



MedStar Washington  
Hospital Center

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03001325

To:

October 27, 2014

Farrah C. Gaskins

Health Physicist

U.S. NRC, Region 1

2100 Renaissance Blvd, Suite 100

King of Prussia, PA 19406

Ph: (610) 337-5143

Ref: Decommissioning of the Hyman Research building and amending MWHC Nuclear  
Regulatory Commission Broadscope License No. 08-03604-03.

Dear Ms. Gaskins:

This reply is in reference to your email to Dr. Mohapatra that you had sent on October 21, 2014 regarding the decommissioning of Hyman Research building. In your email, you have asked a few questions to gather some additional information. We have answered the questions in the order you posed.

1. Regulations set forth in 10 CFR 20.1501 state, in part, that each licensee shall make or cause to be made surveys of areas, including the subsurface that are reasonable under the

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NMSS/RGN1 MATERIALS-002

circumstances to evaluate the potential radiological hazards of the radiation levels and the residual radioactivity detected.

- a. Your letter states that "Final close-out radiation surveys of the areas in this building were performed where byproduct materials were used." Please explain your survey methods. Specifically, describe how you performed direct scans using the survey meter.

Ans: Building walls were scanned up to about 2 meter vertical distances from the floor using a hand held Ludlum survey meter coupled to pancake GM detector with the cap removed from the probe. Wipe test samples were collected to determine removable contamination levels of surfaces using scintillation counting and liquid scintillation analysis. Although, the facility's contamination limit for unrestricted area is 200 dpm/100 cm<sup>2</sup>, but, these levels were well below this limit.

The walls were scanned by the hand held meter by holding the probe approximately an inch from the wall surface and moving slowly at a rate of 2 inches per second.

Direct measurements were also taken using hand held survey meter at selected locations where wipe test samples were collected.

- b. Your data of wipe test results does not specify your liquid scintillation counting methods. Please describe how your wipes were counted, specifically, describe the analysis results. What channels were the wipes counted for the given results? Were all samples counted on the same channel or were different channels used for Hydrogen 3 and Carbon 14.

Ans: A Beckman LSC (Model: LS6000SC) was used for counting wipe samples. A wide window was used (energy scale of window settings: the channels 0-1000, energy 0-2000 keV). Each sample was counted for one minute. The counts per minute (CPM) were converted to DPM. A standard protocol that has been set up for counting wipes in an open window (User Program #5) was used. All samples were counted on the same channel.

2. The survey data you submitted for Rooms 205 and 225 appeared to be surveys of certain items and the surrounding areas. Building surfaces do not appear to be sufficiently surveyed in these rooms. Please perform additional surveys in the room for tritium contamination or describe how you surveyed building surfaces adequately.

Ans: Per your recommendation, we have extended our surveys to include other areas of the walls in Room 225 and 205 and as expected no contamination were found (see survey reports for Room 205 and 225 in Attachment-1). The survey method is described in the previous section.

Please note that Room 225 is a counting room only. Researchers were counting samples using a Liquid Scintillation Counter or the Gamma Counter. Radioactive materials were not used in this room per se. Therefore, possible contaminated areas were surveyed that included floors, benches, counter tops, sinks and some areas of the walls. If contaminations were not found in those areas then the possibility of contamination in other areas were highly unlikely. Similarly in Room 205, the possible areas of contaminations such as bench, floors, sink, fridge, fume hood, storage container/location and some areas on the walls were surveyed and no contaminations were found.

3. In your letter, you mention that calibration sources for the Gamma Counter were moved to room G-122 and are under radiation safety inventory. Please confirm if the calibration sources were used under the general license or are specifically licensed sealed sources. If specifically licensed, please confirm that the sources have been removed from the George Hyman Memorial Research Building and submit confirmation that the sources were not leaking.

Ans: These calibration sources were procured and used under our Broadscope license. There were seven I-125 rod sources of 0.04  $\mu\text{Ci}$  activity each and another I-129 rod source of 0.074  $\mu\text{Ci}$ . In order to secure these sources after decommissioning of the Hyman building, we removed them from the Hyman Research Building and stored in the Radiation Safety storage room G-122 in the East Building. This storage room is under Radiation Safety Department control and our staff has access only to this room through their personal ID badges and individual pin codes. These calibration sources were of less than 100.0  $\mu\text{Ci}$ , so leak tests are not required, but they are inventoried on a quarterly basis. But, we had performed a leak test when these sources were transferred from the Hyman Building to our storage room in G-122. These sources were not leaking (see Attachment-2)

4. You stated that sealed Strontium 90 sources have been transferred to the Brachytherapy storage room in Cath Lab. Please confirm that this storage location is not in the George Hyman Memorial Research Building. Also please either submit leak tests or confirm that these sealed sources are not leaking.

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Ans: The sealed Strontium 90 sources in the Beta Cath device was transferred immediately after the last animal experiment to the brachytherapy storage room 4A25-E in the Cath Lab of the main hospital. After each animal experiment, this device is routinely transferred to this storage room in Cath Lab. This storage room is **NOT** in George Hyman Memorial Research Building. There are two strings of sources (40 mm long with 16 seeds in it and 60 mm long with 24 seeds in it). But, the 40 mm was only used in the animal experiment. These two devices are routinely used on cardiac patients for IVRT in the Cath Lab. These sources are not leaking. These sources are leak tested on a quarterly basis while on storage. Please note that new Sr-90 sources replace the old ones on a yearly basis.

5. Please note that records of disposal by release into sanitary sewerage should be maintained until your license is terminated in accordance with 10 CF20.2108 (b).

Ans: Yes, we are aware of this requirement. These records are maintained in the Radiation Safety Department. We have not done any sewer disposal since 2010.

6. You submitted a record indicating disposal of licensed material through sanitary sewerage, please state if there was a designated sink for release of radioactive material through sanitary sewerage. If more than one sink was used, please confirm if the record includes the cumulative amount from all sources.

Ans: One designated sink was used for sewerage disposal in Room # 242 in the Hyman Research building.

I would appreciate your help if you could please approve this amendment request at your earliest convenience. Thank you in advance for your help and consideration.

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Sincerely,



Gayle Thompson Smillie, CRA, RT(R)(N), CNMT

Senior Director, Imaging, Radiation Safety & Central Patient Transport

MedStar Washington Hospital Center

Administration, Room 2A2

110 Irving St, NW

Washington, DC 20010-2975

Cc: Shashadhar Mohapatra, Ph.D.

Director/RSO

MedStar Washington Hospital Center

Douglas Van Nostrand, M.D.

Director of Nuclear Medicine /Chairman, Radiation Safety Committee

MedStar Washington Hospital Center

Attachments

# Attachment - 1.A

LEAK TEST OF A SEALED SOURCE

( Calibration Sources From Gamma Counter )

Source ID	Activity	Isotope	Half-life	Energy	Gamma Yield
10001	1000	Co-60	5.27	1.17	0.9998
10002	1000	Co-60	5.27	1.33	0.9998
10003	1000	Co-60	5.27	1.17	0.9998
10004	1000	Co-60	5.27	1.33	0.9998

**Radiation Safety Department**  
**Washington Hospital Center**  
**110 Irving Street, NW**  
**Washington, DC 20010**

**December 05, 2013**

**Prepared By:**

**Susanta K. Ghosh**

**Radiation Safety Assistant**

**Reviewed By:**

**Shashadhar Mohapatra, Ph.D.**

**Radiation Safety Officer**

# Attachment - 1.B

## LEAK TEST OF A SEALED SOURCE

( From Disposed Gamma Counter )

Source ID	Activity	Count Rate	Background	Net Count Rate	Standard Deviation

Radiation Safety Department  
 Washington Hospital Center  
 110 Irving Street, NW  
 Washington, DC 20010

December 04, 2012

**Prepared By:**  
**Susanta K. Ghosh**  
 Radiation Safety Assistant

**Reviewed By:**  
**Shashadhar Mohapatra, Ph.D.**  
 Radiation Safety Officer

## Attachment - 2.A

## Room # 205, Hyman Research Building

Surveys and Wipe Tests results of all walls of Room # 205 Hyman Research Building

Instrument Used: Ludlum 3, S/N # 128837, Calibration Date: 10/13/14,

Probe Used: PR-110456

Locations	Gamma Counter			Beta Counter	
	mR/hr	CPM	DPM	CPM	DPM
1. Background Count	0.01	13	30	66	73
2. East wall with Hood, Location 1	0.01	11	0	61	0
3. East side with Hood, Location 2	0.01	13	0	53	0
4. East side wall with Hood, Location 3	0.01	16	7	68	2
5. East side wall with Hood, Location 4	0.01	16	7	60	0
6. East wall Left corner, Location 1	0.01	9	0	59	0
7. East wall Left corner, Location 2	0.01	13	0	47	0
8. East wall Left corner, Location 3	0.01	15	5	67	1
9. East wall Left corner, Location 4	0.01	10	0	66	0
10. North wall near Desk, Location 1	0.01	7	0	53	0
11. North wall near Desk, Location 2	0.01	12	0	59	0
12. North Wall near Desk, Location 3	0.01	11	0	67	1
13. North Wall near Desk, Location 4	0.01	8	0	55	0
14. North wall Center, Location 1	0.01	16	7	45	0
15. North Wall center, Location 2	0.01	12	0	49	0
16. North Wall center, Location 3	0.01	11	0	58	0
17. North wall Center, Location 4	0.01	13	0	68	2
18. North Wall Left corner, Location 1	0.01	15	5	61	0
19. North Wall Left corner, Location 2	0.01	9	0	58	0
20. North Wall Left corner, Location 3	0.01	6	0	57	0
21. North Wall Left corner, Location 4	0.01	10	0	49	0
22. South Wall with sink, Location 1	0.01	17	9	39	0
23. South Wall with sink, Location 2	0.01	15	5	68	2
24. South Wall with sink, Location 3	0.01	11	0	49	0
25. South Wall with sink, Location 4	0.01	10	0	51	0

Gamma Counter Used: Packard, S/N # 401759, Eff:44%

Beta Counter Used: Beckman, S/N # LS6000SC, Eff: 90.0%

Surveyed by:

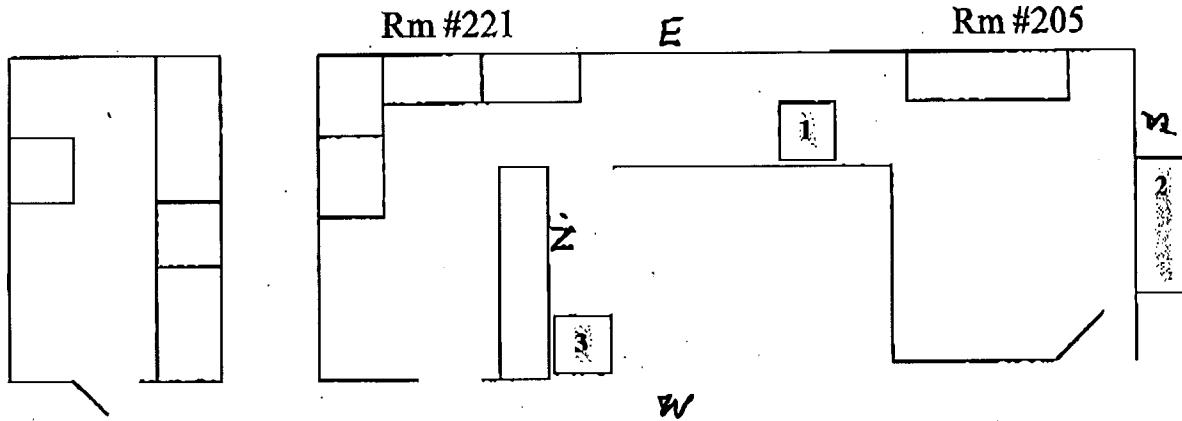
Date: 10/27/14

Reviewed by:

Date: 10/28/2014



Attachment - 2.A



<b>Location # 1 – The Refrigerator ( P-32 and H-3 Vials found)</b>		
<b>Areas of survey</b>	<b>Survey results (mR/hr)</b>	<b>Wipes results (dpm)</b>
1. Background	0.03	67
2. Freezer bottom surface	0.03	0
3. Freezer side surface	0.04	0
4. Freezer handle	0.03	0
5. Fridge-Upper drawer-left	0.03	0
6. Fridge-Upper drawer-right	0.04	0
7. Fridge middle shelf	0.03	0
8. Fridge lower shelf	0.04	0
9. Fridge handle	0.04	0
10. Fridge outside surface	0.03	0

<b>Location # 2 – The Fume Hood ( I-125 was uses and stored)</b>		
<b>Areas of survey</b>	<b>Survey results (mR/hr)</b>	<b>Wipes results (dpm)</b>
1. Background	0.03	42
2. Fume hood ground surface-inside	0.04	16
3. Fume hood ground surface-outside	0.03	10
4. Fume hood handle	0.03	0
5. Plastic box inside Fume hood	0.03	0
6. Fume hood outside surface	0.03	0

<b>Location # 3 ( Lab 221 Sink – was used for Sink disposal purposes)</b>		
<b>Areas of survey</b>	<b>Survey results (mR/hr)</b>	<b>Wipes results (dpm)</b>
1. Background	0.03	43
2. Sink inside surface	0.04	11
3. Sink outside surface	0.03	1
4. Tap surface	0.03	9
5. Waste bin surface	0.04	11
6. Floor under sink	0.04	1

## Attachment - 2.B

Survey and Wipe Test all walls of Room # 225 Hyman Research Building

Instrument used: Ludlum3, S/N#128837, Calibration Date: 10/13/14,

Probe used: PR 110456

Locations	Gamma Counter			Beta Counter	
	mR/hr	CPM	DPM	CPM	DPM
1. Background Count	0.01	17	39	66	73
2. East wall behind the sink, Location 1	0.01	12	0	67	1
3. East wall behind the sink, Location 2	0.01	9	0	46	0
4. East wall behind the sink, Location 3	0.01	23	14	46	0
5. East wall behind the sink, Location 4	0.01	16	0	68	2
6. East wall behind the counter, Location 1	0.01	15	0	54	0
7. East wall behind the counter, Location 2	0.01	6	0	39	0
8. East wall behind the counter, Location 3	0.01	5	0	57	0
9. East wall behind the counter, Location 4	0.01	13	0	53	0
10. East wall left side corner, Location 1	0.01	15	0	49	0
11. East wall left side corner, Location 2	0.01	17	0	61	0
12. East wall left side corner, Location 3	0.01	13	0	59	0
13. East wall left side corner, Location 4	0.01	7	0	67	1
14. North wall side of the sink, Location 1	0.01	10	0	55	0
15. North wall side of the sink, Location 2	0.01	15	0	57	0
16. North wall side of the sink, Location 3	0.01	21	9	68	2
17. North wall side of the sink, Location 4	0.01	16	0	41	0
18. North wall corner waste storage area, Location 1	0.01	23	14	49	0
19. North wall corner waste storage area, location 2	0.01	16	0	69	3
20. North wall corner waste storage area, Location 3	0.01	13	0	51	0
21. Norner wall corner waste storage area, Location 4	0.01	11	0	53	0
22. West wall corner waste storage area, Location 1	0.01	22	11	39	0
23. West wall corner waste storage area, Location 2	0.01	14	0	50	0
24. West wall corner waste storage area, Location 3	0.01	9	0	68	0
25. West wall corner waste storage area, Location 4	0.01	10	0	61	0
26. West wall center, Location 1	0.01	18	2	55	0
27. West wall center, Location 2	0.01	17	0	59	0
28. West wall center, Location 3	0.01	13	0	51	0
29. West wall center, Location 4	0.01	7	0	47	0
30. West wall left corner, Location 1	0.01	11	0	44	0
31. West wall left corner, Location 2	0.01	12	0	67	0
32. West wall left corner, Location 3	0.01	8	0	56	0
33. West wall left corner, Location 4	0.01	10	0	57	0
34. South wall Right side, Location 1	0.01	13	0	55	0
35. South wall Right side, Location 2	0.01	11	0	58	0
36. South wall Right side, Location 3	0.01	9	0	52	0
37. South wall Right side, Location 4	0.01	13	0	61	0
38. South wall Left side, Location 1	0.01	11	0	66	0
39. South wall Left side, Location 2	0.01	15	0	51	0
40. South wall Left side, Location 3	0.01	17	0	49	0
41. South wall Left side, Location 4	0.01	14	0	47	0

Attachment - 2. B

Gamma Counter used: Packard, S/N#401759, Eff: 44%

Beta counter used: Beckman, S/N# LS6000SC, Eff: 90.0%

Surveyed by: *A. Storm*

Date: *10/24/14*

Reviewed by: *[Signature]*

Date: *10/28/2014*

# Attachment - 2.B

## Room 225

