



# Indiana University Health

June 19, 2017

U. S. Nuclear Regulatory Commission  
Materials Licensing Section  
2443 Warrenton Road, Suite 210  
Lisle, IL 60532-4352

Dear Sir or Madam:

Indiana University Health Bloomington Hospital would like to amend its Byproduct Materials License, Number 13-10408-02, to remove 2620 Cota Drive as an Address of Use. A close-out survey of 2620 Cota Drive has been conducted and the results are enclosed.

In addition, we request the free release of room M496 at the 605-625 West Second Street Address of Use. Room M496 was used for the storage of radioactive materials and wastes and it has also been closed-out, with the results enclosed.

If there are any questions concerning this license amendment, please contact the Indiana University Health Bloomington Hospital Radiation Safety Officer, Mr. Patrick J. Byrne, DABR, CHP, DABSNM at 877-317-5811.

Sincerely,

Indiana University Health Bloomington  
601 W. Second St.  
PO Box 1149  
Bloomington, IN 47402  
[iuhealth.org/bloomington](http://iuhealth.org/bloomington)

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Close-out survey of  
Room M496  
605-626 West Second Street, Bloomington, Indiana, 47402

Performed by: Patrick J. Byrne, DABR, CHP, DABSNM  
Radiation Safety Officer

Radioactive materials usage in Room M496 was limited to the storage of sealed Pd-103 and I-125 sources for use in prostate brachytherapy procedures.

Wipe tests for removable radioactive contamination were taken on 06/6/17 and analyzed in a Ludlum Model 243 (S/N: 145366) Shielded Well Scintillator coupled to a Ludlum Model 2200 (S/N: 138705) Scaler Ratemeter. A window of 50 to 400 keV was used to analyze the wipes. The efficiency of this system for cobalt-57 with a window of 50-400 keV is 1.09 dpm/cpm. The results of the wipe tests are enclosed.

The radiation levels survey was performed on 06/8/17 by Patrick Byrne, using a Ludlum 14C Geiger-Muller survey meter (S/N: 182928). The meter was calibrated on 10/28/16. The range used for the radiation level survey was 0.0 to 0.02 mR/hr.

#### Visual Inspection

The area was visually inspected to ensure that all radioactive waste had been removed. No radioactive material was located in the area.

#### Radiation Level Survey

No area demonstrated radiation levels in excess of the background reading of 0.01 mR/hr.

#### Sealed Sources

At the time of the close-out survey, no radioactive materials were present in Room M496. Prior to the survey, unused sealed Pd-103 and I-125 sources were decayed in storage, surveyed to verify they were at background radiation levels, and then disposed of. The final disposal of sources occurred on 4/21/17.

#### Conclusion

As of 6/8/17, there are no radioactive materials present in Room M496.

### Removable Contamination Survey Results

Wipe samples were counted in a Ludlum Model 243 Shielded Well Scintillator (S/N: 145366) coupled to a Ludlum Model 2200 Scaler Ratemeter (S/N: 138705). The efficiency of this system for Cobalt-57 with a counting window of 50-400 keV is 1.09 dpm/cpm. Background on this window was 307 counts per minute.

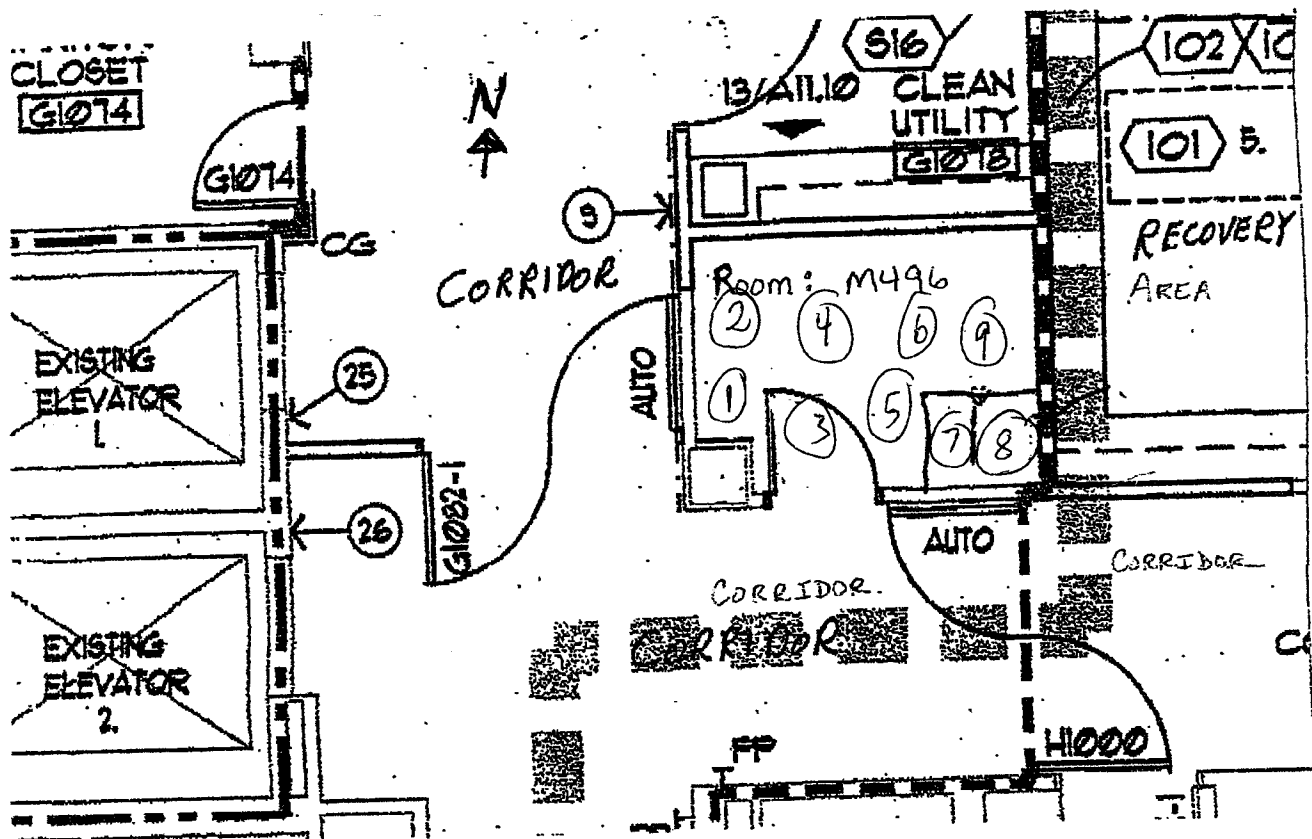
Wipe Number	Gross counts per minute	Net counts per minute	Disintegrations per minute
1	325	18	19.62
2	325	18	19.62
3	322	15	16.35
4	348	41	44.69
5	331	24	26.16
6	320	13	14.17
7	334	27	29.43
8	317	10	1.09
9	307	0	0

\*Please refer to the attached survey map for wipe locations.

Maximum removable contamination occurred in area 4. Gross count rate = 348 cpm/100cm<sup>2</sup>. Net count rate (gross minus background) = 348 – 307 = 41 cpm/100cm<sup>2</sup>. Net removable disintegrations per minute = 41 cpm/100cm<sup>2</sup> x 1.09 dpm/cpm = 44.69 dpm/100cm<sup>2</sup>.

#### Conclusion

As of 6/8/17, all radioactive materials have been removed from the area of use and no removable contamination is present.



Circled numbers correspond to  
wipe sample locations.

(7) and (8) on table.

Close-out survey of  
2620 Cota Drive, Bloomington, Indiana, 47402

Performed by: Patrick J. Byrne, DABR, CHP, DABSNM  
Radiation Safety Officer

Radioactive materials usage at 2620 Cota Drive was limited to the administration of Sr-89 and Sm-153 in the treatment of bone metastasis pain. There has been no utilization of radioactive materials at this address of use in 2017.

Wipe tests for removable radioactive contamination were taken on 06/6/17 and analyzed in a Ludlum Model 243 (S/N: 145366) Shielded Well Scintillator coupled to a Ludlum Model 2200 (S/N: 138705) Scaler Ratemeter. A window of 50 to 400 keV was used to analyze the wipes. The efficiency of this system for cobalt-57 with a window of 50-400 keV is 1.09 dpm/cpm. The results of the wipe tests are enclosed.

The radiation levels survey was performed on 06/8/17 by Patrick Byrne, using a Ludlum 14C Geiger-Muller survey meter (S/N: 182928). The meter was calibrated on 10/28/16. The range used for the radiation level survey was 0.0 to 0.02 mR/hr.

Visual Inspection

The area was visually inspected to ensure that all radioactive waste had been removed. No radioactive material was located in the area.

Radiation Level Survey

No area demonstrated radiation levels in excess of the background reading of 0.01 mR/hr.

Sealed Sources

Sealed sources were not possessed at this address of use.

Conclusion

As of 6/8/17, no radioactive materials are present at this address of use.

### Removable Contamination Survey Results

Wipe samples were counted in a Ludlum Model 243 Shielded Well Scintillator (S/N: 145366) coupled to a Ludlum Model 2200 Scaler Ratemeter (S/N: 138705). The efficiency of this system for Cobalt-57 with a counting window of 50-400 keV is 1.09 dpm/cpm. Background on this window was 307 counts per minute.

Wipe ID	Gross counts per minute	Net counts per minute	Disintegrations per minute
1	317	10	1.09
2	320	13	14.17
3	339	32	34.88
4	356	49	53.41
5	342	35	38.15
6	327	20	21.8

\*Please refer to the attached survey map for wipe locations.

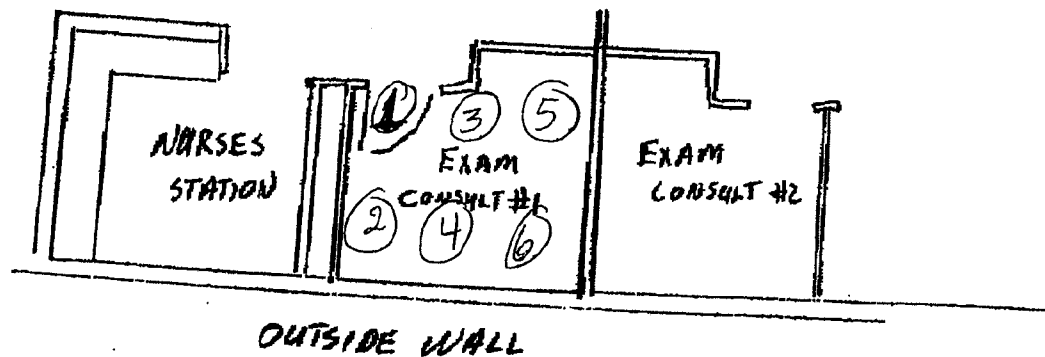
Maximum removable contamination occurred in area D. Gross count rate = 356 cpm/100cm<sup>2</sup>. Net count rate (gross minus background) = 356 – 307 = 49 cpm/100cm<sup>2</sup>. Net removable disintegrations per minute = 49 cpm/100cm<sup>2</sup> x 1.09 dpm/cpm = 53.41 dpm/100cm<sup>2</sup>.

#### Conclusion

As of 6/8/17, all radioactive materials have been removed from the area of use and no removable contamination is present.

BLOOMINGTON HOSPITAL RADIATION  
ONCOLOGY CENTER  
2620 COTA DRIVE

EXAM-CONSULT ROOM #1 USED  
FOR SR-89 HOLDING AND OUTPATIENT  
INJECTION SITE



Circled numbers correspond to  
wipe sample locations.



Indiana University Health

Indiana University Health Bloomington  
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Bloomington, IN 47402

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U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSING SECTION

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LISLE, IL 60532-4352

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