



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION III  
2443 WARRENVILLE RD. SUITE 210  
LISLE, IL 60532-4352

August 18, 2021

Patrick J. Byrne, DABR, CHP  
Radiation Safety Officer  
Indiana University Health Bloomington Hospital  
Radiology Department  
P.O. Box 1149  
Bloomington, IN 47402

Dear Mr. Byrne:

We have reviewed the licensee's request dated May 16, 2021, to add a location of use to its U.S. Nuclear Regulatory Commission (NRC) Material License No. 13-10408-02 for Indiana University Health Bloomington Hospital. Based on our review of the information, we have identified that additional information is needed to proceed with the request. Please refer to NUREG 1556, Volume 9, Revision 3, "Consolidated Guidance About Materials Licenses," which is accessible at <https://nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v9/index.html> for guidance when preparing your response.

In a signed by management and dated letter, please provide the following information by September 7, 2021:

1. Confirm the room numbers at 2651 E Discovery Parkway, Bloomington, Indiana where radioactive material is used and their purpose :
  - A1627A (hot lab including Positron Emission Tomography (PET))
  - A1625 (scan room, no PET material)
  - A1627 (scan room, no PET material)
  - A1621 (scan room, no PET material)
  - A1629 (injection room, including PET material)
  - A1606 (injection room including PET material)
  - A1604 (injection room including PET material)
  - A1605 (PET/CT imaging room)

2. Facility diagram - PET/CT Department:

Provide a shielding evaluation for the PET hot lab, injection rooms A1606 and A1604, and the PET/CT Imaging room to ensure dose rates do not exceed Title 10 of the Code of Federal Regulations (CFR) Part 20 dose limits.

Specifically, provide the following:

- The radioisotope used and the maximum activity for each patient,
- The scan/uptake times and workload,
- Describe the adjacent rooms including above and below and whether the rooms are restricted or unrestricted,
- Provide the occupancy factors for all adjacent rooms including above and below
- Provide distances between the source and the adjacent rooms including above and below
- Provide the type of the existing shielding material (ordinary concrete, lead, etc.).
- Provide the thicknesses of the existing material/s.
- Illustrate the calculated dose rates/points on the diagrams.

If other controls (i.e. portable shielding, administrative controls) are used to ensure the 10 CFR Part 20 dose limits are not exceeded in those rooms, please describe these controls.

3. Describe any additional equipment (e.g. remote handling devices, storage containers) for handling PET and/or 10 CFR 35.300 material, if applicable.
4. Please confirm that patients will be released in accordance with 10 CFR 35.75 requirements.

If you will have in-patient rooms (patients will be hospitalized after injection/intake of 10 CFR 35.300 material), please provide a diagram of the in-patient rooms and adjacent areas/rooms indicating restricted and unrestricted areas, occupancy factors for all adjacent rooms including above and below, distances between the source/patient and the adjacent rooms, and the type and thickness of the shielding material. Also, please provide an evaluation demonstrating that the dose levels in all directions from the patient in the adjacent rooms will not exceed 10 CFR Part 20 dose limits.

P. Byrne

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In accordance with 10 CFR 2.390, a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from ADAMS, accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

Magdalena R. Gryglak  
Health Physicist  
Materials Licensing Branch

License No. 13-10408-02  
Docket No. 030-01644