

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

LICENSE: 34-01710-07  
EXPIRATION DATE: 11/30/84  
PROGRAM CODE: 02300  
NOTICE DATE: 09/04/84

TOLEDO HOSPITAL  
2142 NORTH COVE BOULEVARD  
TOLEDO OHIO

43606

SUBJECT: NOTICE OF EXPIRATION

YOUR TELETHERAPY LICENSE WILL EXPIRE ON THE DATE SHOWN ABOVE.

IF YOU WISH TO CONTINUE YOUR TELETHERAPY PROGRAM, YOU SHOULD FILE A RENEWAL APPLICATION WITH THIS OFFICE PURSUANT TO 10 CFR 30.37. THE APPLICATION, SIGNED BY A REPRESENTATIVE OF MANAGEMENT, SHOULD BE SUBMITTED IN DUPLICATE. UNLESS YOU ARE EXEMPT (SEE 10 CFR 170.11), BE SURE THAT YOUR APPLICATION IS ACCOMPANIED BY THE APPROPRIATE RENEWAL FEE (SEE 10 CFR 170.31).

YOUR RENEWAL APPLICATION MAY BE FILED IN ONE OF TWO WAYS. FIRST, YOU MAY SUBMIT A COMPLETE APPLICATION USING FORM NRC 313T, PROVIDING ALL OF THE INFORMATION ON THE FORM WITHOUT REFERENCING PREVIOUSLY SUBMITTED INFORMATION (EXCEPT FOR PREVIOUSLY APPROVED USERS). IF SUCH REFERENCES CANNOT BE AVOIDED, THEY ARE ACCEPTABLE IF:

- A. THE REFERENCE IS MADE IN RESPONSE TO A PARTICULAR ITEM OF REQUIRED INFORMATION AND
- B. THE REFERENCE IS CLEAR AND SPECIFIC (E.G., TITLE OF DOCUMENT, DATE OF SUBMISSION, PAGE AND PARAGRAPH) AND
- C. THE REFERENCED DOCUMENT CONTAINS ALL INFORMATION REQUIRED FOR A PARTICULAR ITEM AT THE TIME OF RENEWAL.

THE SECOND CHOICE, PREFERRED BY MOST LICENSEES, IS TO SUBMIT A LETTER REQUESTING RENEWAL OF YOUR TELETHERAPY LICENSE AND PROVIDING LIMITED SUPPORTING INFORMATION AS DESCRIBED IN SECTION 2 OF APPENDIX J OF THE ENCLOSED GUIDE. IN ADDITION TO THE ITEMS LISTED IN SECTION 2, PLEASE PROVIDE INFORMATION DESCRIBED IN ITEMS 13, 14.B AND 15 OF FORM NRC 313T. 1-9, 10, 11-12, 17-19, 21, 22

IT IS TO YOUR ADVANTAGE TO FILE YOUR RENEWAL APPLICATION (INCLUDING PROPER FEE) AT LEAST THIRTY (30) DAYS BEFORE YOUR LICENSE EXPIRES. IF YOU DO THIS, THEN YOUR PROGRAM WILL BE AUTOMATICALLY COVERED BY YOUR EXISTING LICENSE UNTIL NRC TAKES FINAL ACTION ON YOUR RENEWAL REQUEST (SEE 10 CFR 30.37(B)). IF YOUR RENEWAL APPLICATION IS RECEIVED LESS THAN THIRTY (30) DAYS BEFORE THE EXPIRATION DATE ON YOUR LICENSE AND NRC CANNOT PROCESS IT BEFORE YOUR EXISTING LICENSE EXPIRES, THEN YOU COULD BE IN POSSESSION OF RADIOACTIVE MATERIALS WITHOUT A VALID LICENSE. NOTE ALSO THAT 10 CFR 170.12 STATES THAT NO APPLICATION WILL BE

8507260655 850709  
REC3 LIC30  
34-01710-07 PDR

LICENSE NO: 34-01710-07

- 2 -

ACCEPTED FOR FILING OR PROCESSED BEFORE THE PROPER FEE HAS BEEN PAID IN FULL.

IF YOU DO NOT WISH TO RENEW YOUR LICENSE, YOU MUST DISPOSE OF ALL LICENSED MATERIAL IN YOUR POSSESSION IN ACCORDANCE WITH THE REQUIREMENTS OF 10 CFR PART 20 AND REQUEST THAT YOUR LICENSE BE TERMINATED. SEE SECTION 3 OF APPENDIX J FOR SPECIFIC INFORMATION TO BE SUBMITTED. IF YOU CANNOT DISPOSE OF ALL LICENSED MATERIAL IN YOUR POSSESSION BEFORE YOUR LICENSE EXPIRES, YOU MUST REQUEST THAT YOUR LICENSE BE RENEWED IN ACCORDANCE WITH THE INSTRUCTIONS GIVEN ABOVE OR THAT IT BE RENEWED TO AUTHORIZE "STORAGE ONLY"; ONE OF THESE ACTIONS IS NEEDED IN ORDER TO AVOID POSSESSING LICENSED MATERIAL WITHOUT A VALID LICENSE.

MATERIAL LICENSING BRANCH  
DIVISION OF FUEL CYCLE AND  
MATERIAL SAFETY

ENCLOSURES:

1. 10 CFR PARTS 20, 30, 35, 170
2. FORM NRC 313T
3. FORM NRC 314
4. TELETHERAPY LICENSING GUIDE

**The Toledo Hospital**

October 17, 1984



Oncology Center  
Radiation Oncology  
William D. Eggleston, M.D.  
Director  
Gerald W. Marsa, M.D.  
Steven R. Zeldner, M.D.  
John C. I. Mah, M.D.  
William K. Mueller, M.D.  
James C. R. Burns, M.S.  
Radiation Physicist

U.S. Nuclear Regulatory Commission  
Region III Materials Licensing Section  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Dear Sirs:

Enclosed is an application for renewal of our teletherapy license  
#34-01710-07.

Items named in Section 2, plus items #13, #14B, and #15 of Appendix J  
of the Teletherapy Licensing Guide are provided in support of this  
application.

Items 1 to 4, 12, and 13 are on form 313 with additional items on  
additional sheets.

Sincerely,

William D. Eggleston, MD  
Director  
Oncology Center

~~8507260646~~

Plg Dupe 1P

# APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

## FEDERAL AGENCIES FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION  
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS  
WASHINGTON, DC 20555

## ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I  
NUCLEAR MATERIAL SECTION B  
631 PARK AVENUE  
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II  
MATERIAL RADIATION PROTECTION SECTION  
101 MARIETTA STREET, SUITE 2900  
ATLANTA, GA 30323

## IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION III  
MATERIALS LICENSING SECTION  
799 ROOSEVELT ROAD  
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV  
MATERIAL RADIATION PROTECTION SECTION  
611 RYAN PLAZA DRIVE, SUITE 1000  
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V  
MATERIAL RADIATION PROTECTION SECTION  
1450 MARIA LANE, SUITE 210  
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

## 1. THIS IS AN APPLICATION FOR (Check appropriate item)

- ☐ A. NEW LICENSE  
☐ B. AMENDMENT TO LICENSE NUMBER \_\_\_\_\_  
☒ C. RENEWAL OF LICENSE NUMBER 34-01710-07

## 2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip Code)

The Toledo Hospital  
2142 N. Cove Boulevard  
Toledo, Ohio 43606

## 3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Oncology Center  
The Toledo Hospital  
2142 N. Cove Boulevard  
Toledo, Ohio 43606

## 4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

James C.R. Burns, MS

## TELEPHONE NUMBER

(419) 471-4376

SUBMIT ITEMS 5 THROUGH 11 ON 8 1/2 x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

## 5. RADIOACTIVE MATERIAL

a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time.

## 6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

## 7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.

## 8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

## 9. FACILITIES AND EQUIPMENT.

## 10. RADIATION SAFETY PROGRAM

## 11. WASTE MANAGEMENT.

## 12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY 7A AMOUNT ENCLOSED \$270.00

## 13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN, IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

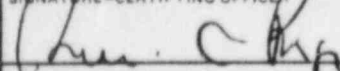
WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948, 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

## SIGNATURE—CERTIFYING OFFICER

## TYPED/PRINTED NAME

## TITLE

## DATE



Bryan A. Rogers

President, Toledo Hospital

## A. ANNUAL RECEIPTS

<\$250K	\$1M-3.5M
\$250K-500K	\$3.5M-7M
\$500K-750K	\$7M-10M
\$750K-1M	>\$10M

## B. NUMBER OF EMPLOYEES (Total for entire facility excluding outside contractors)

## C. NUMBER OF BEDS

D. WOULD YOU BE WILLING TO FURNISH COST INFORMATION (Dollar and/or staff hours) ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE PROPOSED NRC REGULATIONS THAT MAY AFFECT YOU? (NRC regulations permit it to protect confidential commercial or financial—proprietary—information furnished to the agency in confidence)

☐ YES

☐ NO

## FOR NRC USE ONLY

## TYPE OF FEE

## FEE LOG

## FEE CATEGORY

## COMMENTS

## APPROVED BY

## AMOUNT RECEIVED

## CHECK NUMBER

## DATE

# CROSS REFERENCE

313 T  
(Appendix J)

313

1	2, 3
2	4
3	1
4	7a
5	7c
6	5
7	5
8	6
9	9h
10	10a
11	7a
12	9f
13	9g
14B	9b
15	9d
17	10d, 10e
18	8
19	10c
21	10b
22	13

5a (6)

Byproduct Material:	Cobalt 60
Source Manufacturer:	AECL
Source Model Numbers:	C-146 or C-151
Maximum Activity Per Source:	7,000 curies
Maximum Number of Sources:	2

Maximum Output of Source:	130 R/min ( $\pm 5\%$ ) at 1 meter at 35 <sup>2</sup> field in Theratron 780
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5b (7)

Teletherapy Unit:	Theratron 780 by AECL with beam catcher
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6 (8)

Proposed Use:	Treatment of patients only
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Item 313 #5,6  
Item 313T #6,7,8  
10/17/84

Currently Listed on this License

William D. Eggleston, MD  
Chun Il Mah, MD  
Steven R. Zeidner, MD  
Gerald W. Marsa, MD

Added users:

Edmund P. Ho, MD  
William K. Mueller, MD

Item 313 #7a  
Item 313T #4,11  
10/17/84



**TRAINING AND EXPERIENCE  
AUTHORIZED USER OR RADIATION SAFETY OFFICER**

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER

Edmund P. Ho, MD

2. STATE OR TERRITORY IN  
WHICH LICENSED TO  
PRACTICE MEDICINE

Ohio

**3. CERTIFICATION**

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
American Board of Radiology	Therapeutic Radiology	December, 1977

**4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES**

FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE AND LENGTH OF TRAINING	
		LECTURE/ LABORATORY COURSE (Hours) C	SUPERVISED LABORATORY EXPERIENCE (Hours) D
a. RADIATION PHYSICS AND INSTRUMENTATION			
b. RADIATION PROTECTION			
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY			
d. RADIATION BIOLOGY			
e. RADIOPHARMACEUTICAL CHEMISTRY			

**5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)**

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE



**TRAINING AND EXPERIENCE  
AUTHORIZED USER OR RADIATION SAFETY OFFICER**

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER  William K. Mueller, MD	2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE  Ohio
--	--

**3. CERTIFICATION**

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
American Board of Radiology	Therapeutic Radiology	December, 1976

**4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES**

FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE AND LENGTH OF TRAINING	
		LECTURE/ LABORATORY COURSES (Hours) C	SUPERVISED LABORATORY EXPERIENCE (Hours) D
a. RADIATION PHYSICS AND INSTRUMENTATION			
b. RADIATION PROTECTION			
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY			
d. RADIATION BIOLOGY			
e. RADIOPHARMACEUTICAL CHEMISTRY			

**5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)**

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE

## departmental policy and procedure

department Radiation Oncology  
index no. C-315  
date October 1, 1984  
supersedes

subject: RADIATION SAFETY INSTRUCTION FOR EMPLOYEES

### BACKGROUND

Regulations of the Nuclear Regulatory Commission require that all persons working in an area designated as restricted (for radiation protection purposes) receive periodic instruction relative to radiation safety and protection commensurate with their duties.

### POLICY

Instruction as outlined in NRC Rules and Regulations, Title 10, Chapter 1, Part 19 will be provided to employees as follows:

1. Before a new employee assumes duties with or in the vicinity of radioactive materials as part of departmental orientation;
2. During annual refresher inservices;
3. At departmental meetings whenever there is a significant change in duties, regulations, or terms of the license.

### PROCEDURE

Manager:

1. Include required instructions commensurate with the employee's duties as part of employee orientation.
2. Includes required instructions as part of departmental inservice meeting annually.
3. Schedule a "dry run" of emergency procedures for the Cobalt 60 unit as part of the orientation of radiation therapy technologists and annually thereafter.
4. Notify employees whenever there is a significant change in NCR's regulations in the terms of the license or in an employee's duties pertaining to work with or in the vicinity of radioactive materials.

The Radiation Safety Officer for this radiotherapy area is:

William D. Eggleston, MD

Item 313 #7c  
Item 313T #5  
10/17/84

Training for Individuals Working in or Frequenting Restricted Areas

Radiation Oncology

Instructions and information as required by Section 19.12 of 10 CFR

Part 19 will be provided as described in departmental policy and procedure  
C-315.

Item 313 #8  
ItemT 313 #18  
10/17/84

No treatments will be given unless at least one of two independent television monitor systems is functional. An intercom is installed for communication with the patient.

Item 313 #9b  
Item 313T #14b  
10/17/84

The door into the teletherapy room is equipped with an interlock system which causes the source to move to the "off" position if the door is opened while the source is exposed. The source cannot be returned to the "on" position until the door is closed and the system is reset at the control.

Appropriate radiation warning signs are posted on the door into the teletherapy room.

The department and each room is locked by the Security Department after regular departmental working hours. An alarm is activated in the Security Department if entrance is made into the department after regular hours.

Item 313 #9c  
Item 313T #14c  
10/17/84

The source rotates  $360^\circ$  about the isocenter in a plane which is perpendicular to the gantry rotational axis and contains the isocenter. The head can rotate  $360^\circ$  about the source. Zero degrees into the ground,  $90^\circ$  west,  $180^\circ$  up, and  $270^\circ$  east.

Item 313 #9d  
Item 313T #15  
10/17/84



A survey meter will be in the department of the ion-chamber-type with a full scale low range of not higher than 5 MR/hr and a full scale high range of not less than 1R/hr (currently met by an Eberline RO-1 meter, low range 5MR/hr, high range 500 R/hr). Any replacement shall meet the 1MR/hr and 100MR/hr requirements.

A GM-type survey meter will be in the department with a full scale low range of not more than 1MR/hr and a full scale high range of 100MR/hr (currently met by an Eberline E-520 with low range of .2 MR/hr and a high range of 2E/hr, and by a Victoreen 490 with 491-40 probe, low range of 1MR/hr, high range of 100 MR/hr). Any replacement shall meet the 1MR/hr and 100MR/hr requirements.

Item 313 #9f  
Item 313T #12  
10/17/84

A permanently mounted beam-on radiation monitor with battery backup is mounted in the therapy room. A remote readout is provided at the console (Nuclear Associates PRIMALERT 35, PRIMAPAK, and PRIMALARM system is currently used). Any replacement will provide equivalent service.

Item 313 #9f<sub>2</sub>  
Item 313T #12 cont.  
10/17/84

A dosimetry system is in the department for making spot checks and full calibrations (currently met by a Keithley 602 and a Keithley 616 electrometers with Capintec probes PRO 6-C chambers, and a Victoreen 470 r meter with probes #621, 131, and 651 which is currently available for spot checks only). Replacement meters or probes to be of equivalent service.

Item 313 #9f3  
Item 313T #13 cont.  
10/17/84

A multichannel analyzer with an NaI (Tl) crystal well counter is available on premises to be used for leak test evaluation.

Item 313 #9f4  
Item 313 #12 cont.  
10/17/84

### Calibration

- 1) Survey meters to be calibrated annually and after repair. Calibrations may be inhouse or by a commercial calibration service.
- 2) The dosimetry system used for a full calibration shall have been calibrated by an AAPM accredited regional calibration laboratory within the two years preceeding the calibration.
- 3) A dosimetry system used for a spot check shall have been calibrated by an AAPM accredited regional calibration laboratory within the last two years, or have been calibrated against such a system within the last year.
- 4) The therapy room monitor is observed by television monitor each day with the Co 60 source "on" to insure that it is indicating a radiation warning.

Item 313 #9g  
Item 313T #13  
10/17/84

Monthly exchanged whole body film badges are issued to physicians, physicist, technologists, and the oncology nurse. Service is to be provided by a commercial supplier such as J.S. Landauer, Jr. and Company (which is currently used).

Item 313 #9h  
Item 313T #9  
10/17/84

## Radiation Safety Committee

### Members of the Radiation Safety Committee:

William D. Eggleston, MD, Radiation Oncologist, Director, Oncology Center  
Warren A. Nordin, MD, Pathologist, Director, Pathology and Laboratory  
C. Douglass Ford, MD, Radiation Safety Officer, Director, Nuclear Medicine Dept.  
J. Robert Yoder, MD, Radiologist, Director, Department of Radiology  
Roger A. Miller, MD, Cardiologist  
Robert Wirtz, Assistant Vice-President  
Carole Loesch, RN, Clinical Director, Patient Care Department  
James Johnson, RT, Chief Technologist, Nuclear Medicine Department  
James Burns, MS, Physicist, Radiation Oncology

Please refer to license 34-10710-05 for radiation safety committee information.  
The application is dated February 9, 1983, the item is #7 in appendix B.

Item 313 #10a  
Item 313T #10  
10/17/84



### ALARA Program

Please refer to license #34-01710-05 for commitment to the ALARA philosophy and the description of the formal written ALARA program for this institution. The program is appendix Q in the application dated February 9, 1983.

Item 313 #10b  
Item 313T #21  
10/17/84

### Leak Testing

1. Test to be done by a qualified expert per 35.24.
2. Wet gauze or alcohol wipes will be used to wipe highest accessible points inside collimator, lower points in collimator, timers, and random points on tray frame, patient table, and beam catcher with wipes being placed in capped test tubes.
3. A multichannel analyzer with an NaI (Tl) well crystal is used to evaluate the wipes. A Co 60 reference of 0.099 microcurie (9/22/78) is used for comparison. The reference is counted with an overall efficiency of 50%.

4.

$$A = \frac{\left( \frac{Cs+g}{Ts} - \frac{Cg}{Tg} \right) Ar}{\left( \frac{Cr+g}{Tr} - \frac{Cg}{Tg} \right)}$$

Where A = activity picked up by wipe in microcuries

Cs+g = counts of wipe plus background

Cg = counts of background

Cr = counts of reference

Ts = time of wipe count

Tr = time of reference count

Tg = time of background count

Ar = activity of reference in microcuries

5. Negative wipes are disposed of in normal trash.

Item 313 #10c  
Item 313T #19  
10/17/84

## Operating Procedures

Operating procedures have been developed and implemented on the following:

1. Receipt and disposal of radioactive materials
2. Use of the teletherapy unit
3. Safety device checks
4. Personnel dosimetry
5. Procedures for securing teletherapy unit
6. Instrument calibration and checks
7. Full calibration of teletherapy units
8. Monthly spot check measurements of teletherapy units
9. Leak testing
10. Inspection and servicing of teletherapy unit
11. Survey reports
12. Relocation of teletherapy unit
13. Record keeping
14. Emergency procedures
15. Procedures for notifying proper persons in the event of an accident or unusual occurrence.

Copies of these operating procedures have been reviewed with the appropriate staff members and are available for their referral.

Item 313 10d  
Item 313T #17  
10/17/84

## Emergency Procedures

In the event that the unit cannot be turned off at the console by normal off switches or emergency off switches, then:

- I. If the patient is ambulatory, instruct him to get off the table and leave the room.
- II. If the patient is not ambulatory:
  - A. If the patient can be removed from the room, enter the room and, avoiding exposure to the useful beam, pull the treatment table as far away from the useful beam as possible, transfer the patient to a stretcher and remove him from the room.
  - B. If the patient cannot be removed from the room:
    1. Operate the teletherapy unit from the console and direct the primary beam of radiation away from the patient toward a safe barrier.
    2. If the primary beam of radiation cannot be moved off the patient, enter the room locate the device for manually turning off the primary beam of radiation and turn the unit off.
  - C. Close the door and secure the room against unauthorized entry.
  - D. Notify the responsible physician or radiation protection officer for remedial action to be taken. If the trouble cannot be corrected immediately, the manufacturer may also have to be contacted.

		<u>Office</u>	<u>On Call</u>
Physicist	(name)	Current	Current
Physician	(name)	Phone	Phone
Asst. Vice-President	(name)	Numbers	Numbers

AECL

CONTROL NO. 77682

EMERGENCY OFF BAR

Push rod protruding out of green cover back in until at least the red (and preferably most of the yellow) band disappears.

EMERGENCY OFF BAR  
(The posted sign has an arrow pointing to  
the emergency off bar)

Item 313 #10e  
Item 313T #17  
10/17/84