CHRISTIANA CARE
HEALTH SERVICES
Department of Radiation Safety

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December 02, 2010

J-9

U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406-1415

03001303

Re: NRC License 07-12153-02

Dear Sir or Madam:

We informed you in a letter dated November 17, 2010 that we relocated the Nuclear Medicine and PET facilities in the Christiana Hospital into a new suite on the first floor of the hospital building. I am writing now to provide the results of our decommissioning surveys of the old Nuclear Medicine and PET areas. The two areas were closed down separately. The PET facility ceased operations at its old location on October 08, 2010. The Nuclear Medicine lab was moved in sections beginning on October 19, 2010 with radionuclide operations at the old site ending on November 02, 2010. The last liquid 131Iodine administration was on October 22, 2010.

We would greatly appreciate an expedited review of this report so that the areas in question can be released for the next phase of this extensive renovation project. In addition, if it is possible, we would like this letter to be processed in association with our amendment request dated November 17, 2010, Mail Control Number 573928.

PET Suite:

The decommissioning of the PET suite was carried out November 04 by a three person team from Radiation Safety and Nuclear Medicine. Since the lab had been closed for 27 days at the time of the survey, only thorough area surveys were performed. The only unsealed radionuclide used in that area was 18Fluorine.

Surveys of all remaining accessible equipment, furniture, sinks, shelving, patient television monitors, doors, etc. and the entire floor in both rooms were conducted using a combination of the following three instruments:

Ludlum Model 14C GM counter, S/N 226260 – last calibrated 12/18/2009
Ludlum Model 14C GM counter, S/N 200307 – last calibrated 05/24/2010
Eberline Model E-530 GM counter, S/N 1270 – last calibrated 12/18/2009.

573928

NMSS/RGN1 MATERIALS-002

The results of this survey were entirely negative. No readings were found that exceeded the background reading of 0.05 – 0.10 mr/hr. A diagram of the floor plan of this area is attached as Figure I. Note that the chiller room and control room in Room 1439 were surveyed as part of that room. Room 1440 included both the injection area and the hot lab – they are not two separate rooms. My assessment of these results is that these rooms are ready for release to unrestricted use.

Nuclear Medicine Suite:

The first reduction in patient procedures in this area related to the move began on October 19, 2010. The final patient treated was on November 02, 2010. The last liquid 131Iodine administration occurred in the hot lab on October 22, 2010. Figure II is the floor plan of the area. The final survey was carried out by a four person team from Nuclear Medicine and Radiation Safety on November 11 and 12. The approach for all areas outside of the hot lab was to monitor all accessible surfaces with a handheld survey meter for anything above background. Anything that read above background level or was suspicious in any other way would be followed up with a wipe test. Please note that Rooms 1511, 1512, 1513 A and B, 1514, and 1524 are not radionuclide use areas and are also not included in the current renovations but were surveyed with the rest.

The instrument used for monitoring all imaging rooms, office space, bathrooms, classroom, the waiting room and the break room was the following:

Ludlum Model 14C GM counter, S/N 226260 – last calibrated 12/18/09

All readings in these areas were at or below 0.01 mR/hr. Our normal trigger level for routine survey of unrestricted areas is 0.5 mR/hr. I believe that these areas are also ready for release for unrestricted use.

Nuclear Medicine Hot Lab:

Surveys of all accessible surfaces of the hot lab and the fume hood, including the exhaust fan housing and duct work leading out of it, were performed on November 12, 2010 using the following instruments:

Ludlum Model 14C GM counter, S/N 243663 – last calibrated 04/21/10
Victoreen Model 493 GM counter, S/N 493 – last calibrated 08/16/10.

Areas surveyed included counter tops, inside and outside of cabinets and drawers, sinks, L-block assembly, floor, door, inside and outside of the refrigerator. Background reading was in the range of 0.05 -0.10 mR/hr. The survey found only two small spots that read above background:

Small spot in one of the sinks: 0.18 mR/hr.
Small area on the work surface inside the fume hood assembly: 0.18 mR/hr.

A combination of manual decontamination and physical decay resulted in background readings for both areas on November 30. Interestingly, wipe tests of these two sites taken on November 12 and 16 were negative for removable contamination (Figure V).

On November 12 wipe tests were taken from 31 separate sites in the hot lab (Figure III) and 12 sites on the inner and outer surfaces of the fume hood (Figure IV). An additional three wipes were taken on November 30 of the inside wall, floor and fan blades of the fan assembly in the fume hood. As you can see from the attachments, results of these tests ranged from below background to a maximum of 267 net DPM. Since the wipe tests on the interior of the fan assembly were counted on another instrument they are presented separately below:

Fan blades:	8 net CPM	25 DPM
Fan housing interior wall:	5 net CPM	16 DPM
Floor of fan housing:	0 CPM	0 DPM

Background: 120 CPM
DPM = CPM x 3.1

Our normal trigger levels for wipe tests are 2000 DPM for 131Iodine and 20,000 DPM for all other isotopes. Consequently, I believe that when the area surveys and wipes tests are considered, this hot lab and the fume hood assembly are also ready for release for unrestricted use.

If you have any questions about this request, or need any further information, please contact me at either of the telephone numbers or the e-mail address listed above.

Thank you very much for your prompt consideration of this matter.

Sincerely,

Joseph F. Solge, Jr.
Radiation Safety Officer

Approved by:

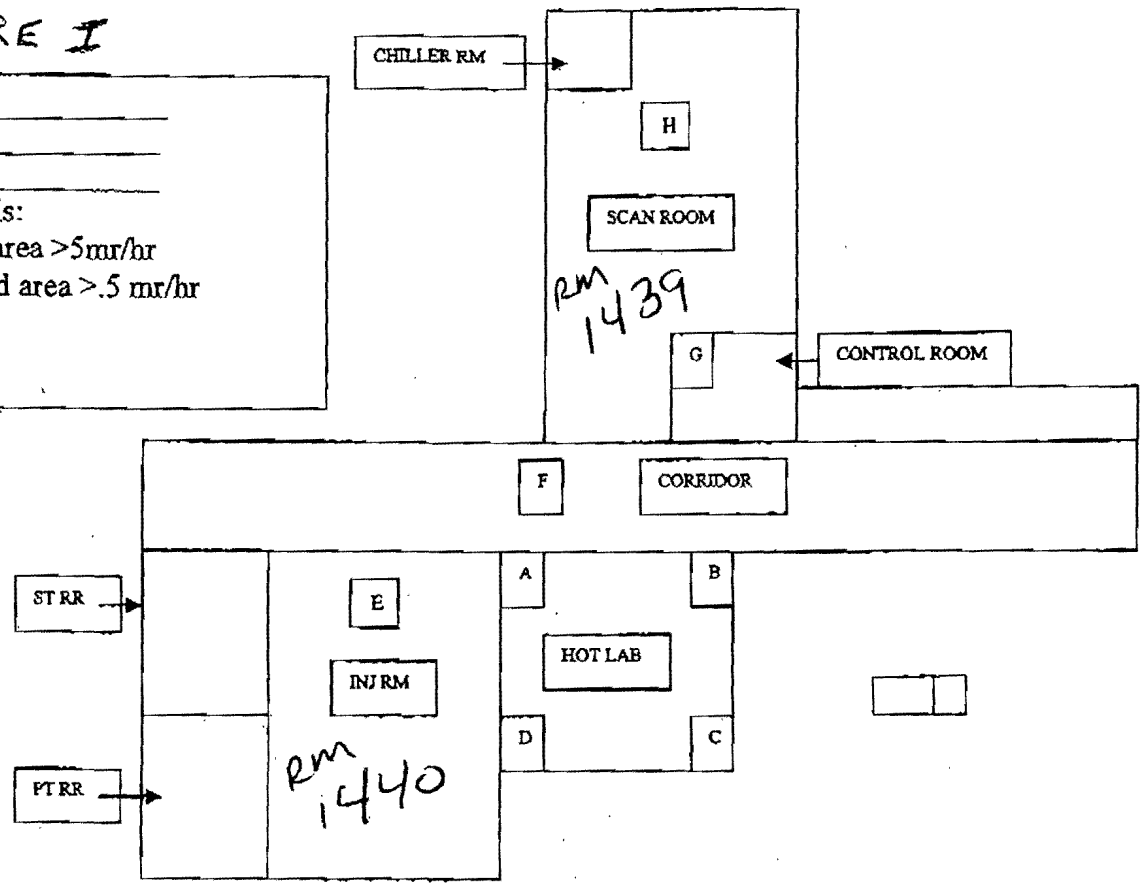
Patrick Grusenmeyer, ScD, Senior Vice President, Helen F. Graham Cancer Center

JFS/jfs
Attachments: 5
Cc: Anthony Gialloreto
Cindy Knotts
Timothy Manzone, MD

CHRISTIANA CARE HEALTH SERVICES
PET DEPARTMENT
DAILY MONITORING

FIGURE I

Instrument:_____
Serial #:_____
Calib. Date:_____
Action levels:
Restricted area >5mr/hr
Unrestricted area >.5 mr/hr

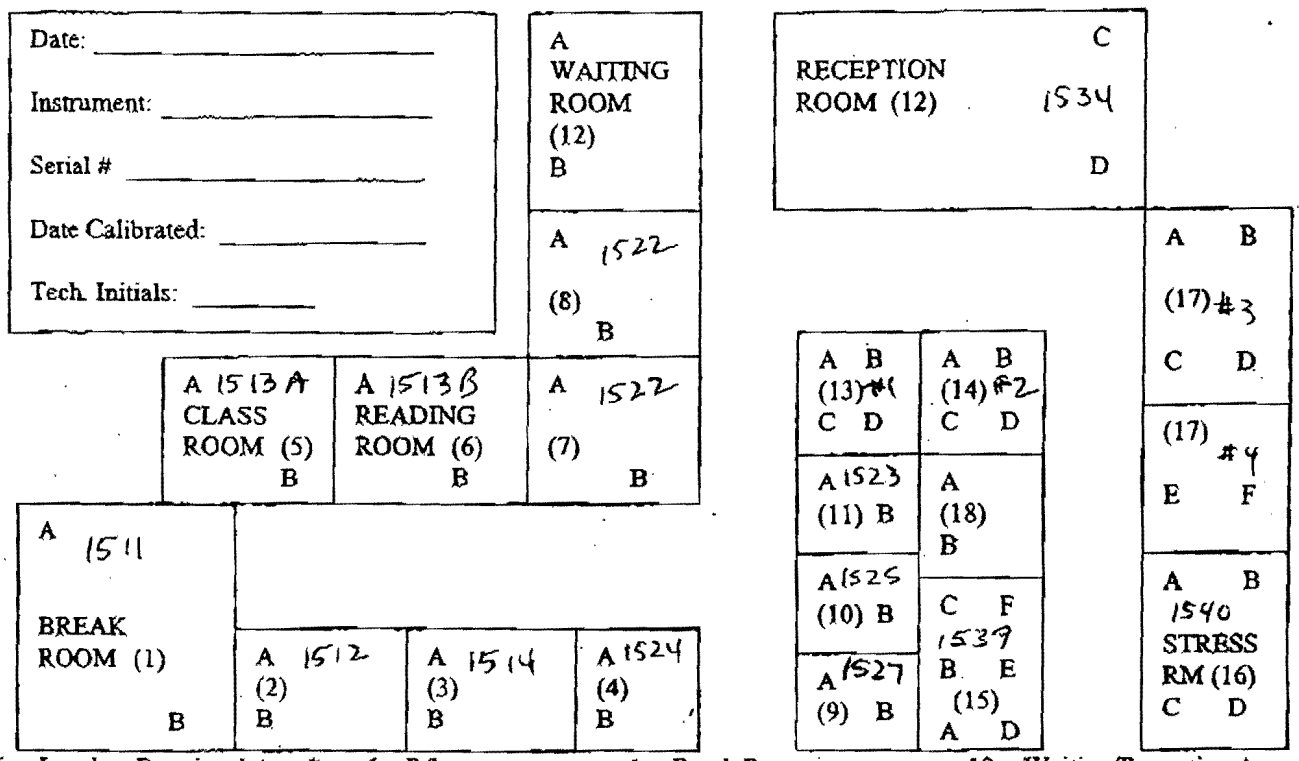


DATE	INIT.	A	B	C	D	E	F	G	H

FIGURE II

Christiana Care Health Services
Department of Nuclear Medicine

WEEKLY MONITORING of Nuclear Medicine Department for Ambient Radiation
All readings in mR/hr, unless otherwise indicated



Action Levels – Restricted Area* = >5 mR/hr
Unrestricted Area = >0.5 mR/hr

* Restricted Area = All imaging rooms and any area where radionuclides are stored or used.

1 = Break Rm
2,3,4,5,6 = Offices
7 = Old Digirad Rm
8 = Injection/New Digirad Rm
9 = Office
10 = Storage Rm
11 = Printer/File Rm
12 = Waiting/Reception Area
13 = DSXi Camera
14 = GE Myosight Camera
15 = Hot lab
16 = Stress Lab
17 = DST and XL Cameras
18 = Holding Area

Hot Lab 1538

	A	B			A	B	C	D	E	F
1			*******	10			******	*******	******	******
2			*******	11			******	*******	******	******
3			*******	12					******	******
4			*******	13					******	******
5			*******	14					******	******
6			*******	15						
7			*******	16					******	******
8			*******	17						
9			*******	18			******	*******	******	******

Hood

Wipe Detail Report

Biodex Model 086-331 Serial # 10050036 Detector Serial # 1005107

Printed: 11/12/2010 13:05

Print Range: Today

11/12/10 13:03 SWIPE — Restricted, 100% — Time: 60 secs — Status: PASS — Tech: AF

12

	Isotope	Background	Net Activity	Net CPM	Trigger	Status
W.W.	Tc-99m	247 DPM	-75 DPM	-27.0	20.000 DPM	PASS
1	Tc-99m	212 DPM	-64 DPM	-27.0	20.000 DPM	PASS
2	Cs-137	822 DPM	-61 DPM	-8.0	20.000 DPM	PASS
3	F-18	969 DPM	-622 DPM	-170.0	20.000 DPM	PASS
4	I-131	522 DPM	-158 DPM	-44.0	2.000 DPM	PASS

11/12/10 13:02 SWIPE — Restricted, 100% — Time: 60 secs — Status: PASS — Tech: AF

11

	Isotope	Background	Net Activity	Net CPM	Trigger	Status
W.W.	Tc-99m	247 DPM	-70 DPM	-25.0	20.000 DPM	PASS
1	Tc-99m	212 DPM	-60 DPM	-25.0	20.000 DPM	PASS
2	Cs-137	822 DPM	-69 DPM	-9.0	20.000 DPM	PASS
3	F-18	969 DPM	-563 DPM	-154.0	20.000 DPM	PASS
4	I-131	522 DPM	-227 DPM	-63.0	2.000 DPM	PASS

11/12/10 13:00 SWIPE — Restricted, 100% — Time: 60 secs — Status: PASS — Tech: AF

10

	Isotope	Background	Net Activity	Net CPM	Trigger	Status
W.W.	Tc-99m	247 DPM	-81 DPM	-29.0	20.000 DPM	PASS
1	Tc-99m	212 DPM	-69 DPM	-29.0	20.000 DPM	PASS
2	Cs-137	822 DPM	154 DPM	20.0	20.000 DPM	PASS
3	F-18	969 DPM	-636 DPM	-174.0	20.000 DPM	PASS
4	I-131	522 DPM	-151 DPM	-42.0	2.000 DPM	PASS

11/12/10 12:59 SWIPE — Restricted, 100% — Time: 60 secs — Status: PASS — Tech: AF

9

	Isotope	Background	Net Activity	Net CPM	Trigger	Status
W.W.	Tc-99m	247 DPM	53 DPM	19.0	20.000 DPM	PASS
1	Tc-99m	212 DPM	45 DPM	19.0	20.000 DPM	PASS
2	Cs-137	822 DPM	-38 DPM	-5.0	20.000 DPM	PASS
3	F-18	969 DPM	-607 DPM	-166.0	20.000 DPM	PASS
4	I-131	522 DPM	-144 DPM	-40.0	2.000 DPM	PASS

11/12/10 12:58 SWIPE — Restricted, 100% — Time: 60 secs — Status: PASS — Tech: AF

8

	Isotope	Background	Net Activity	Net CPM	Trigger	Status
W.W.	Tc-99m	247 DPM	42 DPM	15.0	20.000 DPM	PASS
1	Tc-99m	212 DPM	30 DPM	15.0	20.000 DPM	PASS
2	Cs-137	822 DPM	-38 DPM	-5.0	20.000 DPM	PASS
3	F-18	969 DPM	-629 DPM	-172.0	20.000 DPM	PASS
4	I-131	522 DPM	-151 DPM	-42.0	2.000 DPM	PASS

11/12/10 12:56 SWIPE — Restricted, 100% — Time: 60 secs — Status: PASS — Tech: AF

7

	Isotope	Background	Net Activity	Net CPM	Trigger	Status
W.W.	Tc-99m	247 DPM	-33 DPM	-12.0	20.000 DPM	PASS
1	Tc-99m	212 DPM	-29 DPM	-12.0	20.000 DPM	PASS
2	Cs-137	822 DPM	-115 DPM	-15.0	20.000 DPM	PASS
3	F-18	969 DPM	-567 DPM	-155.0	20.000 DPM	PASS
4	I-131	522 DPM	-148 DPM	-41.0	2.000 DPM	PASS

Approved By: _____ **Date:** _____

Stored Wipe Data

Biodex Model 086-331 Serial # 10050036 Detector Serial # 1005107

Printed: 11/16/2010 13:18

FIGURE V

Print Range: Today

Date	Detector SN	Location	Status	Wide Window Net CPM	Wide Window Net Activity	Technologist		
11/16/10 13:16	1005107	SWIPE	PASS	-40.0	-111 DPM	klg	#1	I131 hood
11/16/10 13:15	1005107	SWIPE	PASS	-38.0	-106 DPM	klg	#2	TC Sink

Approved By: _____ **Date:** _____