

January 15, 2014

Robert B. Boyd, D.V.M.
CEO/Director of Life Sciences
Radiation Safety Officer
Northern Biomedical Research, Inc.
1210 Pontaluna Road
Spring Lake, MI 49456

SUBJECT: NRC INSPECTION REPORT NO. 03034005/2013001(DNMS) - NORTHERN
BIOMEDICAL RESEARCH

Dear Dr. Boyd:

This refers to the inspection conducted on December 4 and 5, 2013, with in office review through December 24, 2013, of the Northern Biomedical Research facility at 930 W. Sherman Boulevard in Muskegon, Michigan (Inspection Report No. 03034005/2013001(DNMS), enclosed). The purpose of the inspection was to determine whether decommissioning activities were being conducted safely and in accordance with U.S. Nuclear Regulatory Commission (NRC) requirements. The enclosed report presents the results of this inspection. At the conclusion of the on-site inspection on December 5, 2013, the inspector discussed the interim inspection results with you. At the conclusion of the in-office review, a final telephone exit meeting was conducted on December 26, 2013, to discuss the final inspection results with you.

During this inspection, the NRC staff examined decommissioning activities conducted under your license as they relate to public health and safety to confirm compliance with the Commission's rules and regulations, and with the conditions of your license. Within these areas, the inspection consisted of a site tour, personnel interviews, observations of on-going decommissioning activities, a review of documents, and confirmatory surveys to assess your security and control of the facility and final survey program for the facility.

Based on the results of this inspection, the NRC did not identify any violations of significance.

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC's Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC's web site at <http://www.nrc.gov/reading-rm/adams.html>.

R. Boyd

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We will gladly discuss any questions you may have regarding this inspection. If you have questions, please feel free to contact Lionel Rodriguez of my staff at 630-829-9609.

Sincerely,

/RA/

Robert J. Orlikowski, Chief
Materials Control, ISFSI
and Decommissioning Branch
Division of Nuclear Materials Safety

Docket No. 030-34005
License No. 21-26687-01
Mail Control No. 580320

Enclosure:
Inspection Report No. 03034005/2013001(DNMS)

cc w/encl: State of Michigan

R. Boyd

- 2 -

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cc w/encl: State of Michigan

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.	030-34005
License No.	21-26687-01
Report No.	03034005/2013001(DNMS)
Licensee:	Northern Biomedical Research
Location:	930 W. Sherman Boulevard Muskegon, Michigan
Dates:	December 4 and 5, 2013 (on-site) through December 24, 2013 (in-office) December 26, 2013 (final exit)
NRC Inspector:	Lionel Rodriguez, Reactor Engineer (Decommissioning)
Approved by:	Robert J. Orlikowski, Chief Materials Control, ISFSI, and Decommissioning Branch Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY
Northern Biomedical Research
Inspection Report 03034005/2013001(DNMS)

This decommissioning inspection evaluated Northern Biomedical Research's decommissioning activities at their 930 W. Sherman Boulevard facility. In the past the licensee occasionally used licensed material, including tritium (H-3) and carbon-14 (C-14), to perform research activities. The licensee decided to terminate their license and submitted a license termination request (Mail Control No. 580320) to the U.S. Nuclear Regulatory Commission (NRC) in March of 2013. This decommissioning inspection focused on their security and control of the facility and final survey program for the facility. NRC confirmatory surveys were performed to further assess the licensee's final survey program.

Security and Control of the Facility

- The inspector determined that the licensee is adequately securing and controlling access to the 930 W. Sherman Boulevard facility.

Final Survey Program

- The inspector determined that the licensee's final survey program was in accordance with applicable decommissioning requirements and guidance. The decommissioning surveys observed were adequately performed with a proper and calibrated instrument.

Confirmatory Surveys

The NRC confirmatory surveys did not identify any residual radioactivity at the 930 W. Sherman Boulevard facility above regulatory release limits. All of the confirmatory surface scan surveys were at or near background levels, below the regulatory limits. Surface scan surveys of equipment previously used at the facility were also below regulatory release limits. The confirmatory swipe sample results, collected by the NRC and analyzed by Oak Ridge Associated Universities (ORAU) similarly demonstrated residual radioactivity was below regulatory release limits.

Report Details

1.0 Decommissioning Inspection Procedure for Materials Licensees (IP 87104)

1.1 Security and Control of the Facility

a. Inspection Scope

The inspector reviewed the Northern Biomedical Research license, license application, and applicable regulations to understand the security and control requirements for the 930 W. Sherman Boulevard facility. The inspector also performed a tour of the facility with the Radiation Safety Officer (RSO) to assess the licensee's compliance with those requirements.

b. Observations and Findings

The inspector observed that access to the facility was adequately controlled by the licensee through the use of a fence, a security system, and locked doors. During a tour of the 930 W. Sherman Boulevard facility, the inspector observed that it had been completely vacated by the licensee, and that only final status survey activities were occurring at the facility.

No findings of significance were identified.

c. Conclusions

The inspector determined that the licensee was adequately securing and controlling access to the 930 W. Sherman Boulevard facility.

1.2 Final Survey Program

a. Inspection Scope

The inspector reviewed the Northern Biomedical license, license tie-downs, documents submitted as part of the license termination request, and other documents to understand applicable requirements for the decommissioning activities taking place. The inspector also interviewed licensee staff, including the RSO, to understand the licensee's final survey program. Finally, the inspector observed the performance of final status surveys in the facility to ensure they met regulatory requirements.

b. Observations and Findings

Through interviews with the licensee, the inspector was informed that the final survey program generally consisted of the following: (1) selection of rooms that would be surveyed based on past uses of radioactive material at the facility; (2) 100% scans of floors and walls up to 6 feet; (3) one static measurement every 100 square feet (ft²) at location of highest count rate within the area; (4) approximate 100 square centimeter (cm²) swipe of location with the highest count rate; and (5) a static measurement of swipes collected. The inspector determined that the final survey program defined was in accordance with the "Simplified Survey Procedures" described in Figure 8.1 of NUREG 1757 Volume 1, "Consolidated Decommissioning Guidance."

The inspector observed licensee personnel performing final status surveys. The surveys were being performed in accordance with the final survey program discussed above. The survey techniques utilized were adequate to meet the required scan sensitivity. In addition, the inspector reviewed the training records for the personnel performing the surveys and determined they had been trained to perform the surveys.

The inspector observed the licensee's instrument used for final status surveys and reviewed the calibration certificate associated with the instrument. The inspector determined that the survey instrument was properly calibrated and adequate to detect the type of radiation the licensee was surveying for (carbon-14 beta radiation). In addition, the inspector observed the instrument checks performed by the licensee and determined they were adequate to verify the continued operation of the instrument.

No findings of significance were identified

c. Conclusions

The inspector determined that the licensee's final survey program was in accordance with applicable decommissioning requirements and guidance. The decommissioning surveys observed were adequately performed with a proper and calibrated instrument.

1.3 Confirmatory Surveys

a. Inspection Scope

On December 4 and 5, 2013, the inspector toured the 930 W. Sherman Boulevard facility and performed independent confirmatory surface scan surveys at the facility to determine if there was any residual radioactivity above the regulatory release limits. The surveys were performed with a calibrated meter coupled to a beta plastic scintillator or a Geiger-Mueller pancake probe. The inspector performed biased surveys in the former Cage Wash Area, Necropsy Room, Clinical Pathology Room, and Animal Room 3. The inspector also performed limited surveys in the hallway between the Necropsy Room and the Clinical Pathology Room, as well as the entrance way from the Reception Area to the laboratory area. On December 5, 2013, the inspector performed surface scan surveys of two Necropsy tables and a fume hood in storage at another licensee facility which originally came from the 930 W. Sherman Boulevard facility.

In addition to the surface scan surveys performed, the inspector collected a total of five swipe samples from biased locations at the 930 W. Sherman Boulevard facility. Two samples were collected in the Cage Wash Area, one in the Clinical Pathology Room, one in the Necropsy Room, and one in Animal Room 3. The swipe samples were sent to the NRC's contractor for laboratory analysis, ORAU.

b. Observations and Findings

The inspector performed confirmatory surface scan surveys of the areas described above to determine if there was any C-14 residual radioactivity above the regulatory release limits at the facility. Within those areas, the inspector focused on biased areas where the highest likelihood for contamination existed due to historical uses of radioactive material at the facility as described in the license and by the RSO. The

inspector did not identify any residual radioactivity above the regulatory release limits at the 930 W. Sherman Boulevard facility. All of the areas surveyed were found to be at or near background radiation levels. Surveys performed by the inspector of the two Necropsy tables and the fume hood which had been removed from the facility resulted in no detectable C-14 on the equipment, also confirming that residual radioactivity on the equipment was below the regulatory release limits.

Confirmatory swipe samples (each covering an approximate 100 cm² area) from the locations described above were collected by the inspector and sent to ORAU for lab analysis to determine if there was any C-14 or tritium (H-3) residual radioactivity at the facility. The swipe samples were also collected from biased locations where the highest likelihood for contamination existed due to historical uses of radioactive material at the facility. In the Cage Wash Area, one swipe sample was collected from the drain location where the licensee historically released effluents at the facility and another swipe sample was collected at a corner in the predominant spray direction where water was aimed during "cage washing." In the Clinical Pathology room, the swipe sample was collected on a bench where H-3 had been formerly stored inside a fume hood. In the Necropsy Room, the swipe sample was collected on the floor at a location between the two former Necropsy tables. In Animal Room 3, the inspector collected the swipe sample on a wall at a location where the licensee had also collected a swipe sample as part of their final survey program. Results for the analysis of the five swipe samples performed by ORAU were received in a report dated December 17, 2013 (ML13364A172). The inspector reviewed the results and observed there was no detectable C-14 or H-3 on any of the swipe samples; therefore demonstrating they were below the regulatory release limits.

No findings of significance were identified.

c. Conclusions

The NRC confirmatory surveys did not identify any residual radioactivity at the 930 W. Sherman Boulevard facility above regulatory release limits. All of the confirmatory surface scan surveys were at or near background levels, below the regulatory limits. Surface scan surveys of equipment previously used at the facility were also below regulatory release limits. The confirmatory swipe sample results, collected by the NRC and analyzed by ORAU, similarly demonstrated residual radioactivity was below regulatory release limits.

2.0 Exit Meeting Summary

The inspector presented the interim inspection results to the RSO at the conclusion of the onsite inspection on December 5, 2013. After in-office review of the ORAU swipe sample results was completed on December 24, 2013, a follow-up teleconference exit was held with the RSO on December 26, 2013. The licensee acknowledged the results presented and did not identify any of the documents reviewed by the inspector as proprietary.

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Dr. Robert B. Boyd, Radiation Safety Officer

LIST OF PROCEDURES USED

IP 87104 Decommissioning Inspection Procedure for Materials Licensees

ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Opened</u>	<u>Type</u>	<u>Summary</u>
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None

<u>Discussed</u>	<u>Type</u>	<u>Summary</u>
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None

<u>Closed</u>	<u>Type</u>	<u>Summary</u>
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None

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
C-14	Carbon-14
CFR	Code of Federal Regulations
cm ²	Square Centimeters
DNMS	Division of Nuclear Material Safety
ft ²	Square Feet
H-3	Tritium
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
NRC	U. S. Nuclear Regulatory Commission
ORAU	Oak Ridge Associated Universities
RSO	Radiation Safety Officer

PARTIAL LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

Northern Biomedical Research Letter, "Response to Request for Additional Information," dated August 23, 2013

Northern Biomedical Research Letter, "Response to Request for Additional Information," dated May 7, 2013

Northern Biomedical Research License No. 21-26687-01 Amendment No. 2, dated July 25, 2012 (ML12214A413)

Northern Biomedical Research License Termination Request, dated March 28, 2013

Northern Biomedical Research NRC License Application, dated August 22, 2011 (ML112351219)

Northern Biomedical Research Record, "Certificate of Calibration," dated October 15, 2013

Northern Biomedical Research Record, "Radiation Survey Training," dated November 25, 2013

Northern Biomedical Research Sample Record, "Radioactive Material Survey Report," as of December 4, 2013

NRC Letter, "Request for Additional Information Regarding Northern Biomedical Research, Inc. NRC License No. 21-26687-01 Termination Request," dated July 26, 2013 (ML13207A390)

NRC Telephone Conversation Record, "Call between NRC and Licensee on Additional Questions Related to the Decommissioning of the 930 W. Sherman Boulevard Facility and Termination of the NRC License," dated October 4, 2013 (ML13347B345)

NRC Telephone Conversation Record, "Our Review of Your Termination Request Letter Dated March 28, 2013," dated June 3, 2013 (ML13203A155)

ORAU Report, "Letter Report for Analytical Results for Five Swipe Samples from the Northern Biomedical Research Facility, Muskegon, Michigan," dated December 17, 2013 (ML13364A172)