Cass Regional
Medical Center

Caring for the Person in Each Patient

2800 Rock Haven Road
Harrisonville, Missouri 64701
816 380-3474
www.cassregional.org

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Raymore, MO

October 20, 2009

Nuclear Regulatory Commission, Region III
Material Licensing
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4352

RE: Materials License #24-20234-02 for Cass Regional Medical Center

Dear Sirs:

This letter is to notify you as per 10CFR35.14(4) that we have moved our Nuclear Medicine operations to a new facility. The old location was surveyed for decommissioning.

The hot lab, camera room and stress test rooms have been decommissioned by removing all sources of radioactivity, performing an area radiation survey and wipe tests to detect any residual contamination. All sources were removed and both surveys detected no residual contamination. The decommissioning report is attached.

As you are aware through all of the communications with our Medical Center, we would appreciate any help you can give us to expedite the decommissioning of our previous Nuclear department at 1800 East Mechanic Street, Harrisonville, Missouri. We are in the process of working with potential buyers of the building. If there is anything further that we can do to move this forward, please let us know. Please let us thank you in advance for any help you can give us.

If you have any questions, do not hesitate to contact Ellen Clements, Radiology Manager, at 816-380-5888 ext. 3530.

Sincerely,

J. Christopher Lang, MHA, FACHE
Chief Executive Officer

RECEIVED OCT 2 2 2009

RADIATION AREA AND WIPE TEST SURVEY
Cass Regional Medical Center
Date of Survey: September 29, 2009
Performed by: Ed Crouch and Ruth Schukman-Dakotas

Introduction

Cass Regional Medical Center recently moved into a new facility located at 2800 Rock Haven Road, Harrisonville, Missouri. The nuclear medicine department at the old facility located at 1800 East Mechanic, Harrisonville, Missouri has been vacated. A decommissioning survey was conducted on September 29, 2009.

Historical Review

Radionuclide Usage: The use of radioactive materials at Cass Regional Medical Center was initiated in September 1998 and has been managed by Clinishare. All radioactive doses were stored/used in the Hot Lab, the Camera Room, or in the Stress Lab. The specific radionuclides used for patient doses include ^{99m}Tc, ^{21}Tl, ^{123}I and ^{131}I and were received/used as unit doses. Sealed sources included ^{137}Cs and ^{133}Ba e-vials, ^{137}Cs rod source and ^{57}Co sheet source.

Radioactive dosages were injected or ingested in the Nuclear Medicine Camera Room or the Cardiac Stress Lab. The unit doses, sealed sources and radioactive waste were stored in the Hot Lab.

Spills and Contamination Events: Per documents maintained by Clinishare, there were no spsills and contamination events.

Radioactive Waste Management: Used and unused unit doses of $^{99m}TcO_4$ were returned to Cardinal Health Pharmacy the following day.

Used and unused doses ^{201}TlCl, ^{123}I and ^{131}I were stored behind lead bricks in the Hot Lab for decay-in-storage (DIS). Used ^{99m}TcDTPA aerosol bags were stored in a lead container in the Hot Lab for DIS. After verifying that radiation levels were indistinguishable from background levels in accordance with established procedures, the Nuclear Medicine tech disposed of it as nonradioactive waste in accordance with hospital procedures.

Unusable sealed sources were returned to vendor upon receipt of replacement sources.

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Radiation Survey:
All areas noted on the facility diagram were monitored using a Ludlum 14C GM meter with a 44-9 probe. The background readings were 0.02-0.05 mr/hr. No radiation levels measured above background.

Contamination Survey:
All areas noted were surveyed using a Ludlum 14C GM meter and wiped with an alcohol swab. The swabs were counted in the DTC Picker well counter for one minute. The results of the counting are noted in the attached tables. No contamination was identified during surveys with the GM meter. No contamination was identified during the wipe test survey.

Decision Criteria
The area was considered to contain no contamination if the count was less than:

$$Bkg + 4.66(Bkg)^{1/2}$$

Results of Survey:
No radiation levels above background were detected. No contamination or residual radioactivity were detected in the Hot Lab, Camera Room, or the Stress Test Room.

Wipe and survey data are detailed in **Attachment 1.**

Survey instrument specifics such as type, background readings, efficiency/ correction factors, minimum detectable activity, and calibration dates are summarized in **Attachment 2**.

Ruth Schukman-Dakotas 10.19.09

Ruth Schukman-Dakotas Date
Health Physicist

DTC

Attachment 1a

Cass Medical Center

RESULTS OF WIPE TEST SURVEY
FOR DECOMMISSIONING OF HOT LAB
Performed by: Diagnostic Technology Consultants, Inc.
Ed Crouch and Ruth Schukman-Dakotas
Date of Survey: September 29, 2009

Wipe Number*	Area Wiped	Counts per minute (cpm)	Removed Activity (dpm)	Results
HL 1-8	Floor (grids 1-8)	76	0	Acceptable
HL9-16	Floor (grids 9-16)	76	0	Acceptable
HL 17-24	Floor (grids 17-24)	76	0	Acceptable
HL 25-32	Floor (grids 25-32)	82	0	Acceptable
HL 33-40	Floor (grids 33-40)	82	0	Acceptable
HL 41-48	Floor (grids 41-48)	82	0	Acceptable
HL 49-56	Floor (grids 49-56)	76	0	Acceptable
HL 57-64	Floor (grids 57-64)	76	0	Acceptable
HL 65-72	Floor (grids 65-72)	76	0	Acceptable
HL 73-75	Counter top	95	0	Acceptable
HL 76-78	Counter top	95	0	Acceptable
HL 79-81	Counter top	95	0	Acceptable
HL 82-84	Counter top	76	0	Acceptable
HL 85-87	Counter	76	0	Acceptable
HL 88-90	Cabinet / Cabinet handle (89)	76	0	Acceptable
HL 91-93	Cabinet	75	0	Acceptable
HL 94-97	Cabinet / Cabinet handle (97)	75	0	Acceptable
HL 100-101	Counter drawer handles	65	0	Acceptable
	Background	76		

Action level = Bkg + $4.66(Bkg)^{1/2}$ = 117

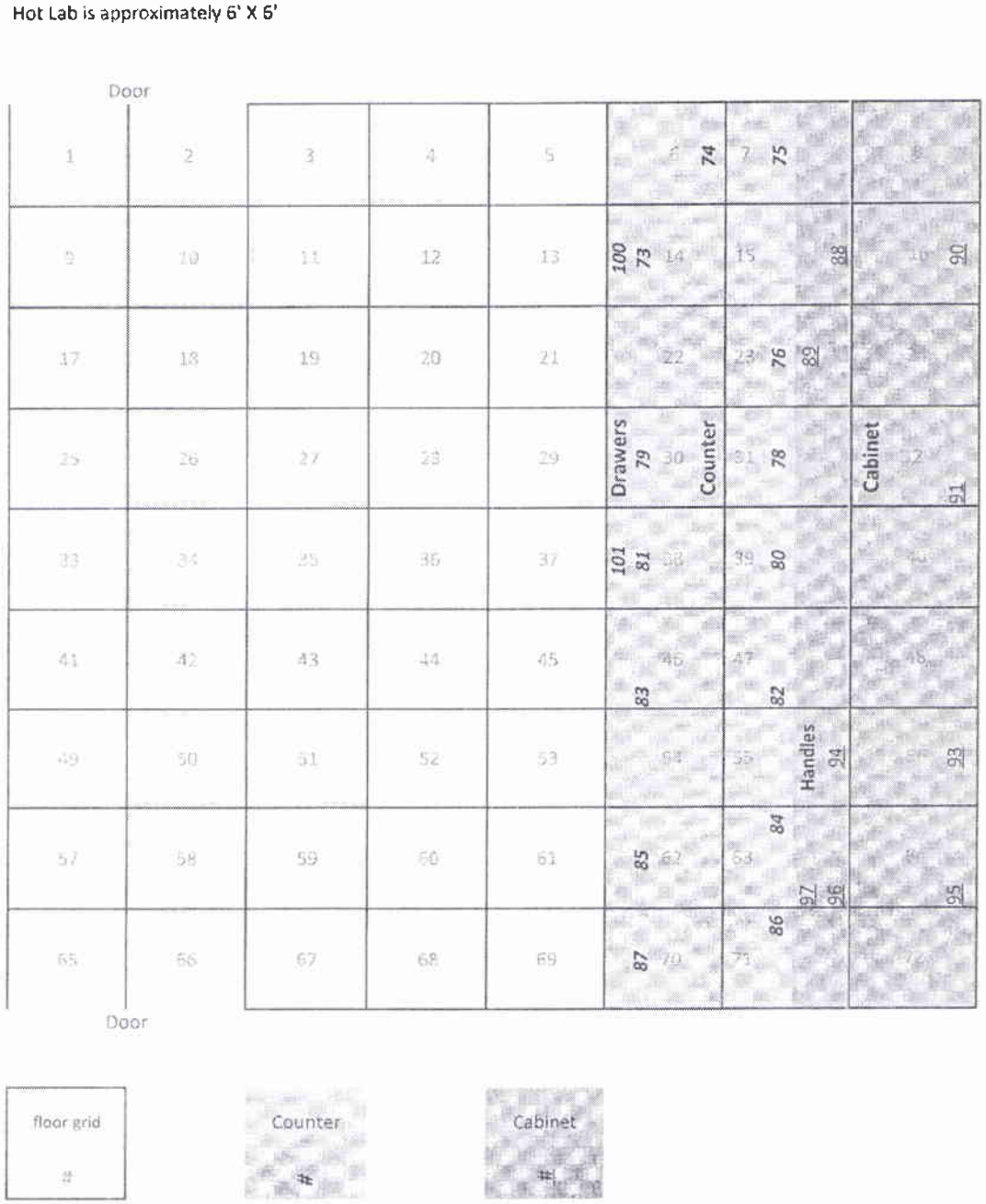
All radiation level readings were <= 0.05 mr/hr

DTC

Attachment 1b

Cass Medical Center Hot Lab Floor Plan

Hot Lab is approximately 6' X 6'



NOTE: there is no sink or running water in the lab; there is no fume hood.

Attachment 1c:

Cass Medical Center

RESULTS OF WIPE TEST SURVEY
FOR DECOMMISSIONING OF CAMERA ROOM
Performed by: Diagnostic Technology Consultants, Inc.
Ed Crouch and Ruth Schukman-Dakotas
Date of Survey: September 29, 2009

Wipe Number*	Area Wiped	Counts per minute (cpm)	Removed Activity (dpm)	Results
CR 1-5	Floor	95	0	Acceptable
CR 6-10	Floor	95	0	Acceptable
CR 11-14	Floor	95	0	Acceptable
CR 15-18	Floor	84	0	Acceptable
CR 19-23	Floor	84	0	Acceptable
CR 24-28	Floor	84	0	Acceptable
CR 34-38	Floor	84	0	Acceptable
CR39-43	Floor	84	0	Acceptable
CR 44-49	Floor	84	0	Acceptable
CR 50-55	Floor	77	0	Acceptable
CR 29-33	Floor	77	0	Acceptable
CR 56-61	Floor	77	0	Acceptable
CR 62-69	Floor	66	0	Acceptable
CR 70-75	Floor	66	0	Acceptable
CR 76-81	Floor	66	0	Acceptable
CR 82-85	Floor	90	0	Acceptable
CR 86-90	Floor	90	0	Acceptable
CR 91-94	Floor	90	0	Acceptable
CR 95-100	Floor	77	0	Acceptable
CR 101-105	Floor	77	0	Acceptable
CR 106-110	Floor	77	0	Acceptable
CR 111-115	Floor	76	0	Acceptable
CR 116-120	Floor	76	0	Acceptable
CR 121-124	Floor	76	0	Acceptable
CR 125-128	Floor	76	0	Acceptable
CR 129-133	Floor	76	0	Acceptable
CR 134-139	Floor	76	0	Acceptable
CR 140-145	Floor	66	0	Acceptable
CR 146-147	Floor	66	0	Acceptable
countertop		66	0	Acceptable
overhead cabinets		66	0	Acceptable
door		66	0	Acceptable
underneath cabinets		77	0	Acceptable
handles		77	0	Acceptable
plumbing under sink		77	0	Acceptable
sink/counter		77	0	Acceptable
camera		77	0	Acceptable
BACKGROUND		76		

Action level = Bkg + $4.66(Bkg)^{1/2}$ = 117 cpm

All radiation level readings were <= 0.05 mr/hr

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Attachment 1d

Cass Medical Center Camera Room

N

Camera room is approximately 16' X 16'.

Door to Hot Lab

Door

Door

						142	143 144	145 146	147	counter	cabinet			
129	130	131	132	133 134	135	136 137	138	139 140	141		sink			
111	112	113	114	115	116	117 118	119	120 121	122	123 124	125	126 127	128	
95	96	97	98	99	100	101 102	103	104	105	106	107 108	109	110	
Camera			82	83	84	85 86	87	88	89	90	91 92	93	94	
			70	71	72	73 74	75	76	77	78	79	80	81	
			56	57	58	59 60	61	62 63	64	65	66 67	68	69	
			44	45	46	47	48	49	50	51	52 53	54	55	
29	30	31	32	33	34	35	36	37	38	39	40 41	42	43	
15	16	17	18	19	20	21	22	23	24	25	26	27	28	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	

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Attachment 1e

Cass Medical Center

RESULTS OF WIPE TEST SURVEY
FOR DECOMMISSIONING OF THE STRESS LAB
Performed by: Diagnostic Technology Consultants, Inc.
Ed Crouch and Ruth Schukman-Dakotas
Date of Survey: September 29, 2009

Wipe Number*	Area Wiped	Counts per minute (cpm)	Removed Activity (dpm)	Results
SL 1-5		87	0	Acceptable
SL 6-10		87	0	Acceptable
SL 11-15		87	0	Acceptable
SL 16-20		70	0	Acceptable
SL 21-25		70	0	Acceptable
SL 26-30		70	0	Acceptable
SL 16-20		73	0	Acceptable
SL 38-45		73	0	Acceptable
SL 46-53		73	0	Acceptable
SL 54-60		64	0	Acceptable
SL 61-67		64	0	Acceptable
SL 68-75		64	0	Acceptable
SL 76-81		69	0	Acceptable
SL 81-85		69	0	Acceptable
SL 86-90		69	0	Acceptable
SL 91-97		81	0	Acceptable
SL 98-104		81	0	Acceptable
SL 108-109		81	0	Acceptable
SL 110-116		60	0	Acceptable
SL 117-124		60	0	Acceptable
SL 125-130		60	0	Acceptable
SL 131-137		69	0	Acceptable
SL 138-145		69	0	Acceptable
SL 146-152		69	0	Acceptable
SL 153-154		77	0	Acceptable
SL 1455-156		77	0	Acceptable
sink		77	0	Acceptable
toilet		83	0	Acceptable
patient shelving unit		83	0	Acceptable
door handles		74	0	Acceptable
rewipe of floor where treadmill had been located		74	0	Acceptable
BACKGROUND		76		

Action level = Bkg + 4.66(Bkg)$^{1/2}$ = 117 cpm

All radiation level readings were <= 0.05 mr/hr

DTC

Attachment 1f

Cass Medical Center Stress Lab

N

Stress test room is approximately 12' x 15'

Door

						91	110	131		
						92	111	132		
						93	112	133		
						94	113	134		
1	16	31	46	61	76	95	114	135 136	153	sink
2	17	32	47	62	77	96	115	137	154	
3	18	33	48	63	78	97	116	138		
4	19	34	49	64	79	98	117	139		
5	20	35	50	65	80	99	118	140		
6	21	36	51	66	81	100	119	140	155	
							120	141	Door	Toilet
7	22	37	52	67	82	101	121	142 143	156	
8	23	38	53	68	83	102	122	144		
9	24	39	54	69	84	103	123	145		
10	25	40	55	70	85	104	124	146		
11	26	41	56	71	86	105	125	147		
12	27	42	57	72	87	106	126	148		
13	28	43	58	73	88	107	127	149		
14	29	44	59	74	89	108	128 129	150 151		
15	30	45	60	75	90	109	130	152		

Door/curtain

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Attachment 1f

Attachment 2

Survey and Analysis Equipment Parameters

Calibration and Constancy Assessment of the Picker Spectroscaler 4 (s/n: 20574) with Model 2804E Well Detector (s/n: 472)

Standard Source Information						Source data as of "Date"			Count Data			
Source	Half-life (Days)	Serial No.	Activity (uCi)	dpm	Calibration Date	Analysis Date	Elapsed Time(t) (days)	dpm as of "Analysis Date"	Source (5 min)	Bkg (5 min)	Efficiency (cpm/dpm)	MDA (uCi)
Ba-133	3836.15	1036-32-2	0.1056	234432	2/1/2004	1/2/2009	1797	169447	518267	377	0.612	3.2E-05
Co-57	271.74	1212-32-3	0.09933	220512.6	6/1/2007	1/2/2009	581	50112	164692	377	0.657	3.0E-05
Co-60	1925.28	NEN02118	0.121	268620	2/26/1980	1/13/2009	10549	6027	11920	414	0.396	5.1E-05
Cs-137	10975.55	962-51-9	0.09755	216561	3/1/2004	1/2/2009	1768	193686	229571	377	0.237	8.2E-05

Per standard operating procedurs, constancy checks using a ^{137}Cs sealed source are conducted each day prior to using the equipment. To verify constancy, the cpm for the source must fall between 63,093 and 77,113. On 9/29/09, the cpm for the source was 68,360.

Calibration and Correction Factors for the Ludlum GM 14C Survey Meter with 44-9 Probe (SN#: 80111 and 079390 respectively)

Calibration Date: 4/8/2009

Correction Factors:

Scale Multiplier	Distance (cm)	Calculated Reading	Measured (mr/hr)	Correction Factor
1000	38.8	1500	1450	1.03
1000	67.2	500	550	0.91
100	122.7	150	140	1.07
100	212.5	50	52	0.96
10	271.6	15	14	1.07
10	317.8	5	5.2	0.96
1	121.5	1.5	1.5	1
1	210.4	0.5	0.5	1
0.1	117.4	0.15	0.15	1
0.1	203.4	0.05	0.5	1

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From: Origin ID: OJCA (816) 380-5888
Cristie Walsh
Cass Medical Center
1800 E. Mechanic St.

Harrisonville, MO 64701

FedEx Express

Ship Date: 21OCT09
ActWgt: 1.0 LB
CAD: 4860229/INET9090
Account#: S *********

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (999) 999-9999 **BILL SENDER**

Colleen Casey
U.S. Nuclear Regulatory Commission
2443 WARRENVILLE RD STE 210

LISLE, IL 60532

TRK# 0201 7960 5024 2723

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