



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

July 23, 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. 05000057/2013002, BUFFALO MATERIALS RESEARCH CENTER, UNIVERSITY AT BUFFALO, BUFFALO, NEW YORK

Dear Mr. Vasbinder:

On May 7-8 and July 8-9, 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 inspector, interviews with personnel, and a review of work plans and records. The findings of the inspection were discussed with you at the conclusion of the inspection, on July 9, 2013, and are described in the enclosed inspection report. No findings of safety significance 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

2

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

Sincerely,

***Original Signed By Marc S. Ferdas***

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

Enclosure:  
Inspection Report No. 05000057/2013002

cc w/enclosure:  
A. Peterson  
C. Burns  
D. O'Hehir  
T. Rice  
R. Hill, Chief  
L. Henry, Chief  
State of New York

D. Vasbinder

2

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

Sincerely,

**Original Signed By Marc S. Ferdas**

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

Enclosure:  
Inspection Report No. 05000057/2013002

cc w/enclosure:  
A. Peterson  
C. Burns  
D. O'Hehir  
T. Rice  
R. Hill, Chief  
L. Henry, Chief  
State of New York

DISTRIBUTION:  
T. Smith, FSME  
M. Ferdas, RI  
S. Hamman, RI

DOCUMENT NAME: G:\WordDocs\Current\Insp Letter\LR-77.2013002.doc

ML13204A096

**SUNSI Review Complete: SHammann**

After declaring this document "An Official Agency Record" it will be released to the Public.

To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	N	DNMS/RI	N	DNMS/RI		
NAME	SHammann\sh		MFerdas\msf				
DATE	7/23/13		7/ 23 /13				

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Inspection No. 05000057/2013002  
Docket No. 05000057  
License No. R-77  
Licensee: Buffalo Materials Research Center (BMRC)  
Location: 220 Winspear Avenue  
Buffalo, NY 14215  
Inspection Dates: May 7-8, and July 8-9, 2013  
  
Inspector: Stephen Hammann  
Senior 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. 05000057/2013002

Announced inspections were conducted on May 7-8 and July 8-9, 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 inspector, interviews with BMRC and contractor personnel, and a review of work plans 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**

### **1. 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). Since dismantlement activities started in January 2013, BMRC's DOC and DC have completed the following: removed reactor internal components and drained the pool, removed the thermal columns and moveable blocks, removed the bioshield and hot cell, dismantled primary coolant piping, N-16 tank, and portions of the building ductwork, and the five tanks from the underground tank farm were excavated and moved into the reactor building.

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

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

Announced inspections were conducted on May 7-8 and July 8-9, 2013, at the BMRC, in Buffalo, New York. The inspections reviewed BMRC's decommissioning activities associated with their RTR, including: bioshield cutting and removal, ductwork removal, tank farm removal, and breaking of the concrete neutron deck floor. The inspections verified if dismantlement and decontamination activities were being conducted safely and in accordance with regulatory requirements, licensee commitments, NRC-approved DP, procedures, and work plans. The inspection consisted of observations by the inspector, interviews with BMRC and contractor personnel, and a review of work plans and records. The NRC's program for overseeing the safe decommissioning of a RTR is described in IMC 2545.

The inspector reviewed BMRC's organization and temporary staffing to determine if it satisfied the DP requirements, license, and technical specification (TS) requirements. The inspector 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 inspector reviewed work plans and records and observed decommissioning activities to determine if they were being implemented as specified in the DP and TS.

The inspector 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 inspector observed DOC personnel providing health physics job coverage for dismantlement activities and the performance of radiation and contamination surveys. The inspector reviewed radiation work permits (RWPs) and verified that areas were posted for the radiological conditions in accordance with 10 CFR Part 20. The inspector determined if radiation instrumentation calibrations were current, reviewed dosimetry records, and reviewed the placement and use of air samplers within the facility.

The inspector 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 inspector 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 inspector determined that personnel involved in the decommissioning activities at the BMRC RTR have been adequately trained and are effectively implementing site procedures and work plans. Since the start of decommissioning, no reportable events have occurred. BMRC has shipped radwaste to Alaron Nuclear Services in Pennsylvania, Materials and Energy Corporation in Tennessee, and Studsvik Processing Facility in Tennessee. The inspector reviewed records associated with the shipments and determined the shipments complied with regulatory requirements. The inspector determined adequate radiation detection instrumentation and dosimetry were being used.

The inspectors noted that during excavation of the underground tanks it was discovered that the 10,000 gallon tank had a leak and subsequent soil samples in the vicinity of the tank determined contamination was present. The inspector reviewed the licensee's plans to remediate the soil and determined the plans were adequate and in accordance with the DP.

c. Conclusions

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

**3. Exit Meeting**

The inspection results were discussed with Dave Vasbinder, BMRC Director, and other members of the BMRC staff, on July 9, 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**

Buffalo Materials Research Center, Building Survey Summary, March 2013 and April 2013  
Buffalo Materials Research Center, Radiation Safety Inspection Report, April 3, 2013 and April 24, 2013  
EHS, Demolition Safety Checklist May 2, 2013  
ENERCON Air Sample Log, May 2013 and June 2013  
ENERCON Air Sample Results Form, May 2013  
ENERCON CAM Sample Log, May 2013  
ENERCON CAM Sample Results Form, May 2013  
ENERCON Radiological Survey Form, Log Numbers 01/05/2013-001, 002, 003, 004, 005, 006, 007, 008, 009: 02/05/2013-001, 002, 003, 004, 005, 006, 007: 06/05/2013-001, 002, 003, 004, 005, 006, 007, 008: and 20/06/2013-002  
NRC Form 540, Uniform Low-Level Radioactive Waste, Manifest Numbers: UB-ES-001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, and 005342986FLE  
RWP-BMRC-010, 011, 012, 013, 014, 015, 016  
UB-WCD-OP-04, "Activated Concrete Removal Work Plan"  
UB-WCD-OP-05C, "Waste Water Systems Removal Work Plan"  
UB-WCD-OP-05D, "Control Deck Ventilation Removal work Plan"  
UB-WCD-OP-06, "Asbestos Abatement Work Plan"  
UB-WCD-OP-07, "Utility Isolation Work Plan"  
UB-WCD-OP-08, "Demolition Work Plan"  
Weekly Fire Code Review, April 29, 2013



## 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