P.O. Box 3371
Springfield, Missouri 65808
417-831-6520

Nuclear Diagnosis, Inc.

15 September 2010

U.S. Nuclear Regulatory Commission, Region III
Materials Licensing
2443 Warrenville Road, Suite 210
Lisle, Illinois 60532-4351

RE: Materials License # 24-17561-01

Dear Sir or Madam:

This letter is to notify you as per 10CFR35.14(4) that we have moved our Nuclear Medicine hot lab in Sullivan Medical Office Building to the new location (same building and floor) which was approved by our license amendment No. 62. The old location was surveyed for decommissioning.

The hot lab has 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.

Please amend our license to allow unrestricted use of the old hot lab space based on the decommissioning report provided.

Your prompt assistance with this request will be greatly appreciated. I include two names as points of contact.

Larry D. Albaugh, CNMT	Cell # 417-880-5032
Dr. Lynn N. Carlton, M.D.	(RSO for Nuclear Diagnosis, Inc.) Cell # 417-299-3828

Respectfully,

Larry D. Albaugh

Larry D. Albaugh, CNMT
Administrative Coordinator
Nuclear Diagnosis, Inc.

RECEIVED SEP 2 0 2010

RADIATION AREA AND WIPE TEST SURVEY
Missouri Baptist Sullivan Hospital
Date of Survey: September 8, 2010
Performed by: Ed Crouch and Ruth Schukman-Dakotas

Executive Summary
Missouri Baptist Sullivan Hospital recently moved its Hot Lab operations to a new location within the same facility. All radioactive materials have been removed to the new location. A decommissioning survey was conducted on September 8, 2010 in the prior Hot Lab.

Historical Review

Radionuclide Usage: Although nuclear medicine services were started in the early 1980's at this location, it was done as a mobile service. This Hot Lab was not opened until the mid 1990's. Radioactive unit doses were stored/prepared in the Hot Lab prior to use with patients. The specific radionuclides used for patient doses include Tc-99m and Tl-201. All were received as unit doses. Sealed sources stored/used in the Hot Lab included 2 Cs-137 sources. A Ba-133 source was brought to the site periodically for equipment calibration.

Spills and Contamination Events: There were no reportable spills or contamination events at this site. Minor spills were cleaned up promptly.

Radioactive Waste Management: Radioactive waste was returned to the vendor providing the unit doses or was stored on site for decay-in-storage (DIS).

After verifying that DIS radioactive waste 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.

Radiation Survey:
All areas noted on the facility diagram (see page 5) 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 ADC Model 300 well counter for 1 minute. See page 6 for survey and analysis equipment specifics. The results of the counting are noted in the attached tables (see pages 3 and 4). No contamination was identified during surveys with the GM meter. No contamination was identified as a result of the wipe test survey.

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

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

DTC

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

Survey instrument specifics such as type, background readings, efficiency/ correction factors, minimum detectable activity, and calibration dates are summarized on page 6.

Ruth Schukman-Dakotas Sept. 15, 2010

Ruth Schukman-Dakotas Date
Health Physicist

DTC

Missouri Baptist Sullivan Hospital

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 8, 2010

Wipe Number*	Area Wiped	Counts per minute (cpm)	Radioactivity Level	Results
1	Floor	378	Bkg	Acceptable
2	Floor	378	Bkg	Acceptable
3	Floor	378	Bkg	Acceptable
4	Floor	360	Bkg	Acceptable
5	Floor	360	Bkg	Acceptable
6	Floor	360	Bkg	Acceptable
7	Floor	351	Bkg	Acceptable
8	Floor	351	Bkg	Acceptable
11	Floor	349	Bkg	Acceptable
12	Floor	349	Bkg	Acceptable
13	Floor	350	Bkg	Acceptable
14	Floor	350	Bkg	Acceptable
15	Floor	350	Bkg	Acceptable
16	Floor	373	Bkg	Acceptable
17	Floor	373	Bkg	Acceptable
18	Floor	373	Bkg	Acceptable
19	Floor	330	Bkg	Acceptable
20	Floor	330	Bkg	Acceptable
21	Floor	371	Bkg	Acceptable
22	Floor	371	Bkg	Acceptable
23	Floor	371	Bkg	Acceptable
24	Floor	370	Bkg	Acceptable
25	Floor	370	Bkg	Acceptable
26	Floor	370	Bkg	Acceptable
27	Floor	368	Bkg	Acceptable
28	Floor	368	Bkg	Acceptable
29	Floor	368	Bkg	Acceptable
30	Floor	348	Bkg	Acceptable
32	Floor	348	Bkg	Acceptable
33	Floor	355	Bkg	Acceptable
34	Floor	352	Bkg	Acceptable
36	Floor	355	Bkg	Acceptable
37	Floor	355	Bkg	Acceptable
38	Floor	355	Bkg	Acceptable
39	Floor	325	Bkg	Acceptable

DTC

Wipe Number*	Area Wiped	Counts per minute (cpm)	Radioactivity Level	Results
40	Floor	325	Bkg	Acceptable
S1	Cabinet lower shelf	409	Bkg	Acceptable
S2	Cabinet lower shelf	409	Bkg	Acceptable
S3	Cabinet lower shelf	409	Bkg	Acceptable
S4	Cabinet lower shelf	358	Bkg	Acceptable
S5	Cabinet lower shelf	358	Bkg	Acceptable
S6	Cabinet lower shelf	358	Bkg	Acceptable
TS1	Top shelf	362	Bkg	Acceptable
TS2	Top shelf	362	Bkg	Acceptable
TS3	Top shelf	362	Bkg	Acceptable
TS4	Top shelf	385	Bkg	Acceptable
TS5	Top shelf	385	Bkg	Acceptable
MS6	Middle shelf	385	Bkg	Acceptable
MS7	Middle shelf	374	Bkg	Acceptable
MS8	Middle shelf	374	Bkg	Acceptable
MS9	Middle shelf	374	Bkg	Acceptable
MS10	Middle shelf	316	Bkg	Acceptable
BS11	Bottom shelf	316	Bkg	Acceptable
BS12	Bottom shelf	316	Bkg	Acceptable
BS13	Bottom shelf	385	Bkg	Acceptable
BS14	Bottom shelf	385	Bkg	Acceptable
1R	Refrigerator inside	361	Bkg	Acceptable
2R	Refrigerator side	361	Bkg	Acceptable
3R	Refrigerator side	361	Bkg	Acceptable
4R	Refrigerator side	354	Bkg	Acceptable
5R	Refrigerator top	354	Bkg	Acceptable
	Door knob inside and out	363	Bkg	Acceptable
	Background	370	Bkg	Acceptable

NOTE: There were no floor wipes numbered 31 and 35.

Action level = Bkg + $4.66(\text{Bkg})^{1/2}$ = 460

All wipes were less than the action level.

DTC

Missouri Baptist Sullivan Hospital

Former Nuclear Medicine Hot Lab

Room dimensions: 10' x 8.5'

door

knob — hinges

	40	30	20	10
	39	29	19	9
	38	28	18	8
	37	27	17	7
	36	26	16	6
open with 3 shelves	Cabinet (S4,S5,S6)	25	15	5
	34	24	14	4
	33	23	13	3
	32	22	12	2
open with 3 shelves	Cabinet (S1,S2,S3)	21	11	1

shelving with floor access

(Top Shelf: TS1,TS2,TS3,TS4,TS5)
(Middle Shelf: MS6,MS7,MS8,MS9,MS10)
(Bottom Shelf: BS11,BS12,BS13,BS14)

Dorm Size Refrigerator

1R
2R
3R
4R
5R

SEP-15-2010 02:07P FROM:DIAGNOSTIC TECHNOLOG (913) 236-6655 TO:14178310195 P.8

Survey and Analysis Equipment Parameters

Analytical Equipment

Manufacturer: ADC Medical Model 300 / Atomic Products Corporation Well

Serial Numbers: 140982005 / 2944

Standard Source Information									Minimum Detectable Activity (MDA)				
Source	Serial No.	Activity (uCi)	Calibration Date	Halflife (Days)	Decay Time (t) (Days)	A(t) (uCi)	A(t) (dpm)	Analysis Date	Source Count (5 min)	Bkg (5 min)	Efficiency	MDA (dpm)	MDA (uCi)
Co-57	1337766-2	9.81E-02	08/01/09	271.74	366	3.86E-02	8.56E+04	08/02/10	3.92E+05	1736	0.911	98	4.42E-05
Ba-133	1036-32-2	1.06E-01	02/01/04	3836.15	2374	6.88E-02	1.53E+05	08/02/10	5.95E+05	1736	0.778	115	5.18E-05
Co-60	NEN02118	1.21E-01	02/26/80	1925.28	11115	2.21E-03	4.92E+03	08/02/10	1.37E+04	1736	0.487	183	8.26E-05
Cs-137	962-51-9	9.76E-02	03/01/04	10975.55	2345	8.41E-02	1.87E+05	08/02/10	2.82E+05	1736	0.300	298	1.34E-04

Per standard operating procedures, 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 81,166-89,709. On 9/13/10, the cpm for the source was 85,106.

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

Correction Factors as of 4/9/10:

Scale Multiplier	Distance (cm)	Calculated mr/hr	Measured (mr/hr)	Correction Factor
1000	38.1	1500	1400	1.07
1000	66	500	550	0.91
100	120.6	150	150	1.00
100	208.8	50	50	1.00
10	266.9	15	15	1.00
10	312.4	5	5.2	0.96
1	119.4	1.5	1.5	1.00
1	206.8	0.5	0.5	1.00
0.1	115.4	0.15	0.15	1.00
0.1	199.9	0.05	0.05	1.00

Calibrated by Mid-America Calibrations, Inc. with a J.L. Shepherd Model 28-6a calibrator, serial #10018, 1.2 Ci Cs-137, 3M 4F6H, source serial #2824 or a Ludlum Model 500-2 Pulser, serial #127533. The output is traceable to the NBS (N.I.S.T.) and all instruments are calibrated in accordance with MIL-STD 45662A and ANSI N323-1978.

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