

**September 8, 2016**

**UNITED STATES NUCLEAR REGULATORY COMMISSION**

Region III, Materials Licensing Section  
2443 Warrenville Road  
Suite 210  
Lisle, IL 60532-4352

Re: MidMichigan Health  
Amendment of NRC License No. 21-01549-02  
Close-out Survey

Dear Sir/Madam:

We wish to provide the following information, in an effort to amend our NRC license. We previously applied for and received an amendment for a location of use for the new Nuclear Medicine department.

**Item #1:** Please find the enclosed closeout survey for the old Nuclear Medicine department located at the following address.

*703 North McEwan Street  
Clare, Michigan*

Please note the following:

- A close-out survey and wipe test were performed. The data is enclosed for your review.
- A map of the area(s) noted above keyed to the survey and wipe test data.
- The following radionuclide(s) (Sealed) Co-57, Ba-133 and Cs-137 and Unsealed Tc99m, Tl-201, In-111 and Ga-67 were used at this locations.
- All residual byproduct material to include waste was fully decayed in storage and disposed.
- A copy of the sealed source leak test results for the sealed sources used at the facility are enclosed for your review.

This facility is exempt from decommissioning due to low volumes and short physical half-lives of materials used. We did not dispose of radioactive materials by release to sewers or incineration. In addition, there were no spills of any long-lived radioactive material or on-site burials of radioactive materials.

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MidMichigan Medical Center – Midland  
4000 Wellness Drive  
Midland, Michigan 48670  
Phone (989) 839-3000  
[www.midmichigan.org/midland](http://www.midmichigan.org/midland)

If you have any questions, please contact our consulting physicist, James M. Botti, MS by phone at (734) 662-3197 or by email at [jbotti@mpcphysics.com](mailto:jbotti@mpcphysics.com).

Respectfully Yours,

A handwritten signature in black ink, appearing to read 'V. Hosfeld', followed by a horizontal line extending to the right.

Victor D. Hosfeld, MS, DABR  
Chief Physicist and RSO  
MidMichigan Health  
(989) 839-1407

Enclosures

### Close-out Survey

**Date performed:** June 16, 2016

**Performed by:** Andy Dzinis, CNMT

**Comments:** Sealed sources and radioactive trash were removed from these areas prior to survey and wipe testing.

#### Instruments

Wipe tests analyzed with a Atomic Products Well Counter

Instrument: Well Counter

Radionuclide:	<u>Cs-137</u>	MDA for Cs-137	<u>128 dpm's</u>
Date completed:	<u>12/21/15</u>	Conversion factor:	<u>3.83 dpm/dpm</u>

Area survey performed with the following survey meter:

Manufacturer:	<u>Ludlum</u>
Type:	<u>GM</u>
Model Number:	<u>14C</u>
Serial Number:	<u>194303</u>
Probe Model:	<u>Pancake</u>
Calibration Date:	<u>04/12/17</u>

#### Radionuclides Used

##### Unsealed

Tc99m, In-111, Tl-201 and Ga-67

##### Sealed

Co-57, Cs-137, Ba-133

#### Last date of byproduct radiopharmaceutical use:

June 14, 2016

**Visual Check:** The area was checked to ensure that all sealed sources and radioactive waste had been removed. No evidence of radioactive material was noted.

**Sealed Source Leak Testing:** Sealed Source Leak tests demonstrated no removable contamination.

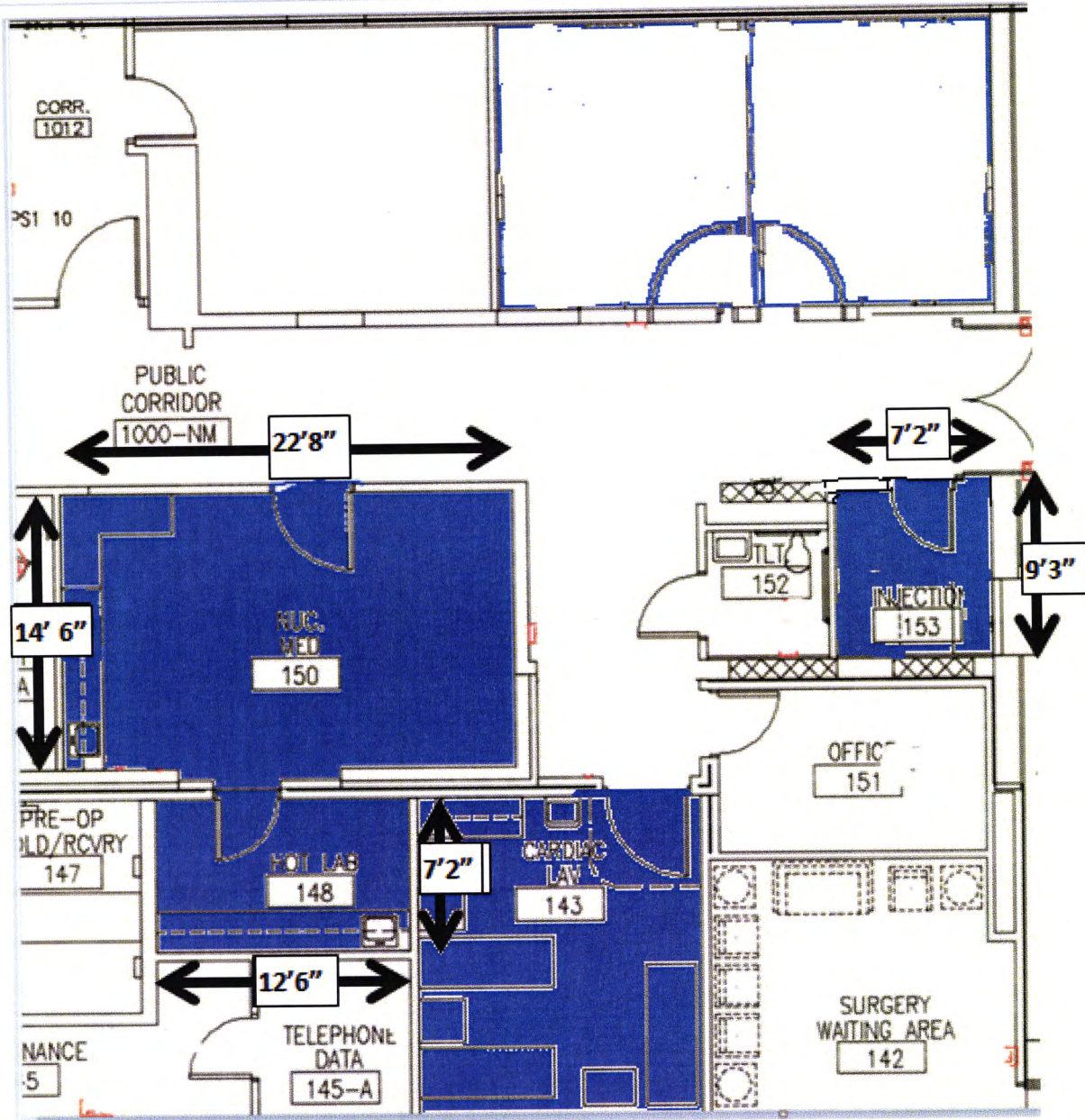
**Leaking Sources:** There is no history of leaking sources at this facility.

**Radiation Level Survey:** No area within the department demonstrated radiation levels in excess of the background reading of 0.03 mR/hr.



MidMichigan Medical Center – Midland  
4000 Wellness Drive  
Midland, Michigan 48670  
Phone (989) 839-3000  
[www.midmichigan.org/midland](http://www.midmichigan.org/midland)

**Removable Contamination:** No area within the department demonstrated removable contamination excess of 0 dpm.



**Camera Room #150**

<b>Area</b>	<b>Result in dpms</b>
#1 Sink	0
#2 Counter	0
#3 Work Station	0
#4 Computer	0
#5 Cabinet	0
#6 Cabinet	0
#7 Floor #1	0
#8 Floor #2	0
#9 Floor #3	0
#10 Floor #4	0
#11 Door	0
#12 Camera	0
#13 Table	0
#14 Collimators	0
#15 Acq. Station	0
#16 N. Wall	0
#17 E Wall	0
#18 S Wall	0
#19 W. Wall	0
#20 Hallway	0

**Background: 455 cpm**

**Maximum removable contamination = 0 dpm**

**Conclusion: No radioactive materials remain in this area. No removable contamination is present.**

**Hot Lab #148**

Area	Result in dpms
#1 Pb Cabinet / Waste	0
#2 Pass Box	0
#3 Sink	0
#4 Prep Area	0
#5 Cabinet	0
#6 Cabinet	0
#7 Counter	0
#8 Floor #2	0
#9 Floor #3	0
#10 Floor #4	0
#11 Door	0
#12 N. Wall	0
#13 E Wall	0
#14 S Wall	0
#15 W. Wall	0
#16 Doorway	0

**Background: 455 cpm**

**Maximum removable contamination = 0 dpm**

**Conclusion: No radioactive materials remain in this area. No removable contamination is present.**

**Injection Room #153**

Area	Result in dpms
#1 Sink	0
#2 Chair	0
#3 Counter	0
#4 Door	0
#5 Floor #1	0
#6 Floor #2	0
#7 Floor #3	0
#8 Floor #4	0
#9 Door	0

**Background: 449 cpm**

**Maximum removable contamination = 0 dpm**

**Conclusion: No radioactive materials remain in this area. No removable contamination is present.**

**Treadmill Room #143**

<b>Area</b>	<b>Result in dpms</b>
#1 Doorway	0
#2 Floor #2	0
#3 Floor #3	0
#4 Floor #4	0
#5 Door	0
#6 N. Wall	0
#7 E Wall	0
#8 S Wall	0
#9 W. Wall	0
#10 Treadmill	0
#11 Bed	0

**Background: 625 cpm**

***Maximum removable contamination = 0 dpm***

**Conclusion: No radioactive materials remain in this area. No removable contamination is present.**





### Sealed Source Inventory

Licensee: MidMichigan Medical Center-Clare

Date: 07/14/16

Performed by: James Botti

Nuclide	Type	Location	M/N	S/N	Manufacturer
Cs-137	Vial	Stored	NES-802	S8023003	
Calibration Activity:		30 uCi	Calibration Date: 11/03/87	Current Activity	15.45 uCi
Cs-137	Vial	Hot Lab	NES-356	3560580A-58	
Calibration Activity:		197 uCi	Calibration Date: 05/13/80	Current Activity	85.38 uCi
Ba-133	Vial	Hot Lab	NES-358	S358009-001	
Calibration Activity:		289 uCi	Calibration Date: 02/02/91	Current Activity	54.06 uCi
Co-57	Flood	Hot Lab	BM01-15	BM01151398104	
Calibration Activity:		15 mCi	Calibration Date: 08/16/13	Current Activity	0.989 mCi
Gd-153	Line	Intevo Camera	HEGL-0133	N5-252	E and Z
Calibration Activity:		10 mCi	Calibration Date: 06/10/16	Current Activity	9.072 mCi
Co-57	Point	Intevo Camera	PHI-0124	N3-934	E and Z
Calibration Activity:		0.5 mCi	Calibration Date: 05/01/16	Current Activity	0.414 mCi

### SEALED SOURCE AMBIENT EXPOSURE SURVEY

Meter: N/A

Max Reading N/A

RADIATION SAFETY OFFICER: \_\_\_\_\_

James Botti 06/31/2016



**Sealed Source Leak Test**

Licensee: MidMichigan Medical Center-Clare

Date: 07/14/16

Performed by: James Botti

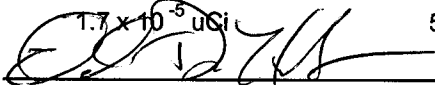
Nuclide	Type	Calibration		Location	M/N	S/N
		Activity	Date			
Cs-137	Vial	30 uCi	11/03/87	Stored	NES-802	S8023003
		Current Activity: 15.45 uCi				
Cs-137	Vial	197 uCi	05/13/80	Hot Lab	NES-356	3560580A-58
		Current Activity: 85.38 uCi				
Ba-133	Vial	289 uCi	02/02/91	Hot Lab	NES-358	S358009-001
		Current Activity: 54.06 uCi				
Co-57	Flood	15 mCi	08/16/13	Hot Lab	BM01-15	BM01151398104
		Current Activity: 0.989 mCi				
Gd-153	Line	10 mCi	06/10/16	Intevo Camer	HEGL-0133	N5-252
		Current Activity: 9.072 mCi				
Co-57	Point	0.5 mCi	05/01/16	Intevo Camer	PHI-0124	N3-934
		Current Activity: 0.414 mCi				

Comment: The sources listed above were leak tested using a dry wipe technique and were found to have less than 0.005 uCi removable activity. The following Minimum Detectable Activities are based upon a background at the indicated value. Background was at or below these levels when the above tests were completed.

Well Counter: Captus 3000

Nuclide	MDA	Background
Cs-137	$2.0 \times 10^{-4}$ uCi	145 counts/1 min
Ba-133	$8.8 \times 10^{-5}$ uCi	204 counts/1 min
Co-57	$1.7 \times 10^{-5}$ uCi	53 counts/1 min

RADIATION SAFETY OFFICER: \_\_\_\_\_


08/31/2016

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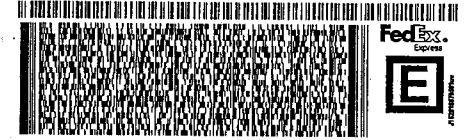
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VICTOR HOSFIELD  
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MIDLAND, MI 48870  
UNITED STATES US

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BILL SENDER

TO US NUCLEAR REGULATORY COMMISSION  
REGION III, MATERIALS LICENSING SEC  
2443 WARRENVILLE ROAD, SUITE 210

LISLE IL 60532  
(000) 000-0000 REF: 10400  
BY DEPT:



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