NRC Form 313T (2-82) 10 CFR 35

U.S. NUCLEAR REGULATORY COMMISSION

Approved by OMB 3150-0091 Expires 1-31-85

# APPLICATION FOR MATERIALS LICENSE – TELETHERAPY

**INSTRUCTIONS** – Complete Items 1 through 22 if this is an initial application or an application for renewal of a license. Use supplemental sheets where necessary. Item 22 must be completed on all applications and signed. Retain one copy. Submit original and one copy of entire application to: Director, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Upon approval of this application, the applicant will receive a Materials License. An NRC Materials License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Parts 19, 20, 21, and 35 and the license fee provision of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 22 and the appropriate fee enclosed.

1.a. NAME AND MAILING ADDRESS OF APPLICANT *(Institution, firm, clinic, physician, etc.)* INCLUDE ZIP CODE

Sam J. Merenda, M.D.
6651 Chippewa
St. Louis, Mo 63109

TELEPHONE AREA CODE ( 314 ) NUMBER 647-8893

1.b. STREET ADDRESS(ES), ACTUAL LOCATION OF TELETHERAPY SOURCE, INCLUDING BUILDING NAME, ROOM NUMBER, ETC.

LANSDOWNE MEDICAL BUILDING
LL-2
6651 Chippewa
St. Louis, Mo 63109

2. PERSON TO CONTACT REGARDING THIS APPLICATION

SAM J. MERENDA, M.D.

TELEPHONE AREA CODE ( 314 ) NUMBER 647-8893

3. THIS IS AN APPLICATION FOR: *(Check appropriate item)*

- [ ] a. NEW LICENSE
- [ ] b. AMENDMENT TO LICENSE NO. _____
- [X] c. RENEWAL OF LICENSE NO. 24-04992-01

4. INDIVIDUAL USERS *(Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.)*

Sam J. Merenda, M.D.
U.K. Hwang, M.D.

5. RADIATION SAFETY OFFICER (RSO) *(Name of person designated as radiation safety officer. If other than individual user, complete resume of training and experience as in Supplement A.)*

Sam J. Merenda, M.D.

6. SEALED SOURCES TO BE USED IN TELETHERAPY UNITS *(Attach supplemental pages if necessary)*

| | BYPRODUCT MATERIAL *(Element and Mass No.)* | NAME OF SOURCE MANUFACTURER | SOURCE MODEL NUMBER | MAXIMUM ACTIVITY PER SOURCE | NUMBER OF SOURCES |
|---|---|---|---|---|---|
| A. | Cobalt-60 | Advanced Med. Systems, Inc | AMS-3801 | 1480 curies | 2 |
| B. | | | | | |
| C. | | | | | |

7. TELETHERAPY UNITS *(Attach supplemental pages, if necessary)*

| | NAME OF MANUFACTURER *(Include description, if unit is custom made)* | MODEL NUMBER |
|---|---|---|
| A. | Picker Corporation | 6150-A |
| B. | | |
| C. | | |

8. USE *(Attach supplementary pages, if necessary)*

| A | B | C | |
|---|---|---|---|
| X | | | HUMAN USE ONLY |
| | | | HUMAN AND OTHER USE *(Specify on separate sheet)* |

8506210011 850612
REG3 LIC30
24-04992-01 PDR

9. PERSONNEL MONITORING DEVICES

| | TYPE (Check and/or complete as appropriate) | SUPPLIER (Service Company) | EXCHANGE FREQUENCY |
|---|---|---|---|
| X | (1) FILM BADGE – WHOLE BODY | R.S. Landauer, Jr. & Co. Glenwood, Ill 60425 | Monthly |
| | (2) THERMOLUMINESCENT DOSIMETER (TLD)–WHOLE BODY | | |
| | (3) OTHER *(Specify)* | | |

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## INFORMATION REQUIRED FOR ITEMS 10 THROUGH 21

For Items 10 through 21, check the appropriate box(es) and submit a detailed description of all the requested information. Begin each item on a separate sheet. Identify the item number and the date of the application in the lower right corner of each page. If you indicate that an appendix to the teletherapy licensing guide will be followed, do not submit the pages, but specify the revision number and date of the referenced guide: Regulatory Guide 10 Rev. _____ Date: _____

| | | | |
|---|---|---|---|
| 10. MEDICAL ISOTOPE COMMITTEE | | 15. BEAM STOPS | |
| | Names and specialties attached; and *(check one)* | X | Description of stops used to restrict beam orientation attached. |
| | a. Duties as in Appendix A, or | 16. SHIELDING EVALUATION | |
| | b. Equivalent duties attached. | | Evaluation of proposed shielding attached. |
| 11. TRAINING AND EXPERIENCE | | 17. OPERATING AND EMERGENCY PROCEDURES | |
| X | a. Supplements A & B attached for each individual user; and | X | a. Description of operating procedures attached; and |
| X | b. Supplement A attached for RSO. | X | b. Copy of emergency procedures attached. |
| 12. INSTRUMENTATION *(check one)* | | 18. INSTRUCTION OF PERSONNEL *(check one)* | |
| | a. Appendix C form attached, or | X | a. Training program and schedule in Appendix H followed, or |
| X | b. List manufacturer's name and model number. | | b. Description of instruction program for employees attached. |
| 13. CALIBRATION OF INSTRUMENTS *(check one)* | | 19. LEAK TESTS OF SEALED SOURCES | |
| X | a. Appendix D, Part 2 procedures followed for instrumentation calibration, or | X | Description of leak-test procedures attached. |
| | b. Description of sources, calibration frequency and equivalent procedures attached. | 20. QUALIFIED EXPERT *(Use only if the individual fails to meet 10 CFR 35.24 requirements.)* | |
| 14. FACILITIES AND EQUIPMENT | | | Statement of qualifications of the expert who will perform teletherapy calibrations attached. |
| | a. Description and drawing of facilities attached; and | 21. ALARA PROGRAM *(check one)* | |
| X | b. Description of patient viewing and communicating systems attached; and | X | ALARA Program as in Appendix I, or |
| X | c. Description of area safeguards attached. | | Equivalent ALARA Program attached. |

### 22. CERTIFICATE

*(This item must be completed by the applicant)*

The applicant and any official executing this certificate on behalf of the applicant named in Item 1a certifies that this application is prepared in conformity with Title 10, Code of Federal Regulations, Parts 30 and 35, and that all information contained herein, including supplements attached hereto, is true and correct to the best of our knowledge and belief.

| | |
|---|---|
| a. LICENSE FEE REQUIRED *(See section 170.31, 10 CFR 170)*<br>RENEWAL<br>Human Use of Byproduct Material | b. APPLICANT OR CERTIFYING OFFICIAL *(Signature)*<br>[signature] MD FACR |
| (1) LICENSE FEE CATEGORY<br>YES | (1) NAME *(Type or print)*<br>Sam F. Merenda, M.D. |
| (2) LICENSE FEE ENCLOSED<br>$ 270.00 | (2) TITLE<br>Radiation Chief Radiologist & Safety Officer |
| | c. DATE |

WARNING: 18 U.S.C. Section 1001; Act of June 25, 1948, 62 Stat. 749, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

11. Training & Experience

a. 24-04992-01

b. Same as Item #4

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12. Instrumentation

b.

1.Survey Meter

(a)-Anton Electronic Lab, Inc
1-CD V700 Model-6

2.Beam-On Monitor

(a) Primalert TM-10, Nuclear Associates, Inc. Model #05-433 (with Battery Pack).

3.Calibrations, spot checks and wipe tests are all performed by outside source (Mallinckrodt Institute of Radiology and Oncology).

13. Calibration of Instruments- See Attached Report

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Item #13
a.

The University of Texas System Cancer Center
M. D. Anderson Hospital and Tumor Institute
Texas Medical Center • 6723 Bertner Avenue • Houston, Texas 77030
*Department of Physics*



Instrument submitted by:

James Purdy, Ph.D.
Mallinckrodt Inst. Rad., Div. Rad. Oncol.
510 S. Kingshighway
St. Louis, MO 63110



ACCREDITED DOSIMETRY CALIBRATION LABORATORY

Report of Calibration

Date instrument received for calibration: September 14, 1982

Date instrument calibration completed: October 8, 1982

Date calibration report completed: March 10, 1983

Description of instrument:

Keithley Electrometer Model 602, Serial # 40772 A
Data Precision Digital Multimeter (DMM) Model 245, Serial # 37071
NEL* (Farmer) Chamber Model 2505/3A (0.6 ml, graphite), Serial # 1456
Acrylic Buildup Cap, # 1456 A

*Nuclear Enterprises, Ltd.

NOTE: Proper function and reliability of the radiation measuring devices described in this document are highly dependent upon handling and use. Therefore, the duration of responsibility of The University of Texas System Cancer Center, M. D. Anderson Hospital and Tumor Institute, and its employees for the calibration results extends only to the time the instruments leave the M. D. Anderson Hospital premises. It is recommended that the instrument user establish an appropriate technique of monitoring the constancy of the instrument response before and after its submission to the Accredited Dosimetry Calibration Laboratory and on a regular basis thereafter. In addition, it is the express responsibility of the instrument user to assure himself (by personal communication, if necessary) that his interpretation of the information in this document is consistent with the interpretation intended by the Accredited Dosimetry Calibration Laboratory.

The polarizing voltage was supplied by connecting the negative terminal of a 300 volt (nominal) battery, or equivalent, to CASE GND (green) on the electrometer's back panel, and the positive terminal to LO (black).

CALIBRATION FACTORS:

R/rdg: Roentgen/reading calibration factors apply to the chamber-electrometer-readout system as a unit, with scales, switch settings and output mode specified. To obtain the exposure in roentgens at the geometrical center of the ion chamber volume*, in the absence of the chamber, the calibration factor is applied directly to the instrument reading corrected for temperature and pressure.

R/C: Roentgen/coulomb calibration factors apply to the ion chamber alone. To obtain the exposure in roentgens at the geometrical center of the ion chamber volume*, in the absence of the chamber, an appropriately calibrated (coulomb/reading) electrometer must be used.

TEMPERATURE-PRESSURE CORRECTION FACTOR:

For chambers open to the atmosphere, the instrument readings were normalized to 760 millimeters of mercury and 22 degrees Celsius. Use of the chamber at other pressures and temperatures requires correction by the following multiplicative factor:

$$\frac{T + 273.15}{295.15} \times \frac{760}{P}$$

where T is the temperature in degrees Celsius, and P is the chamber pressure in millimeters of mercury.

No corrections were made for air humidity.

CALIBRATION CONDITIONS:

Calibration field size is given by the dimension across the field from one 50-percent intensity line to the other (in air) measured at the calibration distance. Stem effect was not investigated; the calibration factor applies only to the field size stated.

During calibration the chamber was centered in the beam with the stem perpendicular to the beam direction, except for end-window chambers which are calibrated with the stem parallel to the beam direction.

The sign of the polarizing voltage indicates the thimble potential relative to the collecting electrode, although the thimble may actually be grounded.

The exposure rate at the calibration position was measured with a transfer-quality ionization chamber which was calibrated at the National Bureau of Standards.

The overall accuracy of the calibration factors assigned by the Accredited Dosimetry Calibration Laboratory is believed to be within 2.5%, which includes the uncertainty inherent in the determination of the roentgen.

BEAM QUALITY:

Medium energy x-ray beam quality is described in terms of the first half-value thickness in millimeters of aluminum or copper, the ratio of the first to the second half-value thickness, and the peak kilovoltage.

The half-value thicknesses were determined with a 2 cm diameter aperture and high purity aluminum or copper absorbers. The aperture and ion chamber were positioned at 50 cm and 100 cm, respectively, from the target.

*The center of end-window chambers is normally designated by a circular groove.

ACCREDITED DOSIMETRY CALIBRATION LABORATORY
M. D. ANDERSON HOSPITAL AND TUMOR INSTITUTE

Report of Calibration

INSTRUMENT:

NEL (Farmer) Chamber Model 2505/3A (0.6 ml, graphite), Serial # 1456
Acrylic Buildup Cap, # 1456 A (Cobalt-60 radiation only)

SCALES, SWITCH POSITIONS, AND CONDITIONS:

Chamber Only

Field Size: 10 x 10 $cm^2$

Preirrad. Leakage: $-2 \times 10^{-14}$ A

Orientation: Black line toward beam

Nominal Full Scale: N/A

Polarizing Voltage: -307 V
(on thimble)

| BEAM QUALITY HVT(mm) | 1st/2nd | kVp | EXPOSURE RATE (R/min) | CALIBRATION* FACTOR (R/C) | % FULL SCALE or (Total Exposure) |
|---|---|---|---|---|---|
| 2.02 Al | 0.65 | 75 | 35 | $48.5_5 \times 10^8$ | N/A |
| 0.27 Cu | 0.52 | 125 | 39 | $48.0_1 \times 10^8$ | N/A |
| Cobalt-60 | | | 28 | $47.5_5 \times 10^8$ | N/A |

*At 22°C, 760 mmHg: The chamber was determined to be open to atmospheric communication.

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Robert J. Shalek

ACCREDITED DOSIMETRY CALIBRATION LABORATORY
M. D. ANDERSON HOSPITAL AND TUMOR INSTITUTE

Report of Calibration

INSTRUMENT:

Keithley Electrometer Model 602, Serial # 40772 A
Data Precision Digital Multimeter (DMM) Model 245, Serial # 37071

SCALES, SWITCH POSITIONS, AND CONDITIONS:

Electrometer Switch: Position

RANGE: (see below)
MULTIPLIER: x10
FEEDBACK: FAST
METER: OFF
OUTPUT: 1 V (back panel)

Digital Multimeter Switch: Position
FUNCTION: DCV
RANGE: 1,10

NOTE: The DMM-electrometer connection was COM to OHMS GUARD (blue), and the DMM's other terminal to X1 OUTPUT (red), and negative readings were displayed.

CHARGE CALIBRATION FACTOR:

| RANGE | FACTOR (C/unit of reading) |
|---|---|
| $10^{-7}$C | $1.01_4 \times 10^{-7}$ |
| $10^{-8}$C | $0.99_6 \times 10^{-8}$ |
| $10^{-9}$C | $1.00_7 \times 10^{-9}$ |

NOTE: The charge sensitivity (rdg/C) was constant to within ± 0.1% over the range of readings from -.5000 to -15.000, and maximum output was -16.4 V. Since the maximum output varies with internal battery voltage, it is recommended that readings in excess of -10.000 (where the panel meter would read full scale) not be taken.

EXAMPLE: Assume that the chamber described on page 3 is being used with the electrometer and DMM and switch settings described above with 10(-8) C, that the temperature-pressure correction is 1.000, and that the reading is -4.000(i.e. 40% full scale); then the exposure for Cobalt-60 radiation would be 4.000 x 0.996 x 10(-8) x 47.55 x 10(+8) = 189.4 R. Approximate full scale is 475 R (reading of -10.000).

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Robert J. Shalek

MALLINCKRODT INSTITUTE OF RADIOLOGY
DOSIMETRY SYSTEM INTERCOMPARISON
May 27, 1983

INSTRUMENT:

Victoreen Dosimetry System

Victoreen Electrometer, Model 570, S.N. 2380
Victoreen chamber, Model 621(100R), S.N. 2380
$N_c$ factor currently in use: 1.017 R/Rdg assigned
May 21, 1982

SCALES, SWITCH POSITION, AND CONDITIONS

| Ion Chamber: | Condition |
|---|---|
| Field Size: | 10 cm x 10 cm |
| Preirradiation Leakage: | negligible |
| Orientation: | perpendicular to beam; iden. line not specified |
| Polarizing Voltage: | not measured |
| Scale: | 2/3 full scale |

COBALT 60 INTERCOMPARISON RESULTS:

$$\frac{N_c \text{ as measured}}{N_c \text{ currently in use}} = \frac{1.029}{1.017} = 1.012$$

RECOMMENDATIONS: Use new $N_c$ = 1.029 R/Rdg

SUPERFICIAL INTERCOMPARISON RESULTS: Field Size: Cone 6 at 30 cm SSD
Chamber: Model 131(100r) S.N. 2380

| QUALITY | CURRENT $N_c$ (R/Rdg) | NEW $N_c$ (R/Rdg) | % Diff. |
|---|---|---|---|
| 2.0 mm Al HVL | 1.029 | 1.053 | +2.3 |
| 3.1 mm Al HVL | 1.016 | 1.031 | +1.5 |
| 4.0 mm Al HVL | 1.006 | 1.013 | +0.7 |
| 4.7 mm Al HVL | .999 | 1.011 | +1.2 |
| 7.0 mm Al HVL | .982 | 0.996 | +1.4 |

RECOMMENDATION: Use new $N_c$ values

Measurements by:

Richard A Keys

Richard A. Keys, M.A.
Radiological Physicist

Reviewed by:

J A Purdy

James A. Purdy, Ph.D.
Professor and Head
Physics Section

14. Facilities and Equipment

b.

1. Viewing Monitor-Panasonic Video Monitor TR-930

2. Audio Communication-
   (a) Call Sender- Model CS-20
   (b) Electro-Vox Intercom

3. Patient Treatment will be suspended if above systems are inoperable.

c.

1. Room door lock
2. Interlock to console control system
3. Red/Green Lights above door for operator safety.
4. Red/Green Light in Rx area visible to patient during Rx
5. "Gamma-Alarm" System with battery Pak
6. "Emergency-Off" button at console control
7. Interlock for head angulation
8. Signs-"Caution-Radioactive Area" and "Danger-High Radiation Area" Posted on Cobalt Rx Room Door.

15. Beam Stops - (see attached from Annual report 8/83)

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Item #15

(From Annual Report 8/83)



3.1 Operation Controls and Patient Monitoring System

3.1.1 Console Controls - The key switch, timer set, and timer-on controls operated correctly. The "beam-on", "beam-off" and machine "reset" at the console functioned correctly.

3.1.2 Controls in Therapy Room - The collimator moved smoothly over the full range of allowed field sizes. The head rotated smoothly.

3.1.3 Patient Monitoring System - A complete view of the patient is obtained via a video camera system located at the console. Direct communication with the patient is available via an intercom system, also at the console.

3.2 Locks, Interlocks, Warning Devices and Emergency Off Switch

3.2.1 The room door lock functions properly and security precautions are maintained.

3.2.2 With the beam on, opening the entrance door properly returned the source to the beam off position. Upon closing the door the beam did not come on until the beam-on condition was properly set at the console.

3.2.3 Red/white lights above the roomdoor correctly indicated the beam on/off conditions in the operator area.

3.2.4 A "Gamma-Alarm" system (PRIMALERT TM-10, Nuclear Associates, Inc., Model #05-433) with battery pack is mounted in the treatment room and is functioning properly.

3.2.5 The "Emergency-Off" buttons at the console was tested and correctly terminated the beam.

FOR: ITEM #15

(3.2.6) The interlock for head angulation was tested and found to be functioning properly. The beam could be turned on only in the following positions of the treatment head, less than 20 degrees counter clockwise and less than 45 degrees clockwise.

17.

A. OPERATING INSTRUCTIONS FOR COBALT-60

Lansdowne Medical Building
6651 Chippewa LL-2

1. The patients are not to be placed on the treatment table until the Radiologist is available to set up treatment.
2. Only the Radiologist will set up treatment. Adequate secondary collimation with lead blocks will be used to reduce the penumbra to protect such structures as the eyes, larynx, kidneys and spinal cord.
3. The Radiologist will check the timer settings on the monitor and assure himself that the dosage is the same as outlined in the patient's chart.
The patient will be monitored on the TV Screen throughout the treatment.
5. The intercom, adjacent to the control, or the one in the radiologist's office may be used for audio contact with the patient during treatment.
6. If the patient is seen to move during the course of treatment, notify the patient to remain still (by intercom), push "Stop" button to return source to safe position and with light over door by operator is green, enter room and have Radiologist check patient to see if any movement has occuredand patient has not moved from proper field. Resume treatment if treatment field is undisturbed.
7. The technician or the Radiologist must not leave the patient unattended (remain at monitor, TV & control) during course of patient's treatment.
8. The patient is to be removed from the room as soon as possible after treatment is completed and green light goes on.
9. If for any reason treatment is interupted (i.e. power failure), return Cobalt source to safe position and after green light goes on, remove patient from room as soon as possible.
10. Read EMERGENCY PLAN OF ACTION if for any reason source does not return to safe position( arrow of handle should be pointing to GREEN on head of machine.
11. Patient's records are to be kept up to date (see that treatment is completed, proper dose given is entered, proper time used recorded and total dose for that port is in patient's record).
12. Film badges will be worn by all personell in the treatment area at all times.
13. When use of the treatment area is not being utilized for any period of time or immediately following treatment for the day, Cobalt room will be cleaned up and secured and console will be turned off and key removed for safety reasons.
14. Any accident or unusual occurence will be reported to the Safety Officer immediately.

Sam J. Merenda

Dr. Sam J. Merenda, M.D.
Radiation Safety Officer

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17.
B.

# EMERGENCY PLAN OF ACTION
(To be placed at the Control Panel)

1. If the Beam does NOT turn "OFF" in the normal time, do this:

1. PRESS EMERGENCY "OFF" BUTTON ON CONTROL. IF BEAM DOES NOT TURN "OFF":

   A. REMOVE PATIENT FROM ROOM QUICKLY.
   B. DO NOT STAY IN ROOM ANY LONGER THAN NECESSARY WITH BEAM "ON".
   C. LEAVE ROOM, LOCK DOOR, OR POST GUARD TO PREVENT UNAUTHORIZED ENTRY.
   D. CALL DR. MERENDA OR OTHER APPOINTED RADIATION SAFETY OFFICER.

2. If the patient can not be removed, do this:

   A. ON LATE C-1000 UNITS, LOOSEN RED KNOB ON TOP OF HEAD AT THE REAR. GRASP HANDLE ON FRONT OF HEAD AND TURN CLOCKWISE UNTIL POINTER POINTS TO GREEN RADIATION "OFF" EMBLEM.

3. IF SHUTTER DOES NOT CLOSE, MOVE THE MACHINE SO THAT THE BEAM IS NOT ON PATIENT.

4. LEAVE ROOM, CLOSE DOOR, POST A GUARD TO PREVENT UNAUTHORIZED ENTRY, NOTIFY DR. MERENDA AND CALL PICKER X-RAY SERVICE AT 993-2590 OR DR. MERENDA 434-0085.

5. IF THERE IS FAILURE OF THE SOURCE TO RETURN TO THE FULLY-SHIELDED POSITION OR IF THERE IS ANY MALFUNCTION OF THE MACHINE DETECTED, THE THERAPY PERSONELL SHALL NOTIFY DR. MERENDA IMMEDIATELY AND RESTRICT THE USE OF THE UNIT UNTIL THE CONDITION HAS BEEN CORRECTED.

Sam J. Merenda, M.D.
Radiation Safety Officer

18.

a. Training program and schedule in Appendix "H" is followed.

19. Leak Test of Sealed Sources -See attached description

Item #19
6-18-84

Item # 19

*CERTIFICATE OF RADIOACTIVITY WIPE/LEAK TEST*

**HEALTH PHYSICS ASSOCIATES LTD.** CONSULTANTS IN RADIATION SAFETY

3304 COMMERCIAL AVENUE / NORTHBROOK, IL 60062 / PHONES: 312/564-3330 / CHICAGO #: 273-2525

Name Physicians Radiology

Address 6651 Chippewa

City St. Louis State MO Zip 63110

Test Due, on/or Before 5/23/84

NRC License # 24-04992-01

Expiration Date 7/31/84

State License #

Expiration Date

Equipment Manufacturer Picker Model No. 6150A Serial No. 105

Isotope Co-60 Curiage 1925 Date 8/1/80 Source Serial No. 2372

Individual performing test Russell L. Gerber, B.S. Date 5/23/84

This test was performed in accordance with H.P. Associates instructions included in this kit, No. 5959

Russell L Gerber
(Signature of Individual Performing Test)

(To be filled out by Health Physics Associates)

DATE SAMPLE RECEIVED 5/29/84 DATE SAMPLE PROCESSED 5/30/84

TEST DATA

| Sample | CPM (Net) | Microcuries |
|---|---|---|
| 1 | M | M |
| 2 | M | M |
| 3 | M | M |
| Standard $Co^{60}$ | 67762 | 0.0710 |

CPM — Counts Per Minute Detected

M — Less than 0.0001 Microcuries

CONCLUSION:

Results of this test do not indicate the presence of reportable removable radioactivity. In accordance with prevailing regulations, this test should be performed again before 11/23/84.

Approved for Health Physics Associates

Item # 19 P-1
6-18-84

Wipe Test Instructions for
Medical Teletherapy Users
Kit HPC-1

**HEALTH PHYSICS ASSOCIATES LTD.** CONSULTANTS IN RADIATION SAFETY

3304 COMMERCIAL AVENUE, NORTHBROOK, ILLINOIS 60062 312/564-3330

Materials:

| | |
|---|---|
| 1 | - Tube containing wetting agent |
| 1 Pair | - Polyethylene gloves in bag |
| 3 Sets | - Wipe sticks in plastic test tubes |
| 1 Set | - Wipe test instructions and information sheet |
| 1 | - Returnable shipping container |

Radiation Safety Precautions:

The operator should wear a film badge or dosimeter and the disposable gloves provided while taking the wipes. The gloves are removed after the wipes are placed into the test tubes by a sterile technique (i.e. by grasping inner surface at wrist). The gloves are placed in the bag provided and returned to Health Physics Associates. Wash hands when through.

Always ascertain that the source is in "OFF" and shielded position before beginning test.

Wipe procedure:

1. Pour several cc of water into test tube containing a wetting agent. Each wipe stick is to be moistened in this solution prior to making each wipe.

2. Moisten #1 stick, squeeze off excess and wipe inside of source head on collimating leaves, or inside of collimating cone holder, or outside of plastic window on collimator, whichever of above is available without dismantling unit. Insert wipe into #1 tube and attach cap to tube.

3. Moisten #2 wipe stick, squeeze off excess and wipe area around opening through which source has been inserted into the housing (loading screw).

4. Moisten #3 wipe stick, squeeze off excess and wipe crevices and cracks about exterior surface of source housing. If extra collimating cones are used, wipe inside of all cones with same wipe stick. Insert wipe into #3 tube and attach cap to tube.

5. Insert all tubes and gloves into shipping container with completed information sheet for return to Health Physics Associates using shipping label enclosed.

6. Use Survey meter to determine that level of radiation on external surface of shipping container is less than 0.4 mr/hr. If survey meter is unavailable, contact Health Physics Associates. If reading is greater, do not send wipes and phone Health Physics Associates immediately for further instructions.

21. ALARA PROGRAM as in Appendix "I" is being followed.

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Item #21
6-18-84