

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number

42-01368-02

Docket or Reference Number

030-00504

Amendment No. 23

Department of the Army
Brooke Army Medical Center
Commander, Brooke Army Medical Center (ATTN: MCHE-DHR)
2421 Dickman Road, Building 1001
Ft. Sam Houston, TX 78234-6390

In accordance with NRC Form 314 dated October 8, 1996, License No. 42-01368-01 is hereby terminated.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Original Signed By
Jacqueline D. Burks

Date JAN 27 1997

By

Jacqueline D. Burks
Nuclear Materials Licensing Branch
Region IV
Arlington, Texas 76011

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OFFICIAL RECORD COPY

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PDR ADDCK 03000504
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UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

January 27, 1997

Department of the Army
Brooke Army Medical Center
ATTN: Cpt. Casmere H. Taylor
Radiation Safety Officer
MCHE-DHR

Commander, Brooke Army Medical Center (ATTN: MCHC-DHR)
2421 Dickman Road, Building 1001
Ft. Sam Houston, TX 78234-6390

SUBJECT: TERMINATION OF YOUR NRC RADIOACTIVE MATERIALS LICENSE

On October 8, 1996 you contacted the U.S. Nuclear Regulatory Commission and indicated that you wished to terminate your NRC radioactive materials license. The NRC staff has reviewed your sealed source leak test results. Based on its review, the staff has concluded that: 1) all licensable radioactive material has been removed from your facility; 2) residual radioactive material attributable to licensed activities does not exceed current NRC criteria; 3) transfer of the teletherapy unit to X-Ray Equipment Company, Mansfield, Texas.

Based on these conclusions no further remediation or actions with respect to NRC regulated material is required. Your facility is suitable for unrestricted use and NRC license number 42-01368-02 for your facility at Ft. Sam Houston, Texas is hereby terminated.

If you have questions or require clarification on any of the information stated above, we encourage you to contact us at 817-860-8132.

Sincerely,

Original Signed By
Jacqueline D. Burks

Jacqueline D. Burks
Health Physicist
Nuclear Materials Licensing Branch

Docket: 030-00504
License: 42-01368-02
Control: 466236

Enclosures: As stated

JAN 27 1997

Department of the Army
Brooke Army Medical Center

-2-

DOCUMENT NAME: L:\TERM97\42-01368.02T

To receive copy of document, indicate in box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

RIV:NMLB	N						
JDBurks	<i>JDBurks</i>						
01/27/97							

OFFICIAL RECORD COPY

Materials License Termination/Retirement Form

LICENSE #: 42-01368-02

DOCKET #: 030-00504

LICENSEE: Department of the Army
Brooke Army Medical Center

EXPIRATION DATE: November 30, 1994

DATE OF CONTACT: October 8, 1996

ADDRESS: Commander, Brooke Army
Medical Center (ATTN:
MCHE-DHR)
2421 Dickman Road,
Building 1001
Ft. Sam Houston, TX
78234-6390

CONTACTED BY: Casmere H. Taylor

TITLE: Radiation Safety Officer

TELEPHONE: 210-916-8458

LICENSE TERMINATED: X

LICENSE TRANSFERRED:

LICENSE TRANSFERRED TO:

NAME:

ADDRESS:

TELEPHONE:

BASIS FOR TERMINATION AND/OR RETIREMENT: Licensee submitted NRC Form 314 dated October 8, 1996.

TERMINATION DOCUMENTATION

1. License termination meets Type I criteria:

Y ___ X ___ N ___

☒ Licensee used sealed sources only and the most recent leak test demonstrates that they did not leak while in the licensee's possession

☐ Licensee used radioactive material with $T_{1/2} \leq 60$ days and it has decayed to less than the activity in 10 CFR Part 20, Appendix C

2. License termination meets type II criteria:

Y ___ N ___

☐ Licensee possessed and used only sealed sources but cannot demonstrate that the sources did not leak while in the licensee's possession

☐ Licensee possessed unsealed radioactive material with $T_{1/2} \leq 60$ days but the maximum activity authorized under the license has not decayed to less than the quantity specified in 10 CFR Part 20, Appendix C

☐ Licensee possessed unsealed radioactive material with $T_{1/2} > 60$ days but ≤ 120 days

_____ Licensee possessed ^{14}C or ^3H but the total activity and use authorized under the license warrants decommissioning under Type II (describe rationale above)

3. License termination meets Type III criteria: Y _____ N _____

_____ Decommissioning qualifies for a categorical exclusion under 10 CFR 51.22(c) and

_____ Licensee will decommission its facility in accordance with the NRC's criteria for unrestricted use

4. License termination meets Type IV criteria: Y _____ N _____

_____ Decommissioning does not qualify for a categorical exclusion under 10 CFR 51.22(c)

_____ Licensee will decommission its facility such that residual radioactive material may remain in excess of NRC's criteria for unrestricted use

5. Termination survey required: Y _____ N X _____

X Termination survey submitted by licensee

X Termination survey satisfies NRC survey requirements

6. Form 314 or equivalent submitted: Y X _____ N _____

X Staff verified disposition of sealed sources or unsealed radioactive material by: _____ letter from Form 314 recipient

X call to Form 314 recipient

7. Licensee transfer records discussed in 10 CFR Parts 30.35, 30.36, 30.51; 40.36, 40.42, 40.61; or 70.25, 70.38, 70.51 Y X _____ N _____

X ~~to USNRC~~ Brooke Army Medical Center health Physics Office will maintain records (License #42-01368-01)

_____ To individual assuming responsibility for the license, with a copy of the cover letter to NRC

8. NRC closeout inspection required: Y _____ N X _____

_____ Closeout inspection performed:

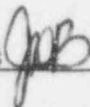
on:

Inspector:

9. Closeout survey performed: Y _____ N X _____

on:

by:

Licensing staff
completing form: Jacqueline D. Burks 

Branch Chief: _____

Date: 1/27/97

Date:



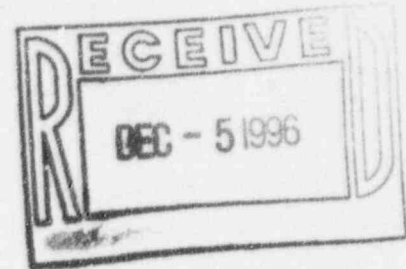
DEPARTMENT OF THE ARMY
BROOKE ARMY MEDICAL CENTER
FORT SAM HOUSTON, TEXAS 78234-6200



REPLY TO
ATTENTION OF

November 25, 1996

Preventive Medicine



U.S. Nuclear regulatory Commission-Region IV
Material Radiation Protection Section
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Dear Sir or Madam:

Please find enclosed a request from Brooke Army Medical Center, Fort Sam Houston, TX, to amend Byproduct Material License No. 42-01368-02, Docket No. 030-00504.

If you need additional information, I can be reached at extension (210)916-8338.

Sincerely,

Casmere H. Taylor
Captain, MS
Chief, Health Physics, BAMC

Encl
as

CF:
MCHO-CL-W, ATTN: COL Daxon (w/encl)
Commander, U.S. Army Center for Health Promotions and Preventive Medicine (Prov), ATTN: MCHB-MR-H, Aberdeen Proving Ground, MD 21010-5422 (w/encl)
MCHE-DH, ATTN: COL Gelnett
RCC

466236
466204



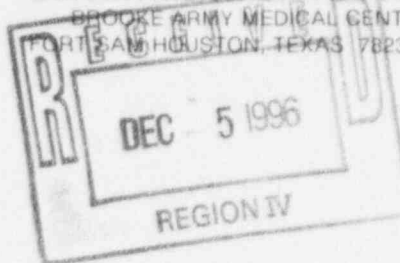
DEPARTMENT OF THE ARMY

BROOKE ARMY MEDICAL CENTER
FORT SAM HOUSTON, TEXAS 78234-6200



REPLY TO
ATTENTION OF

MCHE-DHR (385-11m)



25 November 1996

MEMORANDUM THRU Headquarters, U.S. Army Medical Command,
ATTN: MCHO-CL-W, 2050 Worth Road,
Fort Sam Houston, TX 78234-6000

FOR U.S. Nuclear Regulatory Commission-Region IV, Material
Radiation Protection Section, 611 Ryan
Plaza Drive Suite 1000, Arlington, Texas 76011

SUBJECT: Termination of U.S. Nuclear Regulatory Commission (NRC)
Byproduct Material License No. 42-01368-02, Docket No. 030-
00504.

1. Reference.

a. Telephonic conversation between Ms Jacqueline D. Burks, Health Physicist, Nuclear Regulatory Commission, and CPT Casmere H. Taylor, Radiation Protection Officer, Brooke Army Medical Center, subject: Decommissioning of BAMC 42-01368-02 License on 19 November 1996.

b. See enclosure 1, NRC Facsimile Form, 19 November 1996, subject: Special Instruction/Attachments.

2. As requested, a copy of the final leak test for the Cobalt-60 Teletherapy unit in units of (DPM) is at enclosure 2.

3. In accordance to 10 CFR 30.35(g), the following are applicable to the BAMC 42-01368-02 License, Docket No. 030-00504:

a. (g) BAMC Health Physics Office will maintain records important to the safe and effective decommissioning of the the CO-60 License.

b. (1) Records of change of C)-60 source and disposal records are maintained by the BAMC, Health Physics Office.

c. (2) N/A

d. (3) (i-iv) N/A

e. (4) Records of the cost estimate performed for the decommissioning funding plan have been submitted to the NRC.

MCHE-DHR

SUBJECT: Termination of U.S. Nuclear Regulatory Commission (NRC)
Byproduct Material License No. 42-01368-02, Docket No. 030-
00504.

4. Our point of contact is Captain Casmere H. Taylor, Radiation
Protection Officer at (210) 916-8338/8458 or FAX: (210) 916-
8434.

FOR THE COMMANDER:

Douglas E. Mills

DOUGLAS E. MILLS
Lieutenant Colonel, MS
Chief, Information Management
Division

CF:

MCHE-DR, ATTN: COL Shah
MCHE-DH, ATTN: Col Gelnett
MCHE-DHR
RCC

S: 3 Dec 96



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

FACSIMILE FORM

DATE/TIME: 11/19/96 8:45am

PRIORITY: X Immediately
1 hour
2-4 hours

MESSAGE TO: CPT Casmere Taylor
Dept. of the Army
Brooke Army Medical Center

License No. 42-01368-02
Docket No. 030-00504
Control No. 466236

MESSAGE FROM: Jacqueline D. Burks
Health Physicist
Nuclear Materials Licensing Branch
U.S. NRC, Region IV

NUMBER OF PAGES: 1 PLUS TRANSMITTAL SHEET

TELECOPY NUMBER: (210) 916-8434

VERIFICATION NUMBER:

CONTACT:

SPECIAL INSTRUCTION/ ATTACHMENTS:

CPT. Taylor,

Per our telephone conversation dated November 19, 1996, the items on the next page are deficiencies which require your response. Please respond to this fax within 15 days. Our fax number is (817) 860-8263. If you have any questions regarding our discussion and this fax, please call me at (817) 860-8132. When responding to this fax, please include your license, docket and control numbers located at the top of this page. Thank you.

A handwritten signature in cursive script that reads "Jacqueline D. Burks".

Jacqueline D. Burks
Health Physicist

TRANSMITTED & VERIFIED BY:

Jacqueline D. Burks

DISPOSITION

Return to Originator X
Place in Mail

ENCL 1

Please respond to the following items as it pertain to your letter dated October 1, 1996:

1. Please resubmit contamination survey results in units of dpm.
2. NRC has revised the records retention requirements of 10 CFR Parts 20, 30, 40, 70, and 72 effective June 17, 1996. These revisions were necessary to ensure the long-term availability of specific radiation safety records when license termination is imminent. Previous regulations required licensees to maintain such records, but were unclear as to the final disposition of these records when licensed activities have ceased and the license is terminated. Current revisions to these regulations require that before a licensee can terminate its license, all records pertaining to the following would be transferred to the appropriate NRC Regional Office:
 - Decommissioning of facilities
 - Radiation doses to the public
 - Waste disposal by release to sewers, incineration, radioactive material spills, and on-site burials

* The NRC is requiring that no license be terminated unless all records considered important to the safe and effective decommissioning of the facility, items outlined in 10 CFR 30.35(g), and all records concerning public dose and waste disposal have been permanently transferred to the NRC.

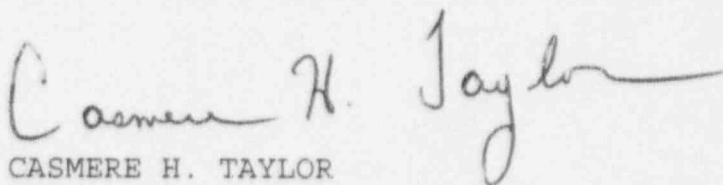
* In accordance with §30.51(f), prior to license termination, each licensee shall forward the records required by §30.35(g) to NRC Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, TX 76011-8064.

1 Aug 96

MEMORANDUM FOR RECORD

SUBJECT: Final Leak Test for Co-60 Teletherapy Unit

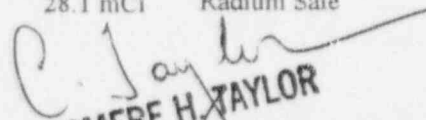
1. The final leak test for the Co-60 Teletherapy unit was performed by SSG Oak of the Health Physics Office on 31 July 1996.
2. A cotton swab was used as a sampling media and then was analyzed using a Packard Gamma Counter, Model Cobra II, Serial Number D5063.
3. Co-60 counting efficiency test for Window C, 1050 - 1550 KeV, of the Packard Gamma Counter was conducted 13 July 1996 using a Co-60 rod check source with a 0.102 μCi on 2 October 1980. The Co-60 counting efficiency on Window C of the counter was 23.78%.
4. Sample was counted for 2 minutes on Window C and results were 0 cpm. Additionally, the dpm of the sample was 0.



CASMERE H. TAYLOR
CPT, MS
Chief, Health Physics

Sealed Source Leak Test

Swipe#	Isotope-ID	Isotope	Qty	Serial#	Type	Activity	Location
Blood Bank							
<u>1</u>	BB001	Cs-137	1	E63446	BLD IRRDTR	5100 Ci	Blood Bank
Total: 1							
Dep. of Pathalogy & Area Lab. Srvc							
<u>N1</u>	AL014	Ni-63	1	5573	GAS CHAM	15 uCi	Room 167
<u>N2</u>	AL015	Ni-63	1	F5705	GAS CHAM	15 mCi	Room 166
<u>N3</u>	AL020	Ni-63	1	L4152	GAS CHROM	15 mCi	Rm 175
Total: 3							
Institute of Surgical Research							
<u>N4</u>	ISR020	Ni-63	1	F8019	GAS CHRM	15 mCi	Bldg 2657
<u>N5</u>	ISR021	Ni-63	1	F8067	GAS CHAM	15 mCi	Bldg 2657
Total: 2							
Nuclear Medicine							
<u>2</u>	NM005	Cs-137	1	208-48-19	VIAL	217 uCi	Cardiology
<u>3</u>	NM033	Cs-137	1	3560381A2	VIAL	218 uCi	Source Castle
<u>4</u>	NM049	Ba-133	1	S358001-2	VIAL	275 uCi	Source Castle
<u>L2</u>	NM062	Co-57	1	S20606405	VIAL	5.7 uCi	Source Castle
<u>L3</u>	NM071	Co-57	1	S84700020	FLOOD SRC	5 mCi	Room 24N
<u>L4</u>	NM076	Co-57	1	S84002340	FLOOD SRC	10 mCi	Room 24N
<u>L5</u>	NM089	Co-57	1	S8400455-	Flood Src	10 mCi	N. Imaging
<u>L6</u>	NM093	Co-57	1	Co57-EHS	FLOOD SRC	39 MBq	136-15
Total: 8							
Radiation Therapy							
<u>S1</u>	RT004	Sr-90	1	67850/E90	EYE APP	125 mCi	Teletherapy
<u>S2</u>	RT005	Sr-90	1	1141	EYE APP	50 mCi	Teletherapy
<u>L7</u>	RT006	Co-60	1	S4554	TELEETHER	6934 Ci	Teletherapy
<u>4</u>	RT011	Cs-137	1	10-525	GRN MINI	28.3 mCi	Radium Safe
<u>5</u>	RT011	Cs-137	1	10-527	GRN MINI	28.3 mCi	Radium Safe
<u>6</u>	RT012	Cs-137	1	10-521	GRN MINI	28.1 mCi	Radium Safe


CASMERE H. TAYLOR
 CPT, MS
 C, HEALTH PHYSICS (RPO)

LEAK TEST CALCULATION WORKSHEET

MDA (in dpm) = MDA (in cpm) / counting efficiency

MDA (in cpm) =

$$\frac{k^2}{T_s} + 2k \sqrt{\frac{R_b}{T_b} \left(1 + \frac{T_b}{T_s}\right)}$$

Where:

k = 1.645 (95% one-sided confidence factor for a normal distribution)

MDA = Minimum Detectable Activity in dpm

MDA = Minimum Detectable Activity in cpm

Ts = Sample counting time(2 min)

Tb = Background counting time(50 min)

Rb = Background count rate

	Ba-133	Co-57	Co-60	Cs-137*	Ni-63**
Counting Window	A	B	C	A	A
KeV Setting	15-400 KeV	75-165 KeV	1050-1550 KeV	587-737 KeV	0.0 - 50.0 KeV
Bkg Count Rate of Each Window	93.3 cpm	23.9 cpm	24.3 cpm	17 cpm	19.4 cpm
Background Count Time	50 min	50 min	50 min	50 min	10 min
Sample Count Time	2 min	2 min	2 min	2 min	2 min
Calibrated Source Activity	0.101 uCi	0.117 uCi	0.102 uCi	0.25 uCi	201320 dpm
Physical Half-Life	10.74 years	0.74 years	5.2 years	30 years	96 years
Source Calibration Date	9-Jun-80	13-Jan-95	2-Oct-80	1-Sep-94	5-Dec-94
Date of Leak Test Analysis	13-Jul-96	13-Jul-96	13-Jul-96	13-Jul-96	23-Aug-96
Present Source Activity	3.57E-02 uCi	2.87E-02 uCi	1.24E-02 uCi	2.39E-01 uCi	8.96E-02 uCi
Present Source Activity	79304 dpm	63812 dpm	27601 dpm	531583 dpm	1.99E+05 dpm
Net Count Rate of Each Window	46874 cpm	48834 cpm	6564 cpm	128123 cpm	129607 cpm
Minimum Detectable Activity	24 cpm	13 cpm	13 cpm	11 cpm	13 cpm
Counting Efficiency(%)	59.11%	76.53%	23.78%	24.10%	65.18%
Minimum Detectable Activity	41 dpm	17 dpm	55 dpm	46 dpm	19 dpm
Minimum Detectable Activity	1.85E-05 uCi	7.62E-06 uCi	2.47E-05 uCi	2.08E-05 uCi	8.69E-06 uCi

*Protocol #17 was used to calibrate Cs-137

** Ni-63 source was counted with LSC

C. Taylor
CASMERE H. TAYLOR
 CPT, MS
 C. HEALTH PHYSICS (RPO)

11-Jul-96 16:01

HEALTH PHYSICS

Page #1

Protocol #: 7

LEAK TEST

User :

Count Time(minutes): 2.00
 Assay Type: CPM
 Background Subtract : IPA Bkg
 Outlier: 5.0 FLAG
 %Spillup: 0.00
 %Spilldown: 0.00
 Screening: OFF

Source calibration - Ba-133, Co-57, Co-60

	Window A	Window B	Window C
Nuclides:	MAN 15 - 400 keV	Co-57 75 - 165 keV	Co-60 1050 - 1650 keV
E/g:	93.3	23.9	24.3
Sigma:	0.00	0.00	0.00
CR:	0	0	0
Half Life(hours):	0.00	0.00	
Multipliers:	1.0000		
NDV Flag Limit:	0.00	0.00	

SN	TIME	A:CPM	A:%SIG	B:CPM	B:%SIG	C:CPM	C:%SIG
Ba-133 1	2.00	46874.7	0.33	12156.1	0.64	1.2	64.6
Co-57 2	2.00	49354.7	0.32	48834.1	0.32	11.7	20.7
Co-60 3	2.00	4108.7	1.10	881.6	2.38	6564.2	0.87

71 Jul 96 16:14

HEALTH PHYSICS

Page #1

Protocol #: 7

LEAK TEST

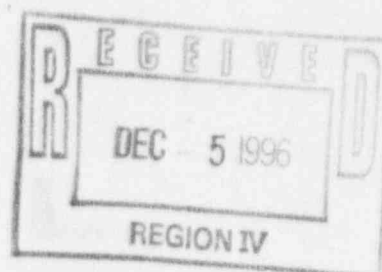
User :

Count Time(minutes): 2.00
 Assay Type: CPM
 Background Subtract : IPA Bkg
 Outlier: 5.0 FLAG
 %Spillup: 0.00
 %Spilldown: 0.00
 Screening: OFF

Test results for Ba-133, Co-57, Co-60

	Window A	Window B	Window C
Nuclides:	MAN 15 - 400 keV	Co-57 75 - 165 keV	Co-60 1050 - 1550 keV
Bkg:	93.3	23.9	24.3
Sigma:	0.00	0.00	0.00
LCR:	0	0	0
Half Life(hours):	0.00	0.00	
Multipliers:	1.0000		
WCV Flag Limit:	0.00	0.00	

SN	TIME	A:CPM	A:%SIG	B:CPM	B:%SIG	C:CPM	C:%SIG
✓1	2.00	9.2	23.3	4.6	33.0	0.0	
✓2	2.00	0.2	1.7	0.0		0.0	
✓3	2.00	0.0		0.0		0.7	83.3
✓4	2.00	0.0		0.1	25.0	0.0	
✓5	2.00	4.2	34.6	0.6	92.8	0.9	
✓6	2.00	3.2	39.7	2.6	44.0	6.7	27.3
✓7	2.00	13.7	19.1	2.6	44.0	0.0	
✓8	2.00	3.2	39.7	0.0		0.0	



466 236
 466264



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

FACSIMILE FORM

DATE/TIME: 11/19/96 8:45am

PRIORITY: X Immediately
1 hour
2-4 hours

MESSAGE TO: CPT Casmere Taylor
Dept. of the Army
Brooke Army Medical Center

License No. 42-01368-02
Docket No. 030-00504
Control No. 466236

MESSAGE FROM: Jacqueline D. Burks
Health Physicist
Nuclear Materials Licensing Branch
U.S. NRC, Region IV

NUMBER OF PAGES: 1 PLUS TRANSMITTAL SHEET

TELECOPY NUMBER: (210) 916-8434

VERIFICATION NUMBER:

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SPECIAL INSTRUCTION/ ATTACHMENTS:

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Jacqueline D. Burks
Health Physicist

TRANSMITTED & VERIFIED BY:

Jacqueline D. Burks

DISPOSITION

Return to Originator X
Place in Mail

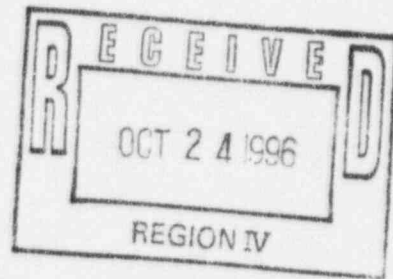
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- ✓ 1. Please resubmit contamination survey results in units of dpm.
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In accordance with §30.51(f), prior to license termination, each licensee shall forward the records required by §30.35(g) to NRC Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, TX 76011-8064.

12/5/96: call into CPT Taylor; will call me back.



NRC Amendment

to

LICENSE No. 42-01368-02
DOCKET NO. 030-00504

08 October 1996

BROOKE ARMY MEDICAL CENTER
ATTN: HEALTH PHYSICS OFFICE
2421 DICKMAN ROAD (BLDG 1001)
Ft SAM HOUSTON, TEXAS 78234-6389

466236



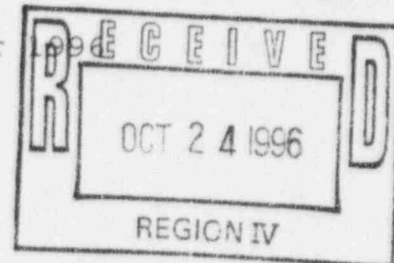
DEPARTMENT OF THE ARMY
BROOKE ARMY MEDICAL CENTER
FORT SAM HOUSTON, TEXAS 78234-6200



REPLY TO
ATTENTION OF

MCHE-DHR (385-11m)

1 October 1996



MEMORANDUM THRU

Chief, Preventive Medicine, ATTN: MCHD-DH
Brooks Army Medical Center, 2421 Dickman Road (Building 1001),
Fort Sam Houston, TX 78234-6389

Deputy Commander for Clinical Services, ATTN: MCHD-PS
Brooks Army Medical Center, 3851 Roger Brooke Drive (Building
3600), San Antonio, TX 78234-6200

Headquarters, U.S. Army Medical Command, ATTN: MCHO-CL-W,
2050 Worth Road, Fort Sam Houston, TX 78234-6000

FOR U.S. Nuclear Regulatory Commission - Region IV, Material
Radiation Protection Section, 611 Ryan Plaza Drive
Suite 1000, Arlington, TX 76011

SUBJECT: Application for Termination of U.S. Nuclear Regulatory
Commission (NRC) Byproduct Material License
No. 42-01368-02, Docket No. 030-00504

1. Request approval for termination of subject NRC License No.
42-01368-02, Docket No. 030-00504.

2. Reference. Telephonic conversations between Ms. Jacqueline
Burks, NRC Material Licensing Section and CPT Casmere H. Taylor,
Chief, Health Physics, BAMC, subject: Termination of NRC License
No. 42-01368-02, Docket No. 030-00504.

3. Enclosed for your review in accordance with 10 CFR 30.36;
30.35(g)(1); Federal Register/Vol. 61, No 96/ Thursday, 16 May
96/Rules and Regulations are:

a. TAB A. NRC Form 314, Certificate of Disposition of
Materials.

b. TAB B. Copy of current license No. 42-10368-02, Docket
No. 030-00504.

c. TAB C. Disposal Information

- (1) Source Disposal Certificate.
- (2) Shipping Order
- (3) Radiation Therapy Services Inc. (Work Order)

MCHE-DHR

SUBJECT: Application for Termination of U.S. Nuclear Regulatory Commission (NRC) Byproduct Material License
No. 42-01368-02, Docket No. 030-00504

d. TAB D. Copy of Vendor's Radioactive Material License

e. TAB E. Leak Test and Radiation Protection Survey.

4. General. A Victoreen model 450P Radiation Survey Meter, serial number 2346, calibrated 27 Mar 96, calibration void 22 Nov 96 was used during this survey.

5. Conclusions:

a. The required semi-annual leak test of this unit and sealed source was last performed 31 Jul 96 and the results are maintained by the Health Physics Office.

b. A radiation survey of the room was conducted after removal and transfer of the Teletherapy Unit, Co-60 source and the depleted Uranium blocks and collimators to X-Ray Equipment Company personnel (Radiation Therapy Services Inc.) on 27 Aug 96.

c. All monitoring results conducted after removal of CO-60 machine did not exceed background.

d. All reports and information relating to the termination of this license is maintained at the Health Physics Office, BAMC.

4. Point of contact is CPT Casmere H. Taylor, Chief, Health Physics, BAMC at extension (210)916-8338/8458 or FAX: (210)916-8434.

FOR THE COMMANDER:

Douglas E Mills

Encls
as

DOUGLAS E. MILLS
Lieutenant Colonel, MS
Chief, Information Management
Division

CF:

RCC

MCHE-DHR, BAMC

MCHO-CL-W, COL Daxon

MCHE-DH, ATTN: COL Gelnett (w/o encl)

MCHE-DR, ATTN: COL Shah (w/o encl)

FORM 314

5)
CFR 30.36(c)(1)(iv)
CFR 40.42(c)(1)(iv)
CFR 70.38(c)(1)(iv)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0028

EXPIRES: 06/30/98

CERTIFICATE OF DISPOSITION OF MATERIALS

INSTRUCTIONS: ALL ITEMS MUST BE COMPLETED -- PRINT OR TYPE
AND THE COMPLETED CERTIFICATE TO THE NRC OFFICE SPECIFIED ON THE REVERSE

LICENSEE NAME AND ADDRESS

Department of the Army
Commander, Brooke Army Medical Center (ATTN: MCHE-DHR)
2421 Dickman Road, Building 1001
Ft Sam Houston, Texas 78234-6390

LICENSE NUMBER

42-01368-02

LICENSE EXPIRATION DATE

November 30, 1994
(Pending Renewal NRC)

A. MATERIALS DATA (Check one and complete as necessary)

THE LICENSEE OR ANY INDIVIDUAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE LICENSEE CERTIFIES THAT:
(Check and/or complete the appropriate item(s) below.)

- ☐ 1. NO MATERIALS HAVE EVER BEEN PROCURED OR POSSESSED BY THE LICENSEE UNDER THIS LICENSE.
- OR
- ☒ 2. ALL ACTIVITIES AUTHORIZED BY THE LICENSE HAVE CEASED AND ALL MATERIALS PROCURED AND/OR POSSESSED BY THE LICENSE NUMBER CITED ABOVE HAVE BEEN DISPOSED OF IN THE FOLLOWING MANNER. (If additional space is needed, use the reverse side or provide attachments.) See Tab C.

Describe specific material transfer actions and, if there were radioactive wastes generated in terminating this license, the disposal actions including the disposition of low-level radioactive waste, mixed waste, Greater-than-Class-C waste, and sealed sources, if applicable.

For transfers, specify the date of the transfer, the name of the license recipient, and the recipient's NRC license number or Agreement State name and license number.

If materials were disposed of directly by the licensee rather than transferred to another licensee, licensed disposal site or waste contractor, describe the specific disposal procedures (e.g., decay in storage)

B. OTHER DATA

- ☐ 1. OUR LICENSE HAS NOT YET EXPIRED, PLEASE TERMINATE IT.

- ☐ 2. A RADIATION SURVEY WAS CONDUCTED BY THE LICENSEE TO CONFIRM THE ABSENCE OF LICENSED RADIOACTIVE MATERIALS AND TO DETERMINE WHETHER ANY CONTAMINATION REMAINS ON THE PREMISES COVERED BY THE LICENSE. (Check one)

☐ NO (Attach explanation)☒ YES, THE RESULTS (Check one)☒ ARE ATTACHED, or☐ WERE FORWARDED TO NRC ON (Date)

3. THE PERSON TO BE CONTACTED
REGARDING THE INFORMATION
PROVIDED ON THIS FORM

NAME CASMERE H. TAYLOR
Captain, Medical Service Corps
Chief, Health PhysicsTELEPHONE NUMBER
(Include Area Code)

(210)916-8458

4. MAIL ALL FUTURE CORRESPONDENCE REGARDING THIS LICENSE TO
Department of the Army
Commander, Brooke Army Medical Center (ATTN: MCHE-DHR)
2421 Dickman Road, Building 1001
Ft Sam Houston, Texas 78234-6390

CERTIFYING OFFICIAL

I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

PRINTED NAME AND TITLE

CASMERE H. TAYLOR
CPT, MS
CHIEF, HEALTH PHYSICS

SIGNATURE

Casmere H. Taylor

DATE

08 Oct. 96

WARNING: THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECTS. 18 U.S.C. OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY MATTER WITHIN ITS JURISDICTIONS.

MATERIALS LICENSE

uant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee

Department of the Army
Brooke Army Medical Center

ATTN: HSHS-MP
Ft. Sam Houston, Texas 78234-6200

In accordance with letter dated
August 13, 1996

3. License number 42-01368-02 is amended in
its entirety to read as follows:

4. Expiration date November 30, 1994

5. Docket or
Reference No 030-00504

Byproduct, source, and/or
special nuclear material

7. Chemical and/or physical
form

8. Maximum amount that licensee
may possess at any one time
under this license

A. Cobalt-60

A. Teletherapy sealed
sources (AECL Models
C-146 or C-151; GE
Dwg. No. 106D3912)

A. 18,000 curies (2
sources of not more
than 9,000 curies
each)

B. Uranium, Natural or
Depleted

B. Shielding material

B. Not to exceed 999
kilograms

9. Authorized use:

A. One source to be contained in an AECL Theratron 780 teletherapy unit and held
in storage only pending disposal.

B. Shielding in a teletherapy unit.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number

42-01368-02

Docket or Reference Number

030-00504

Amendment No. 22

CONDITIONS

10. Location of use: Brooke Army Medical Center, Building 1000, Room 36A, Ft. Sam Houston, Texas.
11. Radiation Safety Officer: COL Rashmikan Shah
12. Authorized users: Physicians certified by the American Board of Radiology in Radiology or Therapeutic Radiology and approved by the Brooke Army Medical Center Radiation Control Committee.
13. Teletherapy physicist:
 - A. Louis B. Levy, Ph.D.
 - B. William S. Bice, Ph.D.
 - C. Wayne A. Wiatrowski, Ph.D.
14. The licensee is exempted from decommissioning financial assurance requirements for possession of licensed material in sealed sources in quantities greater than the limits in 10 CFR 30.35(d) for the purpose of source changes only. This exemption is granted for no more than 30 days for any one source change.
15.
 - A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.
 - B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.
 - C. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.
 - D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number

42-01368-02

Docket or Reference Number

030-00504

Amendment No. 22

E. Sealed sources need not be leak tested if:

- (i) they contain only hydrogen-3; or
- (ii) they contain only a radioactive gas; or
- (iii) the half-life of the isotope is 30 days or less; or
- (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or
- (v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transferred to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 3 years without being tested for leakage and/or contamination.

F. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(b)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011, ATTN: Director, Division of Nuclear Materials Safety. The report shall specify the source involved, the test results, and corrective action taken.

G. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to Perform such services.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number

42-01368-02

Docket or Reference Number

030-00504

Amendment No. 22

16. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

- A. Letter dated July 16, 1982
- B. Letter dated August 31, 1982
- C. Letter dated February 10, 1983
- D. Application dated February 24, 1984
- E. Letter dated July 19, 1984
- F. Letter dated August 31, 1984
- G. Letter dated March 27, 1987
- H. Letter dated June 26, 1987
- I. Letter dated January 23, 1989
- J. Letter dated October 11, 1989
- K. Letter dated July 26, 1989
- L. Letter dated August 23, 1990
- M. Letter dated July 20, 1995
- N. Letter dated March 15, 1996
- O. Letter dated August 13, 1996

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Original Signed By
Vivian H. Campbell

Date AUG 29 1996

By

Nuclear Materials Licensing Branch
Region IV
Arlington, Texas 76011

X-RAY EQUIPMENT COMPANY

SOURCE DISPOSAL CERTIFICATE

THIS IS TO CERTIFY THAT A COBALT 60 SOURCE;

MODEL NUMBER: C-151

SERIAL NUMBER: S-4554

CATALOG NUMBER:

CONTAINING 6934 CI COBALT 60

MEASUREMENT DATE: 5 / 27 / 92

THE ABOVE SOURCE HAS BEEN DETERMINED BY WIPE TEST TO BE FREE OF REMOVABLE CONTAMINATION. THIS SOURCE HAS BEEN REMOVED FROM THE TELETHERAPY UNIT DESCRIBED AS FOLLOWS;

MANUFACTURER: Theratronix (AECL)

MODEL NUMBER: T-780

SERIAL NUMBER: 51

THE ABOVE UNIT HAS ☒ HAS NOT ☐ BEEN REMOVED FROM SERVICE.

AND IS HEREBY TRANSFERRED TO:

X-RAY EQUIPMENT COMPANY
2214 HWY. 1187
MANSFIELD, TEXAS 76063

TEXAS RADIOACTIVE MATERIAL LICENSE L01485

FROM THE POSSESSION OF;

Brooke Amry Medical Center

2780 McIdoe Rd

Ft. Sam Houston, TX

RADIOACTIVE MATERIAL LICENSE NUMBER: 42-01368-01

REPRESENTATIVE OF USER:

James H. Taylor

X-RAY EQUIPMENT COMPANY

Dennis Tanker

DATE 27 / Aug / 96

DATE 8 / 27 / 96

2214 HWY. 1187 MANSFIELD, TEXAS 76063

(817) 473-8600

3 SLIP SHIP ORDER

It be leg in, in tr ible Pe
in Carbon, and retained by the Agent

Shipper's No. _____

CARRIER: *XREC*

SCAC

Carrier's No. _____

Date *8/23/96*

TO: *BROOK ARMY HOSP. 16 XREC*
Consignee
Street *2421 PICKERMAN RD Ft. Sam Houston*
Destination *SAINT LOUIS MO TX* Zip

FROM: *XREC*
Shipper
Street *2214 HWY 1187*
Origin *MANFIELD TX* Zip *76063*

Route: _____

Vehicle Number *101*

U.S. DOT Hazmat Reg. _____

No. Shipping Units	HM	Kind of Packages, Description of Articles (IF HAZARDOUS MATERIALS - PROPER SHIPPING NAME)	HAZARD CLASS	I.D. Number	PACKING GROUP	WEIGHT (subject to correction)	RATE	LABELS REQUIRED (or exemption)
<i>1</i>		<i>LOT OF RIGGING EQUIPMENT</i>				<i>5000</i>		
<i>1</i>		<i>LOT OF USED MEDICAL EQUIPMENT T780 #151</i>				<i>15000</i>		

Remit C.O.D. to:

Address:

City:

State:

Zip:

COD

Amt: \$

C. O. D. FEE:

Prepaid ☐

Collect ☐

FREIGHT CHARGES

☐ PREPAID ☐ COLLECT

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \$ _____ Per _____

Subject to Section 7 of the Uniform Rules of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, or to its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shopper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PLACARDS REQUIRED

PLACARDS SUPPLIED

☐ YES ☐ NO - FURNISHED BY CARRIER

SHIPPER *XREC*
PER *Gary H. H. H.*
DATE *8/23/96*
EMERGENCY RESPONSE
TELEPHONE NUMBER _____

CARRIER *XREC*
PER *Gary H. H. H.*
DATE *8/23/96*
Monitored at all times for Hazardous Material is in transportation including storage incidental to transportation (172.604).

Agent must detach and retain this Shipping Order and must sign the Original Bill of Lading



ACCEPTED BY SIGNATURE

SERVICE REP. SIGNATURE _____

EMPLOYEE NO

TDC Form 12-1
7/90

Texas Department of Health
BUREAU OF RADIATION CONTROL



Page 1 of 9

061858

RADIOACTIVE MATERIAL LICENSE

Pursuant to the Texas Radiation Control Act and Texas Health Department regulations on radiation, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess and transfer radioactive material listed below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations and orders of the Texas Department of Health (Agency) now or hereafter in effect and to any conditions specified below.

LICENSEE 1. Name X-Ray Equipment Company ATTN: Mark W. Loeser 2. Address 2214 Highway 1187 Mansfield, Texas 76063			This license is issued to correct an error	
			3. License Number L01485	Amendment Number 25
PREVIOUS AMENDMENTS ARE VOID				
			4. Expiration Date March 31, 1998	
RADIOACTIVE MATERIAL AUTHORIZED				
5. Radioisotope A. Co-60	6. Form of Material A. Teletherapy sealed sources	7. Maximum Activity A. No single source to exceed 15,000 Ci. Total: 20,000 Ci	8. Authorized Use A. For receipt, temporary storage, distribution and delivery, in accordance with United States Department of Transportation (DOT) requirements, to authorized recipients, and for installation, servicing and replacement of teletherapy sources and/or teletherapy machines, as limited by conditions of this license.	
B. Cs-137	B. Teletherapy sealed sources	B. No single source to exceed 2500 Ci. Total: 5000 Ci	B. For receipt, temporary storage, distribution and delivery, in accordance with DOT requirements, to authorized recipients, and for installation, servicing and replacement of teletherapy sources and/or teletherapy machines, as limited by conditions of this license.	
C. Co-60	C. Sealed brachytherapy sources	C. 600 mCi	C. For receipt, temporary storage, distribution and delivery, in accordance with DOT requirements, to authorized recipients.	
D. Cs-137	D. Sealed brachytherapy sources	D. 600 mCi	D. For receipt, temporary storage, distribution and delivery, in accordance with DOT requirements, to authorized recipients.	

TPC Form 12-1
7/90
 Texas Department of Health
 BUREAU OF RADIATION CONTROL


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RADIOACTIVE MATERIAL LICENSE

 LICENSE NUMBER
 L01485

 AMENDMENT NUMBER
 25

5. Radioisotope (continued) E. Ra-226	6. Form of Material (continued) E. Sealed brachytherapy sources	7. Maximum Activity* (continued) E. 1.2 g	8. Authorized Use (continued) E. For receipt, temporary storage, distribution and delivery, in accordance with DOT requirements, to authorized recipients.
---	---	---	--

9. Radioactive material shall be used at:

Site Number	Location
000	Mansfield - 2214 Highway 1187
001 TERMINATED	Fort Worth - 2601 Ludelle Street

10. The individual designated to perform the functions of Radiation Safety Officer (RSO) for activities covered by this license is Mark W. Loeser.
11. The licensee shall comply with the provisions of Parts 11, 12, 13, 21, 22, 40 and 41 of the TRCR.
12. Service, installation and source exchange shall be performed only when this licensee's personnel have in their possession at the customer site the applicable manufacturer's technical documentation to service the unit at that site. Prior arrangements with, and special authorization from, this Agency is required when such documentation does not exist or cannot be obtained.
13. A. The licensee is authorized to receive, install and replace teletherapy sources in teletherapy machines (at customer locations only) and to perform five year inspections on teletherapy units, as otherwise limited by conditions of this license, at authorized recipient sites throughout Texas. The licensee is not authorized to perform radiation surveys or to provide shielding reports of teletherapy facilities, to train customer employees in the use of sources or equipment, to perform source exchanges on self-contained (self-shielded) irradiators, or to decontaminate teletherapy units or sources.
- B. The licensee is authorized to perform source exchange, removal and installation, in accordance with the conditions of this license and applicable procedures, for the following units:

	Procedures dated
Theratronics (AECL)	March 7, 1989
Siemens Teletherapy	March 7, 1989
Picker, only until July 31, 1994	March 7, 1989
Toshiba, only until July 31, 1994	March 7, 1989
Keleket-Barnes Teletherapy, only until July 31, 1994	March 7, 1989
Bar-Ray Teletherapy, only until July 31, 1994	March 7, 1989

TRC Form 12-1
7/90

Texas Department of Health
BUREAU OF RADIATION CONTROL



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RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
L01485	25

13. (Continued.)

- C. The licensee is authorized to perform machine installation and service, including five year service, and machine decommissioning and removal, in accordance with the conditions of this license, American National Standards Institute (ANSI) Standards N449 and N449.1 as applicable, and applicable procedures for the following units:

AECL Teletherapy	March 7, 1989
Picker/AMS Teletherapy	March 7, 1989
Toshiba Teletherapy	March 7, 1989
Siemens Teletherapy	March 7, 1989
Keleket-Barnes Teletherapy	March 7, 1989
Westinghouse Teletherapy	March 7, 1989
Bar-Ray Teletherapy	March 7, 1989
T.E.M. Teletherapy	March 7, 1989
Elema Schoenander Teletherapy	March 7, 1989
Dick Comando Teletherapy	March 7, 1989
Philips Teletherapy	March 7, 1989
J. L. Shepherd self-contained irradiators	March 7, 1989
Cis-Ur self-contained irradiators	March 7, 1989.

Source handling, in the field or in the shop, including temporary or permanent source replacement or removal, shall not be performed with the installation/service on these machines unless authorized by Part B above.

- D. The licensee is authorized to receive, refurbish and distribute teletherapy units at the Mansfield, Texas facility, and to store teletherapy sources in authorized shipping containers. Refurbishing of equipment shall be in accordance with the Texas Food, Drug, Device and Cosmetic Salvage Act and any applicable United States Food and Drug Administration (FDA) requirements. Source transfers between machines or storage/shipping casks are not authorized for this location. Depleted uranium shielding used in the units being refurbished (or their attachments and accessories) shall be examined and, if necessary, tested for leakage and transferable uranium contamination, should damaged or deteriorated encapsulation or plating be noted.

14. Radioactive material may be used only by the following individuals and only for the equipment listed in Condition 13, as specifically noted:

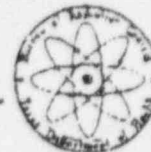
A. Clyde D. Peabody
Richard H. Tanker

- Source and unit installation, exchange and servicing, for all of the teletherapy equipment as limited by Condition 13; distribution of brachytherapy sources; installation and service only, for self-contained irradiators.

TRC Form 12-1
7/90

Texas Department of Health

BUREAU OF RADIATION CONTROL



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RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
L01485	25

14. (Continued.)

B. Danny M. Peabody

- Source and unit installation, exchange and servicing, for the Co-60 teletherapy equipment only, as limited by Condition 13.

C. Larry Burchell
Dennis P. Tanker

- Source and unit installation, exchange and servicing, for the Co-60 AECL round drawer or Picker teletherapy equipment only, as limited by Condition 13.

D. Christopher A. Byars
Richard W. Lamphier
Joseph O'Connor

- Unit servicing, for the Co-60 AECL round drawer or Picker teletherapy equipment only, as limited by Condition 13, which does not involve source transfers or exposing the source in an occupied area.

15. Sealed sources containing radioactive material shall not be opened.

16. A. All sources received by the licensee shall be accompanied by a current, valid leak test certificate which indicates that the source or sources are not leaking. Those sources subject to field leak tests by licensee personnel, as described in the licensee's procedures manual dated March 7, 1989, shall not be transported or transferred if the field test shows the presence of removable contamination in excess of 0.05 μCi , unless a repeated formal leak test (that can detect the presence of 0.005 μCi of removable contamination) indicates that the field leak test was in error.

B. Field leak/contamination tests shall be conducted with moistened swabs held with gloved hands or tools to minimize the potential for the contamination of personnel.

17. Authorized recipients shall be provided with a current, valid leak test certificate from an authorized vendor which indicates that the source or sources are not leaking, for any sealed sources delivered by the licensee.

18. The licensee shall maintain records of each job performed, to include summary data on each procedure performed, identification of the licensees involved, personnel, equipment, devices and sources used, results of direct reading dosimeters, a brief summary of operations performed and a detailed description of any difficulties or unusual occurrences that were encountered.

TNC Form 12-1
7/90Texas Department of Health
BUREAU OF RADIATION CONTROL

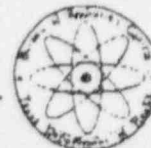
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RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
L01485	25

19. A. Whole body dosimeters and wrist dosimeters shall be used by all personnel for field jobs involving teletherapy units or involving maintenance on self-contained (self-shielded) irradiators. The whole body dosimeters shall be supplied by vendors who are approved by the National Voluntary Laboratory Accreditation Program for both Category IV (high energy photons: protection range) and Category II (high energy photons: accident range).
- B. In addition, self-reading dosimeters shall be used by all similarly employed personnel. These dosimeters shall be charged and/or "zeroed" before work is initiated and read between and at the end of source exchange operations. High or off-scale readings shall be immediately investigated. These dosimeters shall be subject to the licensee's calibration and checking procedures dated September 5, 1988. Digital alarming dosimeters are acceptable in lieu of pocket chambers provided that the manufacturer's maintenance and calibration procedures are strictly followed and documentation retained to verify this.
- C. Finally, all individuals directly involved in teletherapy source exchange with international capsule type machines shall be provided and shall wear finger exposure monitoring equipment, to assess more accurately exposure to these extremities. When such monitors are worn, wrist monitors need not be used.
20. A. Teletherapy source exchanges, machine installations and five year inspections shall be performed in accordance with the licensee's procedures and current radiation safety manual (dated March 7, 1989), the manufacturer's technical data, instructions and recommendations, and ANSI Standards N449 (1974) and N449.1 (1978).
- B. The manufacturer's technical data, instructions and recommendations shall include at minimum the currently updated service and maintenance manuals for the make and model of device being worked on and any applicable service bulletins. The licensee shall annually review these documents with the manufacturer and/or distributor to assure that they are complete and shall make a record of such annual reviews.
21. A copy of the licensee's current radiation safety manual shall be provided to each of the users listed in Condition 14 of this license and at least one copy shall be available at each field job site when the licensee's personnel are present.
22. Any changes in or additions to the licensee's radiation safety procedures or radiation safety manual shall be submitted to the Agency for review and approval before being adopted for use.
23. Records of field operations shall demonstrate that all required personnel monitors and survey meters were calibrated, available, and in working order during each day of field operations. Such records shall be retained for inspection.

TRC Form 12-1
7/90Texas Department of Health
BUREAU OF RADIATION CONTROL

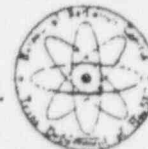
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RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER
L01485AMENDMENT NUMBER
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24. During source exchange operations, wipe tests for removable contamination shall be made, and each shall be immediately analyzed and recorded, and operations shall be suspended if any wipe shows in excess of 0.05 μCi of removable contamination, as specified below:
- A. Wipe tests shall be performed on the shipping cask at each end of the shielded new source storage bore, after both outer and inner covers have been removed for the first time and prior to coupling the cask to the teletherapy unit head.
 - B. The exposed end of the old source drawer and accessible areas of the bore shall be wipe tested before the source drawer is moved or the shipping cask is coupled to the teletherapy head, for AECL type drawers or other removable drawer type units. Alternatively, the source manipulating tools shall be wipe tested after first contact with the old source, but prior to source removal (provided the source can be moved to a safe position after such contact), for international capsule type units without removable drawers or other units where the source or immediate source holder is manipulated. If the source cannot be returned immediately to a safe position after such contact, the tool wipe test shall be made and analyzed after the source has been transferred to the shipping cask, and the reason for the malfunction shall be investigated and documented during the subsequent inspection and maintenance of the machine.
 - C. Wipe tests shall be performed on the shipping cask at the loading end of the shielded old source storage bore once the old source has been transferred, the bore shielded and the cask has been decoupled from the head.
 - D. Wipe tests shall be performed on all parts of the teletherapy head that come into contact with the source, source drawer or source wheel once the old source is out the head, is safely shielded, and the cask is decoupled from the head.
 - E. Wipe tests shall be performed on the source manipulating tools (international capsule units or other units where the source or immediate source holder are manipulated), or the exposed end of the source drawer and the exposed bore area in the teletherapy head (AECL type units), once the new source has been installed and moved to a shielded position.

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24. (Continued.)

F. If any wipe tests show the presence of 0.05 μCi of activity, procedures shall be suspended and a formal, quantitative leak test, capable of clearly determining the presence of 0.005 μCi of removable activity shall be performed on a 100 square centimeter area of maximum suspicion. If the formal leak test confirms the presence of 0.005 μCi of removable activity per 100 square centimeters, source exchange operations shall terminate, the sources shall be shielded in place, and activities suspended until such decontamination can be accomplished by qualified experts. Immediate notification shall be made to the facility radiation safety officer and site manager, X-Ray Equipment Company's Radiation Safety Officer, if not present, and the appropriate local regulatory agency. Notification within 48 hours shall be made to the Texas Department of Health, Bureau of Radiation Control, the source manufacturer (of the source suspected to be leaking or contaminated), and the source manufacturer's authorizing regulatory agency.

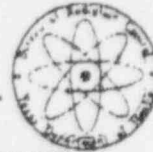
25. During source exchanges, no individual shall be positioned so that any part of his/her body is directly exposed to any unshielded source. Indirect viewing devices and remote handling tools shall also be used in such a manner that extremities are not exposed to unattenuated radiation, for even brief periods. If emergency recovery procedures result in suspected exposures to unattenuated radiation, personnel monitoring devices of the affected individuals shall be promptly (within 24 hours) submitted for vendor evaluation and appropriate notification made to regulatory agencies where required by the results of such evaluations.

26. Before any work is undertaken at a client facility, the licensee shall determine if the client facility license or procedures require restrictions (mechanical or electrical) on the directions that the primary teletherapy beam can be pointed. If so, the following shall be required.

A. During source exchange, unattenuated radiation from the source shall not be permitted to strike other than designed primary barriers or the transfer cask.

B. After servicing, the necessary restrictions dictated by the client facility license and/or procedures shall be reinstituted and verified.

27. The licensee shall perform and record, at intervals not to exceed six months, inspections, performance tests and maintenance on the special equipment and tools used for source exchange. These inspections and maintenance shall verify that the equipment is in proper working order to perform its intended task and that design parameters are still being met, including tolerances, wear limits and shielding factors (as estimated by mechanical inspections).

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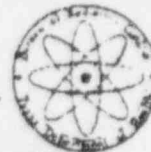
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28. A. Radiation survey instruments shall be calibrated at intervals not to exceed 12 months by persons licensed by the Agency, another Agreement State, or by the United States Nuclear Regulatory Commission (NRC). Instruments that are routinely transported shall be so calibrated at intervals not to exceed six months.
- B. For operations involving work with teletherapy units requiring that the power be connected to the equipment while individuals are in the room, or requiring mechanical work involving partial disassembly, including collimator removal, but not requiring source exchange or "beam on" conditions, at least one calibrated survey meter which has been checked for proper operation and which has an audible signal and will correctly respond to radiation fields up to 1 R/hour shall be present and available for use in the teletherapy room.
- C. For operations involving source manipulations, "beam on" conditions when the room is occupied, or source exchanges, an additional survey instrument shall be available which is calibrated at least up to 1 R/hour and which will respond to at least 25 R/hour.
29. For any teletherapy source contained in an NRC registered 20WC-6 overpack which is stored on the Mansfield, Texas premises beyond the due date of its required leak tests, leak test samples may be obtained by wipes from the most appropriate areas on the surface of the overpack, without the necessity of removing the transfer cask or disassembling the overpack. In such cases, additional leak tests shall be performed when the transfer cask is next removed from the overpack, either at the Mansfield, Texas location, or at any site of delivery.
30. The licensee is authorized to perform machine installation and service, including five year service, and machine decommissioning and removal, in accordance with the conditions of this license, ANSI Standards N449 and N449.1 (as applicable), and applicable procedures for J.L. Shepherd irradiators and calibrators listed in the letter dated October 17, 1994. This services will be performed only by Richard H. Tanker or Richard W. Lamphier.

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31. Except as specifically provided otherwise by this license, the licensee shall possess and use the radioactive material authorized by this license in accordance with statements, representations, and procedures contained in the following:

application dated June 7, 1988,
letters dated September 5, 1988, March 30, 1989, April 17, 1989,
May 9, 1989, April 2, 1991, December 9, 1991,
March 31, 1993, April 1, 1993, September 13, 1994,
September 29, 1994 (two) and October 17, 1994; and
Procedures manual dated March 7, 1989.

The TRCR shall prevail over statements contained in the above documents unless such statements are more restrictive than the regulations.

RRD:rd

Date November 17, 1994

FOR THE TEXAS DEPARTMENT OF HEALTH

Acting Administrator, Licensing Branch

Sealed Source Leak Test

21-Aug-96

Swipe#	Isotope-ID	Isotope	Qty	Serial#	Type	Activity	Location
Radiation Therapy							
<input type="checkbox"/>	RT004	Sr-90	1	67850/E90	EYE APP	125 mCi	Teletherapy
<input type="checkbox"/>	RT005	Sr-90	1	1141	EYE APP	50 mCi	Teletherapy
<input checked="" type="checkbox"/> 9	RT006	Co-60	1	S4554	TELETHER	6934 Ci	Teletherapy
<input checked="" type="checkbox"/> 10	RT011	Cs-137	1	10-525	GRN MINI	28.3 mCi	Radium Safe
<input checked="" type="checkbox"/> 11	RT011	Cs-137	1	10-527	GRN MINI	28.3 mCi	Radium Safe
<input checked="" type="checkbox"/> 12	RT012	Cs-137	1	10-521	GRN MINI	28.1 mCi	Radium Safe
<input checked="" type="checkbox"/> 13	RT012	Cs-137	1	10-524	GRN MINI	28.1 mCi	Radium Safe
<input checked="" type="checkbox"/> 14	RT013	Cs-137	1	10-523	GRN MINI	27.4 mCi	Radium Safe
<input checked="" type="checkbox"/> 15	RT014	Cs-137	1	10-3456	GRN STD	26.7 mCi	Radium Safe
<input checked="" type="checkbox"/> 16	RT015	Cs-137	1	10-3501	GRN STD	26.6 mCi	Radium Safe
<input checked="" type="checkbox"/> 17	RT016	Cs-137	1	10-3453	GRN STD	26.4 mCi	Radium Safe
<input checked="" type="checkbox"/> 18	RT017	Cs-137	1	10-3457	GRN STD	26.3 mCi	Radium Safe
<input checked="" type="checkbox"/> 19	RT017	Cs-137	1	10-3467	GRN STD	26.3 mCi	Radium Safe
<input checked="" type="checkbox"/> 20	RT018	Cs-137	1	10-3465	GRN STD	26.2 mCi	Radium Safe
<input checked="" type="checkbox"/> 21	RT018	Cs-137	1	10-3481	GRN STD	26.2 mCi	Radium Safe
<input checked="" type="checkbox"/> 22	RT019	Cs-137	1	10-3463	GRN STD	26 mCi	Radium Safe
<input checked="" type="checkbox"/> 23	RT019	Cs-137	1	10-3508	GRN STD	26 mCi	Radium Safe
<input checked="" type="checkbox"/> 24	RT019a	Cs-137	1	10-526	GRN MINI	26 mCi	Radium Safe
<input checked="" type="checkbox"/> 25	RT020	Cs-137	1	15-2017	YEL STD	39.7 mCi	Radium Safe
<input checked="" type="checkbox"/> 26	RT021	Cs-137	1	15-2028	YEL STD	39.8 mCi	Radium Safe
<input checked="" type="checkbox"/> 27	RT021	Cs-137	1	15-2038	YEL STD	39.8 mCi	Radium Safe
<input checked="" type="checkbox"/> 28	RT022	Cs-137	1	15-167	YEL MINI	41.1 mCi	Radium Safe
<input checked="" type="checkbox"/> 29	RT023	Cs-137	1	15-163	YEL MINI		Radium Safe
<input checked="" type="checkbox"/> 30	RT024	Cs-137	1	15-212	YEL MINI	41.7 mCi	Radium Safe
<input checked="" type="checkbox"/> 31	RT024	Cs-137	1	15-215	YEL MINI	41.7 mCi	Radium Safe
<input checked="" type="checkbox"/> 32	RT025	Cs-137	1	15-213	YEL MINI	41.8 mCi	Radium Safe
<input checked="" type="checkbox"/> 33	RT026	Cs-137	1	15-216	YEL MINI	42.3 mCi	Radium Safe
<input checked="" type="checkbox"/> 34	RT027	Cs-137	1	20-2073	ORG MINI	53.4 mCi	Radium Safe
<input checked="" type="checkbox"/> 35	RT028	Cs-137	1	20-2063	ORG MINI	53.5 mCi	Radium Safe
<input checked="" type="checkbox"/> 36	RT028a	Cs-137	1	20-1457	ORG STD	53.5 mCi	Radium Safe
<input checked="" type="checkbox"/> 37	RT029	Cs-137	1	20-2065	ORG MINI	53.6 mCi	Radium Safe
<input checked="" type="checkbox"/> 38	RT029	Cs-137	1	20-2067	ORG MINI	53.6 mCi	Radium Safe
<input checked="" type="checkbox"/> 39	RT030	Cs-137	1	20-2056	ORG MINI	53.8 mCi	Radium Safe

31 Jul 96 14:44

HEALTH PHYSICS

Page #1

Protocol #:17

LeakTestCs137

User :

Count Time(minutes): 2.00
 Assay Type: CPM
 Background Subtract : Protocol Bkg
 Outlier: 5.0 FLAG
 %Spillup: 0.00
 %Spilldown: 0.00
 Screening: OFF

Window A

Window B

Nuclide:	MAN	15 - 2000 keV	MAN	587 -
37 keV				
Ekg:	201		16.4	
Sigma:	0.00		0.00	
LCP:	0		0	
Half Life(hours):	0.00		0.00	
Multiplier:	1.0000			
%CV Flag Limit:	0.00		0.00	

S#	A:CPM	B:CPM
1	27.8	5.6
2	20.3	10.1
3	11.3	0.0
4	19.8	0.6
5	18.8	0.0
6	20.8	0.0
7	28.3	3.6
8	12.8	0.0
9	16.3	3.6
10	21.3	3.1
11	6.8	0.1
12	14.3	0.0
13	30.8	2.6
14	34.8	6.1
15	29.8	0.6
16	34.8	1.6
17	15.8	0.0
18	11.8	1.6
19	30.8	4.1
20	25.8	6.6
21	22.8	2.6
22	12.8	0.0
23	14.8	1.1
24	25.8	0.0
25	9.8	0.0
26	38.3	1.6
27	16.8	0.6
28	28.3	5.1
29	9.8	0.0
30	30.8	2.1
31	23.3	0.6
32	25.8	2.6
33	23.3	0.0
34	16.3	0.0

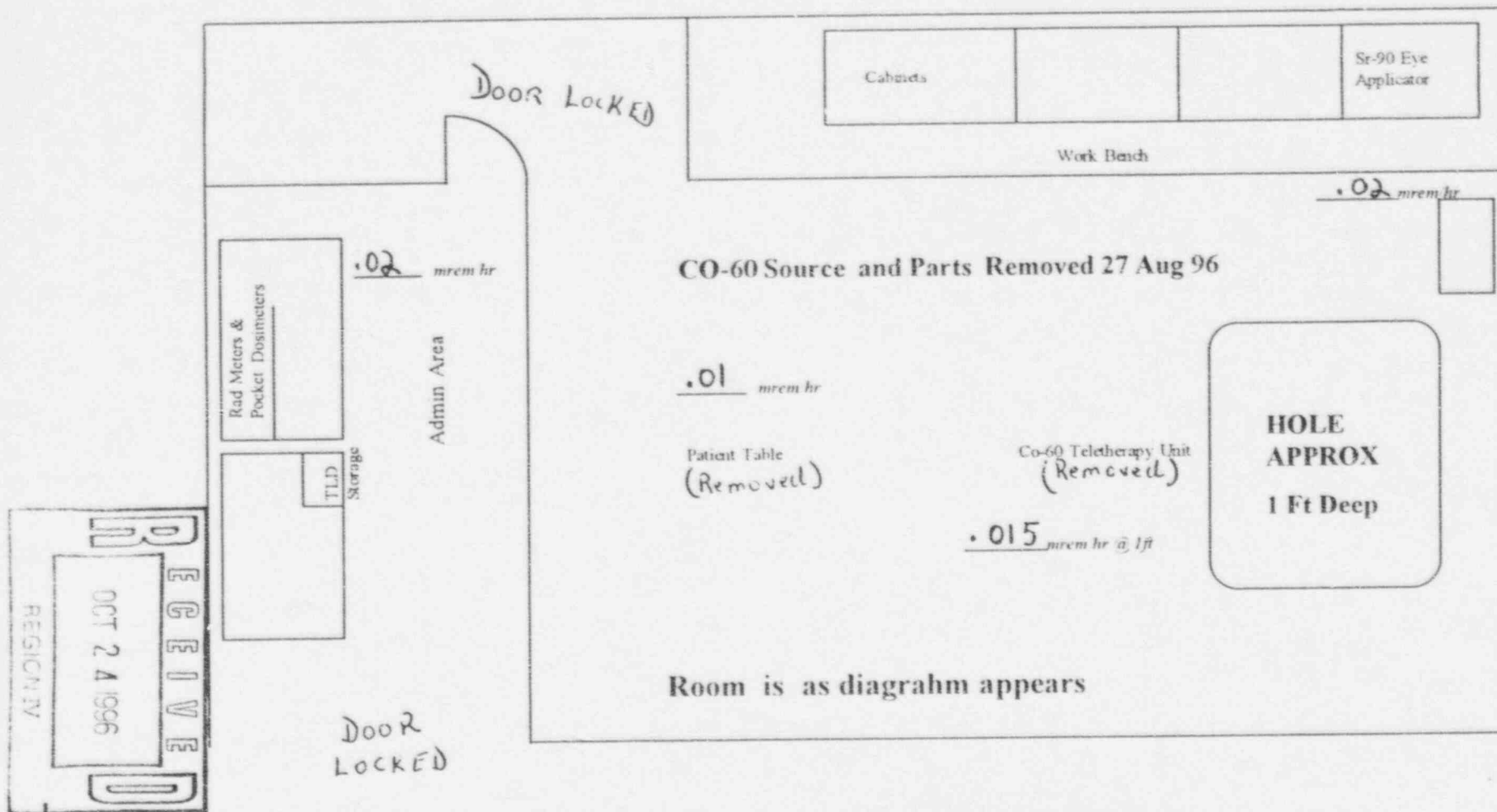
MDA for channel
 A is 35.9

Cs-60

Radiation Therapy - Co-60 Teletherapy, Bldg 1000

Radiation Protection Survey

Date of Survey: 27 Aug 96



CO-60 Source and Parts Removed 27 Aug 96

Room is as diagram appears

Check Lists

	Yes	No
1. Radiation Area Posted?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <i>cht</i>
2. Area secured ?	<i>cht</i> <input checked="" type="checkbox"/>	<input type="checkbox"/>

Radiation Protection Survey Conducted:

27 Aug 96 ; 7:30 p.m..

C. Taylor
 CASMERE H. TAYLOR
 CPT, MS
 C, HEALTH PHYSICS (RPO)

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