



University at Buffalo
The State University of New York

Environment, Health & Safety Services

April 11, 2014

Docket 50-57
License R-77

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555 -0001

Dear Sir or Madam:

Enclosed please find the following documents:

- Letter dated April 7th, 2014 from The University's decommissioning management contractor Enercon to Mr. Dave Vasbinder detailing information and data to address specific comments provided by ORISE to the N.R.C. regarding building release surveys performed at the University at Buffalo's Buffalo Materials Research Center to prepare the building for demolition.
- Attachment 1 to the above letter containing Table 1: Classification of the BMRC Building and Table 2: Adjusted Background Radiation Subtraction Survey Units
- Attachment 2: Enercon Survey Packages

We have also provided courtesy copies of this information to our Project Manager, Ted Smith and Region 1 Inspector, Steve Hammann as well as to ORISE.

If you have any questions or wish further information, please contact me at (716) 829-3301.

Sincerely,

David R. Vasbinder
Director, Buffalo Materials Research Center

Cc: Ted Smith, U.S.N.R.C. Project Manager
Steve Hammann, NRC Region 1
Nick Altec, ORISE

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April 11, 2014
GEW-P14-003

Mr. Dave Vasbinder
Associate Director
Environment, Health, and Safety Services B.M.R.C.
The State University of New York
University at Buffalo
220 Winspear Avenue
Buffalo, NY 14215-1034

Re: BMRC Demolition Surveys

Mr. Vasbinder;

This letter and supporting data is provided to address specific comments provided by ORISE to the NRC and SUNY regarding the building release surveys performed at the BMRC to prepare the building for demolition. Based on the results provided with this letter, it is concluded that the building has met the release criteria in the Final Status Survey Plan, the Decommissioning Plan, and MARSSIM guidelines. The building can be released for demolition as described in the Decommissioning Plan.

Background

The Buffalo Materials Research Center (BMRC) is currently performing decommissioning. As part of the process, the building has been remediated and is scheduled to be demolished per the NRC-Approved Decommissioning Plan. As part of the decommissioning process, radioactive materials were removed from the building and shipped for disposal. The interior and exterior surfaces were surveyed for residual radioactive materials derived from operation of the BMRC reactor. In order to release the building, ENERCON conducted building surveys to verify that the building can be released for demolition.

Decommissioning Strategy

During the decommissioning planning process, a Building Release Survey Plan was prepared for the project. All survey plans prepared using the MARSSIM guidelines include collection and assessment of survey data when compared to the release criteria in the decommissioning plan. Further survey plans incorporate the reclassification of survey units based on data collected and evaluated in the survey process, if the data indicated the original selected classification should be modified.

During decommissioning actions, areas within the building were remediated, surveyed, and released based on reducing surface contamination levels below the DCGL values, then further reducing levels using the ALARA principal by performing additional surface cleaning even if an area was found to already meet the DCGL values. The policy was followed by the decommissioning contractor (LVI), supported by the oversight contractor (ENERCON), and endorsed by the licensee (SUNY).

ORISE Site Review

At the completion of the building remediation, survey packages were prepared by ENERCON for the various MARSSIM classified areas. These survey packages were provided to ORISE for their review and

use during the confirmatory site visit. During the visit by ORISE, several Class 2 and Class 3 areas were found with detectable surface levels of radionuclides above the detection limit but below the DCGLs. It is noted that ORISE considers survey data meeting this criteria as indicative of an area being "contaminated". ORISE believes these areas should have been remediated to reduce surface levels to non-detect, and based on the effort to achieve this objective the survey unit should have been reclassified as a Class 1 MARSSIM survey unit.

ORISE notes that MARSSIM Section 5.5.3, "Developing an Integrated Survey Strategy" provides guidance in regards to dealing with Class 2 surveys. Specifically, Section 5.5.3.1 states that, "...locations of scanning survey results above the investigation level are identified and investigated" and that, "if small areas of elevated activity are confirmed by the investigation, all or part of the survey unit should be reclassified as Class 1 and the survey strategy for that survey unit redesigned accordingly."

Building Survey Unit Reassessments and Reclassifications

To address and resolve the ORISE concerns, the areas of concern noted by ORISE were identified, investigated, and reclassified as necessary. These areas included the Control Deck, Gamma Deck, and Neutron Deck inside of containment, the 10k tank room, the boiler room, Room 115, and the 1k tank room. As necessary, cleaning of the building surfaces was completed. Upon completion of the cleaning, the units were reclassified to Class 1 survey units per the MARSSIM guidance. These new Class 1 survey units were resurveyed following the FSS and MARSSIM protocols. These results are provided in the attached data packages.

As a summary of the actions and reclassifications performed, Table 1 (attached) provides a listing of the specific survey units, identifies the original classification, and provides the revised classification.

Neutron Deck Survey Unit

During the ORISE visit, a Class 2 survey unit was noted to have contamination above the limits of Regulatory Guide 1.86. This area was on the floor where a 100% scan survey was performed. This location was compared to the building release survey compiled by ENERCON, and a discrepancy was noted. In specific, the ENERCON survey package for the Neutron Deck (RBN-000) indicated there was no contamination found on the Neutron Deck. However, during confirmatory surveys, ORISE found an area of contamination on the floors of the Neutron Deck. To address this issue, the area of concern were remediated and resurveyed.

The cause of the discrepancy was unclear. As part of the review process, ENERCON verified that scans and direct measurements with floor monitors were completed. ENERCON verified that all instruments were calibrated using NIST-traceable standards. ENERCON verified that daily calibration checks of each instrument were recorded. It was concluded that the most probable cause for the discrepancy was human error. As a corrective measure, the individual performing the surveys was removed from performing building release surveys. Re-assignment and re-training was performed.

ENERCON's investigative procedure followed standard chain-of-command reviews. Data compiled by the technicians was put into survey package form, and provided to the radiological and project manager to review and approve. After collection of data was completed, transcription and processing verifications were performed and confirmed to have been performed accurately. The field QA data verification process, required in accordance with the FSS Plan and MARSSIM protocols, was performed. This verification process requires checks at 10 percent of the survey locations. The discrepancy was not

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identified in the field QA verification since the location was not part of the selected 10 percent for QA verification.

Background Radiation Subtraction

During the data review by ORISE, it was noted that some surveys contained skewed data in regards to questionable background radiation subtraction. This skew caused the data to be negative for several survey packages. Daily backgrounds were applied to individual survey units resulting in skewed data. It was determined that this should be corrected by re-performing individual background surveys in each unit, and updating the survey packages for those units.

As a corrective measure, ENERCON re-surveyed the survey units, and performed additional background measurements in each survey unit. Table 2 (attached) provides a listing of the specific survey units with a revised background. The revised data packages are also attached to this letter. It is noted that using the corrected background measurements, the data sets have resulted in a more typical data distribution. Additionally, these adjusted survey unit packages applied a 0.25 surface efficiency factor.

Conclusion

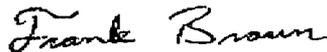
ENERCON's actions have addressed and corrected the items noted by ORISE. Revised data packages are attached as verification of this process. Based on the results in these attached MARSSIM survey packages, we have concluded that the building has met the FSS release criteria in the FSS plan, the decommissioning plan, and the methodology specified in MARSSIM. Accordingly, the building demolition is planned, and awaiting NRC approval to proceed.

It is noted that, as agreed on by SUNY and NRC, there are specific structural components in the building that contain activated concrete. These components could not be removed during remediation without impacting the structural integrity of the building. These components are not included in the release surveys. The concrete in these components will be isolated and removed as LLRW during the building demolition. These specific areas have been clearly demarcated within the building utilizing orange spray paint. A list of these items is provided with this letter.

Sincerely,



Gerald E. Williams, P.E.
Manager, Environmental Services Group



Frank Brown
Project Manager

Enclosures

cc: Robert Weller



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ATTACHMENT 1

Table 1: Classification of the BMRC Building

Location	Initial Survey Package Identification Number	Final Survey Package Identification Number	Initial Classification	Revised Classification
<i>Control Deck</i>	RBC-200	RCD-001 North and RCD-002 South	Class 2	Class 1
<i>Gamma Deck</i>	RBG-100	RGD-001 North and RGD-002 South	Class 2	Class 1
<i>Neutron Deck</i>	RBN-000	RND-001 North and RND-002 South	Class 2	Class 1
<i>10k Tank Room</i>	ADM-000-1	ADM-10K-001	Class 3	Class 1
<i>Boiler Room</i>	ADM-000-2	ADM-BR-001	Class 2	Class 1
<i>Room 115</i>	ADM-100	ADM-108/115-001	Class 3	Class 1
<i>1k Tank Room</i>	ADM-000-3	ADM-1K-001	Class 2	Class 1

Table 2: Adjusted Background Radiation Subtraction Survey Units

Location	Survey Package Identification Number
N16 Tank Room	ADM-000-4
1k Tank Room Pit	ADM-000-5
10k Tank Room, Rooms N05, SN06, and N04; Upper Surfaces	ADM-001-1
Room N02, N03, and N16; Upper Surfaces	ADM-001-2
Second Floor of Administration Building	ADM-201
Room 202 (P Chem Lab) Upper Surfaces	RBC-201-1
Reactor Building Exterior	RBE-401
Gamma Deck Rooms 101, 103, 104, 106, 108, and 109; Lower Surfaces	RBG-100
Gamma Deck Rooms 101, 101A, 103, 106, 108, and 109; Upper Surfaces	RBG-101
Neutron Level Reactor Pit Lower Surfaces	RBN-000-1
Neutron Deck Upper Surfaces	RBN-001
Neutron Level Reactor Pit Upper Surfaces	RBN-001-1



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ATTACHMENT 2

SURVEY PACKAGES



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ATTACHMENT 3

Imbedded Piping and Activated Structural Concrete to Remain

The following is a list of items that will be left for removal during building demolition. These items will be segregated and disposed of as low level radioactive waste (LLRW). All items have been spray painted florecent orange for easy of identification.

- Item 1 is a pipe in the northwest portion of the reactor pit and goes to the 1k tank sump.
- Item 2 is the abandoned cooling line running from the center of the reactor pit under the Neutron Deck Floor to the N-16 Tank Vault.
- Items 3, 4, and 5 are the Dry Chamber columns, lintel, and floor.
- Item 6 is the seven Beam Storage Tubes that extend from the interior of the Reactor Building into the soil southwest of the Reactor Building.
- Item 7 and 8 are a ventilation pipe from the Hot Cell running from the gamma deck down to the neutron deck.
- Item 9 is a drain line running from the area in the sub-basement where the eleven waste lines exit the building. This line runs to the 1k sump.
- Item 10 is four lines entering the 1k tank sump area just above the sump. These are various drains from the containment building.
- Item 11 is eleven waste lines running from the sub-basement, terminating at the tank excavation outside the rollup door to the reactor building.
- Item 12 is the area on the neutron deck which is covered by cinder blocks. This area will be surveyed upon removal of the blocks during building demolition.