

**UNIVERSITY OF MICHIGAN**  
**ANNUAL INSPECTION PLAN 2007-2008**

Licensee: University of Michigan  
Ann Arbor, Michigan

Licenses No.: 21-00215-04 (broadscope)  
21-00215-06(Pool Irradiator)  
SNM-1377 (Cardiac Pacemaker)  
SNM-179 (SNM and Source materials)

Inspection Dates:  
December 2007  
December 2008

Inspectors: Darrel Wiedeman

Accompanying Personnel: Staff from materials Licensing if available and/or available materials inspector.

Purpose/Scope of Inspection: Assess the adequacy of the university's NRC-licensed activities conducted under its broad medical, HDR, research programs, and Cyclotron activities.

Review of the broadscope license will not include all aspects of the program, excluding selected diagnostic nuclear medicine and certain routine brachytherapy programs, unusual brachytherapy cases will be reviewed, e.g., tongue, nose, eye plaques etc.. The 2007 inspection of the broadscope medical program assessment will focus on the HDR and implementation of changes in their procedures as it relates to the HDR, radiation safety committee and radiation safety office involvement and oversight. The CY 2008 inspection will include attendance at the licensee's quarterly Radiation Safety Committee meeting. The CY 2008 inspection will focus on the research programs including animal and human (*in-vitro* and *in-vivo*), and manufacturing/distribution activities at the Cyclotron facility. Both inspections will include an on-site inspection of 20% of the licensee's temporary job-sites and other locations of use. In addition, during each inspection the inspector will review the licensee's incident files for 2007 & 2008 and determine (on a case by case basis) if proper followup and corrective actions were taken. The inspector will close-out all open items (previous violations and NMED issues).

The CY 2008 inspection will include inspections of the licensee's Cyclotron, Pu/Be sources, cardiac pacemaker license, Pu/be howitzers, and pool irradiators and all self-shielded, self-contained irradiators, along with temporary job-sites covered under the broadscope license. The CY 2008 inspection will include the Dearborn, Flint and Belleville campuses. Both (CY 2007 and 2008) inspections will focus on the licensee's corrective action associated with previous violations identified during Increased Controls (ICs) inspections of these licenses. Inspection of the broadscope program will cover the following areas:

1. Radiation Safety Officer and RSS  
(1) Program awareness

- (2) Involvement & Oversight
- (3) Communications with RSC and RSO

2. Communication between the RSS and authorized users

3. Program Scope

a. Medical (HDR and Human Research) **2007 Inspection**

- (1) Users and uses
- (2) Locations of use

b. R & D **2008 Inspection**

- (1) Users and uses
- (2) Locations of use

4. Training, Retraining and Qualifications **2007 and 2008 Inspections**

a. Authorized User qualifications and training; physicians and researchers **2007**

b. Training/Retraining of radiation workers and ancillary staff including portable gauge users. **2008**

5. Personnel Radiation Protection **2007 and 2008 Inspections**

a. External

- (1) Control and Monitoring
- (2) ALARA

b. Internal

- (1) Control and Monitoring Including Bioassays

6. Security of RAM in use and in storage **2007 and 2008 Inspections**

7. Waste Disposal and Effluents **2008 Inspections**

a. Procedures and Methods

b. Adequacy of Controls

c. Effluents, only if licensee has Comply code completed

d. Review former burial practices (10 CFR 20.304)

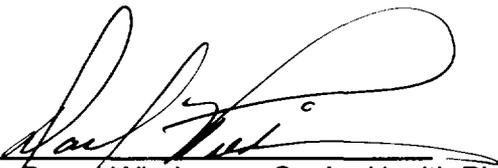
8. Independent Measurements **2007 and 2008 Inspections**

a. **Use and Storage Area Tours and Surveys**; medical & research areas and or formerly used buildings (decommissioning staff may be involved if any timeliness and/or decommissioning issues are identified, excluding the closeout of the teletherapy irradiator.

9. Other Items, As dictated during the Inspection.

10. Exit Meeting 2007 and 2008 Inspections

- a. Inspection findings will be discussed and any disagreements will be resolved prior to leaving the site;
- b. NRC expectations of broadscope licensees will be discussed;
- c. DNMS management may attend at least one(1) of the site inspections including an exit meeting if significant issues are identified..

Prepared By:  10/17/2007  
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Nuclear Materials Inspection Branch

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Licensing Reviewer, Materials Licensing Branch