

Comprehensive Cardiovascular Consultants, Inc.

Raffi K. Krikorian, M.D., FACC, RVT

Irakli Shengelia, PA-C

Board Certified in Cardiovascular Diseases and
Interventional Cardiology

Date: January 12, 2011

Ref. License- **24-32459-01**

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

To Whom It May Concern:

This is to request an expedited review of an amendment request to the radioactive materials license for Comprehensive Cardiovascular Consultants in St. Louis, Missouri. The following is submitted for your review:

1. The former nuclear testing facility at 3760 S. Lindbergh Blvd. Suite 101 St. Louis, Missouri, has been vacated. All diagnostic studies were terminated prior to August 1, 2010. All radioactive materials were moved to the Farmington office on July 31, 2010. As such, we request that the St. Louis facility be released for unrestricted use. The address may be removed from the radioactive materials license since no further nuclear testing will be conducted at this location.
2. The primary nuclide used at this location was Tc-99m. Only diagnostic studies were performed at this site. All radioactive waste stored for decay until it reached background level, at least ten half-lives, then disposed to Bio-hazard waste or regular trash.
3. History of radionuclides:
 - a. Technetium-99m (for Patient use and Quality Control)
 - b. Thallium-201 (for patient use)
 - c. Co-57 (sealed vial source) transported to Farmington location for storage.
 - d. Co-57 (sealed Flood source) transported to Farmington location for storage.
 - e. Ba-133 (sealed vial source) transported of Farmington location for storage.
 - f. Cs-137 (sealed vial source) transported to Farmington location for storage.
 - g. Cs-137 (sealed tube source) transported to Farmington location for storage.
4. Enclosed please find the area surveys and wipe testing that were conducted after all sources had been removed. No residual activity was found. Area surveys were performed using Ludlum 14C survey meter, which was calibrated May 11, 2010. Wipe testing was performed using a Spectech sodium iodine scintillation well counter. All results were at background level.

5. Enclosed is a floor plan diagram showing where area surveys and wipe testing were conducted.

If you have any questions concerning this matter, please contact Nancy Hensley, RT(N), Nuclear Medicine Supervisor at our Farmington office, 573-756-5298.

Sincerely,



Raffi Krikorian, M.D., RSO

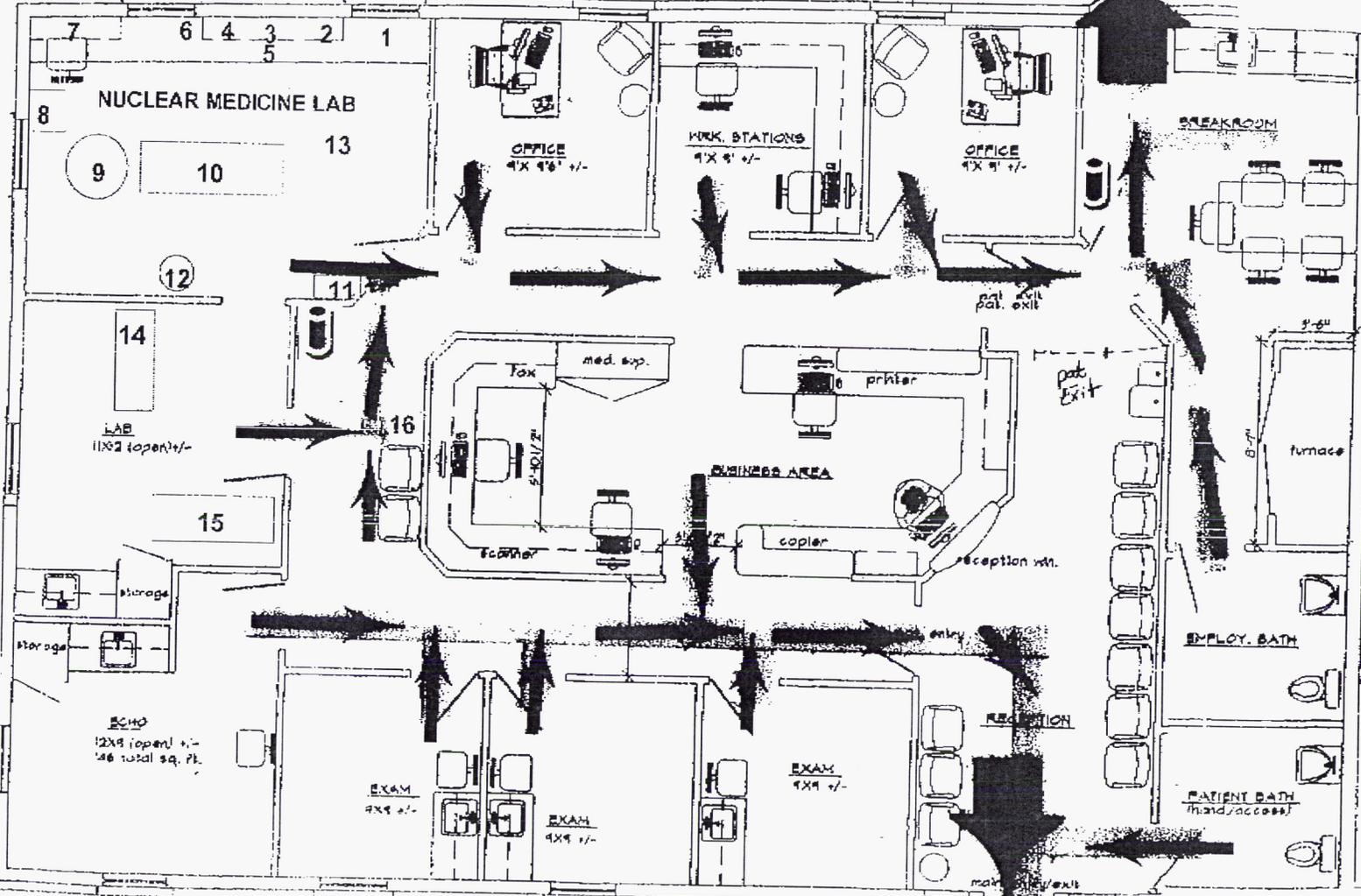
RK/nh

Enclosures: Floor plan diagram
Area wipe survey
Area meter survey
Quarterly Physical Inventory of Sealed Sources
Sealed Source Wipe/Leak Tests
Instrument Calibration Certificate

COMPREHENSIVE CARDIOVASCULAR CONSULTANTS, INC.

AREA SURVEYS AND WIPE TESTS

NUCLEAR MEDICINE LAB



1. SynTrac Computer
2. Counter
3. Sink
4. Counter/Lead Shield
5. Leaded Storage (under Sink)
6. Non-Radioactive Trash
7. Desk/Computer
8. DOT Console
9. Detector
10. Imaging Table
11. Co-57 Flood Source
12. Radioactive Trash (Decay)
13. Floor/Room
14. Treadmill
15. Injection Area
16. Patient Waiting Area

**ZONE 1 BLUE
KIT THRU FRONT ENTRANCE**

**ZONE 2 YELLOW
EXIT THRU REAR ENTRANCE**

 **FIRE EXTINGUISHERS LOCATED IN BREAKROOM and
OUTSIDE WALL BETWEEN STRESS LAB & NUCLEAR MEDICINE**

COMPREHENSIVE CARDIOVASCULAR CONSULTANTS, INC
Raffi K. Krikorian, M. D., F.A.C.C. 3760 S. Lindbergh Blvd. Suite 101 St. Louis, Mo 63127

CLOSE-OUT SURVEYS JULY 31, 2010

Performed by: Nancy Hensley, RT(N), CNMT

AREA SURVEYS RESULTS

Survey Instrument: G-M survey Meter Mfr: Ludlum Model #: 14C Type: Side Window G.M.
Serial #:192079 Last Calibration Date: 05/11/2010

Area : Calibration: 0.5uSv Bkg: 0.1uSv

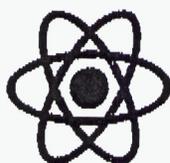
- 1 SynTrac Computer: 0.1
- 2 Counter: 0.1
- 3 Sink: 0.1
- 4 Counter/Lead Shield 0.1
- 5 Leaded storage-under sink 0.1
- 6 Trash 0.1
- 7 Desk/Computer 0.1
- 8 DOT Console 0.1
- 9 Camera 0.1
- 10 Imaging Table 0.1
- 11 Flood/Leaded Container 0.1
- 12 Radioactive Trash(decay) 0.1
- 13 Floor/Room 0.1
- 14 Treadmill 0.1
- 15 Injection area 0.1
- 16 Patient waiting area 0.1

WIPE TESTS

Instrumentation: Well Chamber Mfr: Spectrum Techniques, Inc. Model: SPECTECH SN: 1831
Last Efficiency Determination: 05/06/2010 Correction Factor: 1.18

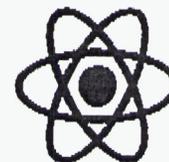
Area : Calibration: 50078 Bkg: 1291MBq

- 1 SynTrac Computer: 0
- 2 Counter: 0
- 3 Sink: 12 1301-1291 x 1.18=11.8
- 4 Counter/Lead Shield 0
- 5 Leaded storage-under sink 0
- 6 Trash 0
- 7 Desk/Computer 0
- 8 DOT Console 0
- 9 Camera 0
- 10 Imaging Table 0
- 11 Flood/Leaded Container 0
- 12 Radioactive Trash(decay) 0
- 13 Floor/Room 0
- 14 Treadmill 0
- 15 Injection area 0



Radiation Protection Services, Ltd

Serving Radiology, Nuclear Medicine, Therapy and Industry



1405 Stevenson Drive-Suite 11
 Springfield, Illinois 62703

Phone: (217) 786-3839
 Fax: (217) 786-3110

Quarterly Physical Inventory Of Sealed Sources

Facility Name: Comprehensive Cardiovascular NRC License #: 24-32459-01
 Date of Inventory: May 4, 2010 State License #: _____

| | Radio-nuclide | Description of Source | Manufacturer and Model # | Serial # | Assay and Date | Source Location |
|-----|---------------|-----------------------|--------------------------|-----------|------------------------------------|-----------------|
| 1. | Co-57 | Vial | I.P.L. RV-057-5 M | 970-95-11 | 5.598 mCi [±] 08/01/03 | Hot Lab Cave |
| 2. | Cs-137 | Vial | I.P.L. RV-137-200 U | 986-47-8 | 195.7 uCi 08/01/03 | Hot Lab Cave |
| 3. | Ba-133 | Vial | I.P.L. RV-133-250 U | 988-69-2 | 262.4 uCi 09/01/03 | Hot Lab Cave |
| 4. | Co-57 | Flood | I.P.L. NES-391 | 1009-023 | 5.0 mCi 09/01/03 | Imaging Room |
| 5. | Co-57 | Flood | I.P.L. NES 392 | 1253-039 | 10 mCi 8/1/07 | Imaging Room |
| 6. | | | | | | |
| 7. | | | | | | |
| 8. | | | | | * 8.7 uCi as of 8/2010 (Exempt | |
| 9. | | | | | from leak testing) | |
| 10. | | | | | | |

Other Types of Sources

| | Radio-nuclide | Description of Source | Manufacturer and Model # | Serial # | Assay and Date | Source Location |
|----|---------------|-----------------------|--------------------------|----------|----------------------|-----------------|
| 1. | Cs-137 | Tube Check Source | Spectrum Techniques | 2300 | 0.095 uCi 03/2003 | Hot Lab Cave |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |
| 5. | | | | | | |

Next Inventory Due: August 2010

Performed By: Tom Schlarman
 Tom Schlarman, Radiation Physicist

R.S.O.: [Signature]



Radiation Protection Services, Ltd.

Serving Radiology, Nuclear Medicine, Therapy and Industry



1405 Stevenson Drive-Suite 11
 Springfield, Illinois 62703

Phone: (217) 786-3839
 Fax: (217) 786-3110

SEALED SOURCE WIPE/LEAK TEST

Facility: Comprehensive Cardiovascular Consultants NRC License #: 24-32459-01
 Address: St. Louis, Missouri State License #: _____
 Date Performed: May 4, 2010 By: Thomas Schlarman, Rad. Physicist
 Date Analyzed: May 11, 2010 By: Maury Neuweg, Radiation Physicist

SOURCE INFORMATION

| | | | | | |
|-----------|--------------|-----------|-----------|---------------|---------------|
| Nuclide: | Cs-137 | Activity: | 195.7 uCi | Manufacturer: | I.P.L. |
| Model #: | RV-137-200U | Serial #: | 986-47-8 | Assay Date: | Aug. 01, 2003 |
| Location: | Hot Lab Cave | Holder: | Vial | | |

Test Data: Background CPM* 6

| Sample # | Sample Location | Net CPM | DPM ** | Results uCi *** | Comments |
|----------------|-----------------|---------|---------------|-----------------|----------|
| 1 | Source Exterior | -0- | -0- | M | |
| 2 | | | | | |
| Standard Used: | Cs-137 0.1 uCi | | Standard CPM: | 15460 | |

CONCLUSION:

| | |
|---|---|
| X | Results of these tests <u>do not indicate the presence</u> of reportable removable radioactivity (less than 0.005 uCi). |
| | Results of these tests <u>indicate the presence</u> of reportable removable radioactivity (greater than 0.005 uCi). See attached recommendations. |

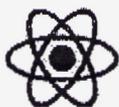
NEXT WIPE/LEAK TEST DUE: November 30, 2010

- * Counts per minute
- ** Disintegrations per minute
- *** M = < 0.005 microcuries

Reviewed By: Maury Neuweg
 Radiation Physicist

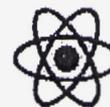
Facility R.S.O.: _____

Test performed under License # IL-01799-01



Radiation Protection Services, Ltd.

Serving Radiology, Nuclear Medicine, Therapy and Industry



1405 Stevenson Drive-Suite 11
 Springfield, Illinois 62703

Phone: (217) 786-3839
 Fax: (217) 786-3110

SEALED SOURCE WIPE/LEAK TEST

Facility: Comprehensive Cardiovascular Consultants NRC License #: 24-32459-01
 Address: St. Louis, Missouri State License #: _____
 Date Performed: May 4, 2010 By: Thomas Schlarman, Rad. Physicist
 Date Analyzed: May 11, 2010 By: Maury Neuweg, Radiation Physicist

SOURCE INFORMATION

| | | | | | |
|-----------|--------------|-----------|-----------|---------------|----------------|
| Nuclide: | Ba-133 | Activity: | 262.4 uCi | Manufacturer: | I.P.L. |
| Model #: | RV-133-250U | Serial #: | 988-69-2 | Assay Date: | Sept. 01, 2003 |
| Location: | Hot Lab Cave | Holder: | Vial | | |

Test Data: **Background CPM*** 35

| Sample # | Sample Location | Net CPM | DPM ** | Results uCi *** | Comments |
|----------------|-----------------|---------|---------------|-----------------|----------|
| 1 | Source Exterior | -0- | -0- | M | |
| 2 | | | | | |
| Standard Used: | Ba-133 0.1 uCi | | Standard CPM: | 23644 | |

CONCLUSION:

| | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Results of these tests <u>do not indicate the presence</u> of reportable removable radioactivity (less than 0.005 uCi). |
| <input type="checkbox"/> | Results of these tests <u>indicate the presence</u> of reportable removable radioactivity (greater than 0.005 uCi). See attached recommendations. |

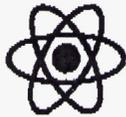
NEXT WIPE/LEAK TEST DUE: November 30, 2010

- * Counts per minute
- ** Disintegrations per minute
- *** M = < 0.005 microcuries

Reviewed By: Maury Neuweg
 Radiation Physicist

Facility R.S.O.: _____

Test performed under License # IL-01799-01



Radiation Protection Services, Ltd.

Serving Radiology, Nuclear Medicine, Therapy and Industry



1405 Stevenson Drive-Suite 11
Springfield, Illinois 62703

Phone: (217) 786-3839
Fax: (217) 786-3110

SEALED SOURCE WIPE/LEAK TEST

Facility: Comprehensive Cardiovascular Consultant NRC License #: 24-32459-01
 Address: St. Louis, MO State License #: _____
 Date Performed: February 2, 2010 By: Thomas Schlarman, Rad. Physicist
 Date Analyzed: February 9, 2010 By: Maury Neuweg, Radiation Physicist

SOURCE INFORMATION

| | | | | | |
|------------------|--------------|------------------|----------|----------------------|------------|
| Nuclide: | Co-57 | Activity: | 10.0 mCi | Manufacturer: | I.P.L. |
| Model #: | NES-392 | Serial #: | 1253-039 | Assay Date: | 08/01/2007 |
| Location: | Imaging Room | Holder: | Flood | | |

Test Data: **Background CPM*** 22

| Sample # | Sample Location | Net CPM | DPM ** | Results uCi *** | Comments |
|-----------------------|-----------------|----------|----------------------|-----------------|----------|
| 1 | Source Front | -0- | -0- | M | |
| 2 | Source Back | 2 | 2 | M | |
| Standard Used: | Co-57 | 0.11 uCi | Standard CPM: | 7841 | |

CONCLUSION:

| | |
|----------|---|
| X | Results of these tests <u>do not indicate the presence</u> of reportable removable radioactivity (less than 0.005 uCi). |
| | Results of these tests <u>indicate the presence</u> of reportable removable radioactivity (greater than 0.005 uCi). See attached recommendations. |

NEXT WIPE/LEAK TEST DUE: August 31, 2010

- * Counts per minute
- ** Disintegrations per minute
- *** M = < 0.005 microcuries

Reviewed By:

Maury Neuweg
Radiation Physicist

Facility R.S.O.:

Test performed under License # IL-01799-01



Radiation Protection Services, Ltd.

Serving Radiology, Nuclear Medicine, Therapy and Industry



1405 Stevenson Drive-Suite 11
 Springfield, Illinois 62703

Phone: (217) 786-3839
 Fax: (217) 786-3110

INSTRUMENT CALIBRATION CERTIFICATE

Facility: Comprehensive Cardiovascular Consultants Date Performed: May 11, 2010

Address: St. Louis, Missouri

Instrument Information

Mfr.: Ludlum
 Model #: 14 C
 Serial #: 192079

Probe Information

Mfr.: Ludlum
 Type: Side Window G.M.
 Model #: 44-6
 Serial #: 200232

Calibration Data

| Scale | Distance cm | Radiation Level mR/Hr. | Meter Readings mR/Hr. | Correction Factor | Distance cm | Radiation Level mR/Hr. | Meter Readings mR/Hr. | Correction Factor |
|--------|-------------|------------------------|-----------------------|--------------------------|-------------|------------------------|-----------------------|-------------------|
| X 0.1 | 117 | 0.05 | 0.05 | N/A | 136 | 0.15 | 0.15 | N/A |
| X 1 | 117 | 0.5 | 0.5 | N/A | 136 | 1.5 | 1.4 | N/A |
| X 10 | 117 | 5.0 | 5.0 | N/A | 136 | 15 | 15 | N/A |
| X 100 | 37.0 | 50 | 50 | N/A | 14.0 | 140 | 140 | N/A |
| X 1000 | 26.3 | 400 | 400 | N/A | 14.0 | 1400 | 1300 | N/A |
| | | | | <input type="checkbox"/> | | | | |

NBS Source Used:

Cs¹³⁷ 145.7 mCi as of 02/19/87

Present Activity:

85.3 mCi as of: 05/11/10

Check Source Reading

0.5 mR/hr.

Check Source Nuclide

Instrument

Distance

Contact

Maintenance:

Batteries Tested: Yes No
 Batteries Replaced: Yes No
 Contacts Cleaned: Yes No

Comments

X Meets current N.R.C./State standards.

Does not meet current N.R.C./State standards (see comments).

Recalibration Due: May 11, 2011

Performed By: Maury Neuweg
 Radiation Physicist

Test performed under License # IL-01799-01

Facility R.S.O.: _____

COMPREHENSIVE CARDIOVASCULAR CONSULTANTS

FARMINGTON, MISSOURI

EFFICIENCY DETERMINATION

Model SPECTECH S.N. 1831

May 6, 2010

| | | | | | |
|------------------|---|------------------|---|------------------------------|--------------|
| Standard: | = | Co-57 Rod Assay | = | 0.5355 uCi As of 06/01/06 | |
| | = | Current Activity | = | 0.01363 uCi | = 30,259 DPM |

| | | |
|----------------|---|--------|
| Coarse Voltage | = | 950 V. |
|----------------|---|--------|

| Bkgd. (CPM) | STD. (CPM) |
|---------------------|----------------------|
| 1,498 | 27,361 |
| 1,450 | 27,128 |
| 1,445 | 27,053 |
| AVG. = 1,464 | AVG. = 27,181 |

Std. CPM - Bkgd. CPM / Std. DPM X 100 = Efficiency %

$$((27,181 - 1,464) \div 30,259) \times 100 = 85.0 \%$$

Correction Factor (C.F.) = $\frac{1}{0.850}$ = 1.18

Therefore, CPM reading X 1.18 = DPM Measurement

Cs-137 Daily Check Range: 55,676 CPM - 61,538 CPM

Comprehensive Cardiovascular Consultants, Inc.

Raffi K. Krikorian, MD, FACC

715 MAPLE VALLEY DR.

FARMINGTON, MO 63670

PH: 573-756-5298

FAX: 573-756-1959

COVER PAGE

Fax#: 630-515-1078

**ATTENTION: BILL REICHHOLD MATERIAL LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION**

**FROM: NANCY HENSLEY, RT(N), CNMT
NUCLEAR MEDICINE SUPERVISOR**

NUMBER OF PAGES: 10

REMARKS:

APPLICATION FOR LICENSURE AMMENDMENT

PLEASE NOTE:

These documents may contain confidential information between Physician and Patient. If you receive these documents in error, please notify us immediately.