

**SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION**

1. LICENSEE/LOCATION INSPECTED:

Deaconess Hospital  
c/o Midwest Radiologic Imaging  
4087 Gateway Boulevard  
Newburgh, IN 47630

REPORT NUMBER(S) 16-001

2. NRC/REGIONAL OFFICE

Region III  
U. S. Nuclear Regulatory Commission  
2443 Warrenville Rd, Suite 210  
Lisle, IL 60532

3. DOCKET NUMBER(S)

030-01580

4. LICENSE NUMBER(S)

13-00142-02

5. DATE(S) OF INSPECTION

98  
May 10, 2016

**LICENSEE:**

The inspection was an examination of the activities conducted under your license as they relate to radiation safety and to compliance with the Nuclear Regulatory Commission (NRC) rules and regulations and the conditions of your license. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector. The inspection findings are as follows:

- 1. Based on the inspection findings, no violations were identified.
- 2. Previous violation(s) closed.
- 3. The violation(s), specifically described to you by the inspector as non-cited violations, are not being cited because they were self-identified, non-repetitive, and corrective action was or is being taken, and the remaining criteria in the NRC Enforcement Policy, to exercise discretion, were satisfied.

Non-cited violation(s) were discussed involving the following requirement(s):

- 4. During this inspection, certain of your activities, as described below and/or attached, were in violation of NRC requirements and are being cited in accordance with NRC Enforcement Policy. This form is a NOTICE OF VIOLATION, which may be subject to posting in accordance with 10 CFR 19.11.  
(Violations and Corrective Actions)

**Statement of Corrective Actions**

I hereby state that, within 30 days, the actions described by me to the inspector will be taken to correct the violations identified. This statement of corrective actions is made in accordance with the requirements of 10 CFR 2.201 (corrective steps already taken, corrective steps which will be taken, date when full compliance will be achieved). I understand that no further written response to NRC will be required, unless specifically requested.

| TITLE                     | PRINTED NAME                     | SIGNATURE             | DATE    |
|---------------------------|----------------------------------|-----------------------|---------|
| LICENSEE'S REPRESENTATIVE |                                  |                       |         |
| NRC INSPECTOR             | Zahid Sulaiman, Health Physicist | <i>Zahid Sulaiman</i> | 5/10/16 |
| BRANCH CHIEF              | Aaron T. McCraw, Chief, MIB      | <i>[Signature]</i>    | 5/24/16 |

**Docket File Information**

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|---|---|
| <p>6. INSPECTION PROCEDURES USED</p> <p>87130, 87131, &amp; 87132</p> | <p>7. INSPECTION FOCUS AREAS</p> <p>03.01-03.07</p> |
|---|---|

**SUPPLEMENTAL INSPECTION INFORMATION**

|  |                             |   |  |
|--|-----------------------------|---|--|
| <p>1. PROGRAM CODE(S)</p> <p>02230</p> | <p>2. PRIORITY</p> <p>2</p> | <p>3. LICENSEE CONTACT</p> <p>Susan Brumley, Radiology Director</p> | <p>4. TELEPHONE NUMBER</p> <p>(812) 450-5000</p> |
|--|-----------------------------|---|--|

Main Office Inspection                      Next Inspection Date: 05/10/2018

Field Office Inspection    4055 & 4011 Gateway Boulevard, Newburgh

Temporary Job Site Inspection    600 Mary Street, Evansville, IN

**PROGRAM SCOPE**

This was a routine inspection of a large medical licensee with facilities in Evansville and Newburgh, Indiana authorized under NRC license to use byproduct materials for medical uses permitted by 10 CFR 35.100, 35.200, 35.300, and 35.600, as well as blood irradiator. The nuclear medicine department at 4087 Gateway Boulevard was staffed with two full-time nuclear medicine technologists (NMT) who performed approximately 160 diagnostic nuclear medicine procedures monthly, primarily Hida, bone scan, thyroid, gastric emptying, F-18 for PET studies, and approximately 4 Ra-223 Xofigo treatments per month. At 4011 Gateway Blvd, nuclear medicine was staffed with two full-time NMTs, who performed approximately 100 diagnostic procedures monthly. Doses were primarily Tc-99m for Hida, bone scan, lung scan using DTPA, and other studies. The nuclear medicine department at 421 Chestnut street, Evansville, Indiana performed approximately 60 I-131 hyperthyroid and thyroid ablation treatments annually. The licensee received unit doses and I-131 in capsule form from a licensed radiopharmacy.

The Chancellor Cancer Center located at 4055 Gateway Boulevard was staffed with two oncologists, two authorized medical physicists (AMP), four radiation therapists and one dosimetrist. The licensee conducted approximately 80 high dose-rate brachytherapy (HDR) patient treatments per year. The majority of treatments conducted were for gynecological and breast cancers. The HDR sources were exchanged quarterly, with the most recent source exchange on March 14, 2016.

**Performance Observations:**

The inspector observed one HDR gynecological treatment procedure, administrations of Tc-99m and F-18 diagnostic doses to patients. The inspection consisted of interviews with select licensee personnel; review of select records; tours of the nuclear medicine department, cancer center facility, and laboratory department; and independent measurements. The inspector: (1) observed the NMT conduct a physical inventory of sealed sources, and all sources were accounted for; (2) had the NMT demonstrate the dose calibrator constancy check, package receiving and check-in procedures, the end of the day daily and weekly area surveys, and proper handling of radioactive waste and disposal procedures. The inspector reviewed radiation safety committee minutes, program audits conducted by an outside consultant every quarter, and leak test reports, with no findings. The inspector had the AMP and therapist demonstrate the HDR unit's: (1) security of licensed material; (2) daily spot checks; (3) emergency equipment and procedures; (4) safety procedures and instructions; (5) door interlock system; and (6) radiation monitoring equipment. The inspector reviewed six HDR written directives and treatment plans, with no issues noted. The inspector reviewed dosimetry records for 2014 and

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(Continued)

2015, indicating the maximum annual dose to be 501 mrem - DDE, and 3885 mrem - SDE, and performed independent radiation measurements of the hot lab, imaging, and injection rooms that were consistent with the licensee's survey results and within regulatory limits.

No violations of NRC requirements were identified during this inspection.