

INSPECTION RECORD

Region: III

Inspection Report No. 2017001

License No. 21-00741-08

Docket No. 030-01995

Licensee: Wayne State University  
Health Physics Department  
5425 Woodward Ave., 3<sup>rd</sup> Floor  
Detroit, Michigan 48202

Locations Inspected: Various Facilities on the Campus of Wayne State University

Licensee Contact: Maha Srinivasan, RSO

Telephone No. 313-577-0019

Program Code: 01100 Priority: 3

Type of Inspection: ( ) Initial (X) Routine ( ) Announced  
( ) Special (X) Unannounced

Last Inspection Date: July 30, 2013 - August 1, 2013 Date of This Inspection: May 1-3, 2017, with continued in-office review through June 9, 2017

Next Inspection Date: May 1, 2020 (X) Normal ( ) Reduced

Summary of Findings and Actions:

- ( ) No violations cited, clear U.S. Nuclear Regulatory Commission (NRC) Form 591 or regional letter issued
- ( ) Non-cited violations (NCVs)
- ( ) Violation(s), Form 591 issued
- (X) Violation(s), regional letter issued
- ( ) Follow-up on previous violations

Inspector: Dennis P. O'Dowd, Health Physicist

/RA/  
Signature

Date 7/5/2017

Approved: Aaron T. McCraw, Chief, MIB

/RA/  
Signature

Date 7/6/2017

## **PART I – LICENSE, INSPECTION, INCIDENT/EVENT AND ENFORCEMENT HISTORY**

### 1. AMENDMENTS AND PROGRAM CHANGES SINCE LAST INSPECTION:

<u>AMENDMENT #</u>	<u>DATE</u>	<u>SUBJECT</u>
54	12/22/2016	New RSC Chair; Removal of research vessel as a location of use
53	05/05/2016	Listing of specific locations of use (i.e., facilities on campus) as a result of 2015 revisions to the NRC's Fee Rule
52	04/22/2015	New temporary use location and use protocols on research vessel, between 06/01/2015, and 10/31/2015
51	02/19/2015	Removal and addition of certain radionuclides

### 2. INSPECTION AND ENFORCEMENT HISTORY:

The last inspection of this licensee was conducted on July 30, 2014, through August 1, 2014. No violations of NRC requirements were identified. The previous inspection took place from September 13-15, 2011, with in-office review through September 28, 2011. One security-related violation was identified during that inspection.

### 3. INCIDENT/EVENT HISTORY:

No open items or events since the last routine inspection.

## **PART II – INSPECTION DOCUMENTATION**

### 1. ORGANIZATION AND SCOPE OF PROGRAM:

Wayne State University (the licensee) was a large academic institution located in Detroit, Michigan, with an enrollment of over 27,000 students, and over 2,600 faculty members. The university operated a Type A academic broadscope license, and was authorized to possess and use radioactive material in multi-millicurie quantities, primarily for research and development (R&D) and teaching purposes. The radiation safety office was staffed with a dedicated, full-time Radiation Safety Officer (RSO), one assistant RSO, two staff health physics specialists, and two radioactive waste technicians, as well as secretarial and support members. The university established a Radiation Safety Committee (RSC), which reviewed and approved users, uses, and facilities and also conducted an annual radiation safety program audit. Radioactive material, primarily, carbon-14, tritium (hydrogen-3), fluorine-18, phosphorus-32, sulfur-35, chromium-51, and copper-64, was used for R&D, as defined in Section 30.4, and for student teaching purposes in approximately 120 laboratories at the institution. The radiation safety office performed routine, semi-annual inspections and confirmatory surveys of the institution's research laboratories. Approximately 40 individuals were approved as Principal Investigators by the RSC, with less than half of these actively involved in the use of licensed material. The RSC granted permits for users for a 3-year term. Approximately 125 individuals worked under the supervision of the permit holders.

2. SCOPE OF INSPECTION:

Inspection Procedure(s) Used: 87126

Focus Areas Evaluated: All

This inspection consisted of interviews with licensee personnel, including all of the radiation safety office staff, certain members of the radiation safety committee, including the committee chair, authorized users, supervised users, and ancillary staff; a tour of selected research labs and storage areas throughout the campus; a review of selected records; and independent measurements. The inspection included observations of experiments, including animal experiments involving the use of fluorine-18; experiment setups; surveys for compliance with NRC requirements; security of licensed material; and use of personnel monitoring. This inspection included in-office review and discussions with NRC Region III's Materials Licensing Branch staff regarding the licensee's limitations with respect to generally licensed liquid scintillation counters. Licensee personnel throughout the organization demonstrated and explained ordering and receipt of licensed material, laboratory use of licensed materials, radiological safety precautions during use, tracking of materials, storage and disposal of licensed materials, contamination surveys, inventory procedures, and training. Interviews with licensee personnel indicated adequate knowledge of radiation safety concepts and procedures.

3. INDEPENDENT AND CONFIRMATORY MEASUREMENTS:

Using a Ludlum 2403 survey meter with a model 44-9 energy-compensated GM detector, calibrated on February 24, 2017, and a ThermoScientific RadEye G gamma survey meter, calibrated on February 22, 2017, the inspector conducted independent and confirmatory surveys at various locations on the licensee's campus, including several research laboratories and the radioactive waste facility. The results of these surveys and measurements were consistent with licensee survey records and postings. The inspector found no readings that would indicate residual contamination or exposures to members of the public in excess of regulatory limits.

4. VIOLATIONS, NCVs, AND OTHER SAFETY ISSUES:

During interviews with the licensee's RSO and the radiation safety staff in which the scope of the licensee's radiation safety program in relationship to the institution's possession and use of generally licensed devices (e.g., gas chromatographs and liquid scintillation counters) was discussed, the RSO described an activity that had taken place in 2014 and 2015 in which one of the health physics specialists with the radiation safety staff, under the direction of the RSO, had removed sealed calibration sources from generally licensed liquid scintillation counters on campus that were no longer being used. This activity was taken as part of the institution's efforts at minimizing the risk of these devices containing radioactive material becoming lost or missing, as well as to provide a service to researchers by minimizing the cost of removal and disposal by the device manufacturer.

The RSO explained that this effort had been discussed with the licensee's RSC prior to its commencement, and that the RSC had been briefed while this activity was in process. However, based on interviews with the RSO and the RSC Chair, as well as review of documents, including pertinent RSC meeting minutes, the RSC did not conduct a formal

review and approval of the radiation safety office's activity in removing sealed calibration sources from liquid scintillation counters.

Because the licensee has a broadscope authorization, the inspector conducted in-office review to coordinate with the NRC Region III materials licensing staff to review whether or not this activity was authorized by the licensee's broadscope license. The conclusion of the in-office review was that the licensee's removal of the sources and subsequent possession was a violation of 10 CFR 30.3 in that the licensee was in possession of sources that were not authorized by the specific license, covered by a general license, or exempt from the requirements for a license. The removal of the sources from the generally licensed devices was contrary to and invalidated the general license that the sources could be possessed under when they are incorporated as part of an authorized device.

The root cause of the violation was a misunderstanding by licensee staff, as well as the Radiation Safety Committee, believing that removal of sealed sources from generally licensed liquid scintillation counters and subsequent possession of those sources was authorized under the broadscope license. The licensee restored compliance when it disposed of the sealed sources it had removed from the generally licensed liquid scintillation counters on October 20, 2015. As corrective action to prevent recurrence, the licensee agreed to cease any activity involving the removal of sealed sources from generally licensed devices and committed to ensure that any such activity would only be conducted by the device manufacturer or a service contractor specifically authorized for this activity until the licensee receives specific authorization from the NRC to perform such activities under its license. The licensee intends to pursue specific authorization for this activity, and is preparing a request for a license amendment.

5. PERSONNEL CONTACTED:

- \*# Philip R. Cunningham, Ph.D. – Associate Vice President - Research
- \*# Robert W. Moon – Director, Office of Environmental Health and Safety
- \*# Maha Srinivasan – RSO
- \* Jeffrey H. Withey, Ph.D. – Associate Professor, and Chair, RSC
- \* Wendy Barrows – Assistant RSO
- \* Ryan Boyd – Health Physics Specialist
- \* Diane Gilbert – Health Physics Specialist
- Edward Speese – Health Physics Technician
- Lamont Branch – Health Physics Technician
- Alan Sabastian, Ph.D. – Laboratory Manager, Physics Department
- Other staff including principal investigators and supervised users
  
- \* Attended the onsite preliminary exit meeting on May 3, 2017.
- # Attended telephonic final exit meeting on June 9, 2017.