine if they were being implemented as specified in the DP and TS.

The inspectors verified that BMRC and its contractor's radiation protection and As Low As Reasonably Achievable (ALARA) programs were being maintained in accordance with site procedures, DP, and NRC regulations. The inspectors observed DOC personnel providing health physics job coverage for dismantlement activities and the performance of radiation and contamination surveys. The inspectors reviewed radiation work permits (RWPs) and verified that areas were posted for the radiological conditions in accordance with 10 CFR Part 20. The inspectors reviewed water effluent releases to determine if they were within the limits of 10 CFR Part 20, Appendix B. The inspectors also reviewed dosimetry records, radiation instrumentation calibration records, and the placement and use of air samplers within the facility.

The inspectors reviewed the decommissioning safety committee meeting minutes and interviewed several committee members to determine if the committee provided the necessary oversight as required by the DP. The inspectors verified that BMRC personnel were adequately trained to respond to emergency conditions as described in the emergency plan. The inspectors reviewed waste disposal records for completed radioactive waste shipments to determine if the records and manifests met the NRC and Department of Transportation (DOT) regulations. The inspectors reviewed waste classification procedures and observed the staging and temporary storage of waste to determine if the NRC regulations and DP requirements were being met.

b. Observations and Findings

The inspectors determined that personnel involved in the decommissioning activities at the BMRC RTR have been adequately trained and can effectively implement site procedures. Inspectors determined that engineering evaluations committed to in the DP were completed as required. Since the start of decommissioning, no abnormal conditions or reportable events have occurred. Two planned water releases to the public sewer system were completed, and the inspectors confirmed the releases were within regulatory limits. As of March 20, 2013, 11 radioactive waste shipments were performed. Inspectors reviewed records associated with the shipments and determined the shipments complied with regulatory requirements. Inspectors determined adequate radiation detection instrumentation and dosimetry were being used.

c. Conclusions

Based on the results of this inspection, no findings of safety significance were identified.

**III. Exit Meeting**

The inspection results were discussed with Dave Vasbinder, BMRC Director, and other members of the BMRC staff, on March 20, 2013, at the conclusion of onsite inspection activities.

## **SUPPLEMENTAL INFORMATION**

### **PARTIAL LIST OF PERSONS CONTACTED**

#### Licensee

Mark Adams, Safety Engineer  
Jeff Slawson, RSO  
Dave Vasbinder, Director  
Rob Weller, Project Manager

#### Enercon Services

Dustin Miller, Project Manager

### **INSPECTION PROCEDURE USED**

Inspection Procedure 69013, Research and Test Reactor Decommissioning

### **ITEMS OPEN, CLOSED, AND DISCUSSED**

None

### **LIST OF DOCUMENTS REVIEWED**

AHA, Activity Hazards Analysis  
BMRC Radiation Safety Training Manual  
BMRC-RPP-01, Rev.1, "Radiation Protection Plan"  
Emergency Response Plan BMRC  
Environmental Health and Safety Services Policy, "Contractor Safety Guidebook"  
ESG-PIT-RP-002, Rev. 1, "Radiological Air Monitoring Procedure"  
ESG-PIT-RP-003, Rev. 1, "Radiation Work Permit Procedure"  
ESG-PIT-RP-004, Rev. 1, "Radiological Survey Procedure"  
ESG-PIT-RP-005, Rev. 1, "Release of Material, Equipment, and Personnel"  
ESG-PIT-RP-009, Rev. 0, "Air Sampling Procedure"  
Radiological Survey Forms 2/01/2103 – 001, 002, 003, "Control Rod Blades in Containers"  
Reactor Decommissioning Safety Committee Minutes – 2/15/2013  
RWP-BMRC-001, 002, 003, 004, 005, 006, 007, 008, 009  
UB-WCD-OP-02, "Reactor Component Removal Work Plan"  
UB-WCD-OP-03, "Bioshield Concrete Cutting Work Plan"  
UB-WM-01, "Waste Management and Transportation Plan"  
WCD-OPS-03, "Bioshield Wire Saw Cutting Plan"



## **LIST OF ACRONYMS USED**

|         |                                   |
|---------|-----------------------------------|
| ALARA   | As Low As Reasonably Achievable   |
| BMRC    | Buffalo Materials Research Center |
| DC      | demolition contractor             |
| DOC     | design and oversight contractor   |
| DOT     | Department of Transportation      |
| DP      | decommissioning plan              |
| IMC     | inspection manual chapter         |
| MTR     | materials testing reactor         |
| NRC     | Nuclear Regulatory Commission     |
| PULSTAR | Pulse Training Assembled Reactor  |
| RTR     | research and test reactor         |
| RWP     | radiation work permit             |
| TS      | technical specifications          |