NRC FORM 591M PART 1 (07-2012) 10 CFR 2.201

U.S. NUCLEAR REGULATORY COMMISSION

# SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION

| 1. LICENSEE/LOCATION INSPECTED: | 2. NRC/REGIONAL OFFICE |
|---|---|
| Boone Hospital Center<br>1600 E. Broadway and 1605 E. Broadway<br>Columbia, MO<br><br>REPORT NUMBER(S) 2015-001 | Region III<br>2443 Warrenville Rd.<br>Lisle, IL 60532<br>Select a location (Use keyboard arrows to select). . . |

| 3. DOCKET NUMBER(S) | 4. LICENSE NUMBER(S) | 5. DATE(S) OF INSPECTION |
|---|---|---|
| 030-02304 | 24-01565-01 | 06/6-7/15<br>~~030-02304~~ |

**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 violations(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 | Robert G. Gattone, Jr. | Robert G. Gattone, Jr. | 8/7/15 |
| BRANCH CHIEF | Aaron T. McCraw | | 8/27/15 |

NRC FORM 591M PART 3
(07-2012)
10 CFR 2.201

U.S. NUCLEAR REGULATORY COMMISSION

*Docket File Information*

# SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION

| 1. LICENSEE/LOCATION INSPECTED: | 2. NRC/REGIONAL OFFICE |
|---|---|
| Boone Hospital Center<br>1600 East Broadway & 1605 East Broadway<br>Columbia, Missouri<br><br>REPORT NUMBER(S) 2015-001 | Region III<br>U. S. Nuclear Regulatory Commission<br>2443 Warrenville Road, Suite 210<br>Lisle, IL 60532-4352 |

| 3. DOCKET NUMBER(S) | 4. LICENSE NUMBER(S) | 5. DATE(S) OF INSPECTION |
|---|---|---|
| 030-02304 | 24-01565-01 | 8/6-7/15 |

| 6. INSPECTION PROCEDURES USED | 7. INSPECTION FOCUS AREAS |
|---|---|
| 87131 and 87132 | All |

## SUPPLEMENTAL INSPECTION INFORMATION

| 1. PROGRAM CODE(S) | 2. PRIORITY | 3. LICENSEE CONTACT | 4. TELEPHONE NUMBER |
|---|---|---|---|
| 02120 | 3 | Liesje Myers, CNMT, RSO | (573) 815-3388 |

☑ Main Office Inspection  Next Inspection Date: 08/06/2018

☐ Field Office Inspection _____

☐ Temporary Job Site Inspection _____

## PROGRAM SCOPE

The licensee stopped doing iodine-125 manual brachytherapy prostate implants about 2 years before this inspection. In July 2014, the licensee administered manual brachytherapy to a lung using cesium-131 in a mesh. Nuclear medicine was received as unit dosages from a licensed radiopharmacy. The licensee received PET material from a licensed supplier. The licensee used iodine-131 to treat patients for thyroid cancer and hyperthyroidism about 100 times per year. Samarium-153 (unit dosages only) and phosphorus-32 were also used to treat patients. Diagnostic nuclear medicine included bone, hepatobiliary, lung, gastric, lymph, and red blood cell imaging. The Nuclear Medicine Department opens at 6:00am Monday through Friday.

Performance Observations

The inspector: (1) observed nuclear medicine technologists prepare and administer diagnostic dosages, and dispose of the waste; (2) observed that the hot lab was secured as required; (3) reviewed selected records of Samarium-153 and I-131 administrations and noted that dual patient identity verification was used, the unit dosages were measured prior to administration, the radiopharmaceutical was verified prior to administration, the route of administration was verified prior to administration, patients received ALARA instructions, and patients were not released to hotels; (4) used a calibrated NRC owned survey instrument to measure a maximum of 0.4 milliroentgen per hour at the surface of a shield covering sealed sources containing licensed material; (5) observed that selected licensee survey instruments were calibrated as required; (6) observed the RSO conduct a physical inventory of sealed sources that were chosen by the inspector; (7) reviewed leak test records of selected sealed sources; (8) reviewed selected records of prostate implants and noted that the written directives contained the required information, dual patient identity verification was used, 3-D ultrasound was used during the implant procedure, the patient and the work area were surveyed before release, and the patients got a CAT scan 30 days after implant that was used to assess the administered dose versus the prescribed dose; (9) reviewed selected records of a lung mesh implant and noted that the written directive contained the required information, and the patient received the prescribed dose; (10) noted that the licensee used a consultant for brachytherapy and the licensee's oversight of that program was suboptimal (e.g., the RSO did not assess prostate implant treatment quality), and the RSO committed to conduct quarterly and annual audits of the brachytherapy program and report the findings to the Radiation Safety Committee (RSC); (11) reviewed dosimetry records showing that the annual maximum whole body and extremity doses received by radiation workers were 594 millirems and 2200 millirems, respectively; (12) reviewed selected annual audit records; and (13) reviewed selected RSC meeting minutes.