

MATERIALS LICENSE  
SUPPLEMENTARY SHEET

License number

34-01334-02

Docket or Reference number

30-02676

Amendment No. 40

St. John and West Shore Hospital  
29000 Center Ridge Road  
Westlake, Ohio 44145

In accordance with application dated May 12, 1983, License Number 34-01334-02 is amended to read:

Condition 12. is amended to read:

12. Licensed material listed in Item 6 above is authorized for use by, or under the supervision of, the following individual(s) for the materials and uses indicated:

Paul Janicki, M.D.

All

Guy R. Syversten, D.O.

All

Gregory Arko, D.O.

All

Christine A. Quinn, M.D.

All

Norbert E. Reich, M.D.

All

Arthur E. Nichols, D.O.

All

Byung Woo, M.D.

Groups I, II and III  
in vitro studies  
Xenon-133

Frank Seidelman, D.O.

Groups I, II and III  
Xenon-133

Charles William Kieser, M.D.

Groups I, II and III  
Xenon-133

Michael Christian, M.D.

All

Robert M. Levin, M.D.

Groups II and III

Iodine-131 for diagnosis of thyroid function  
Xenon-133

Mark Hannibal, M.D.

Groups II and III

Iodine-131 for diagnosis of thyroid function  
Xenon-133

Timothy Schaeffer, M.D.

In vitro studies

In vitro studies

8507260492 850708  
REGS LIC30  
34-13317-02 PDR

RECEIVED

For the U. S. Nuclear Regulatory Commission

Date

JUN 13 1983

JUN 24 1985

REGION III

By



Materials Licensing Section  
Region III

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For the U. S. Nuclear Regulatory Commission

By

*P. J. Holt*

Materials Licensing Section  
Region III

Date

JUN 13 1993

November 29, 1984

MEMO TO: NEIL YATES, C.R.T.

SUBJECT: AMENDMENT TO NRC LICENSE

I have been instructed by Dr. Concannon to submit an amendment change to the NRC license to permit the use of  $^{137}\text{Cs}$  as a replacement source for the  $^{226}\text{Ra}$  presently at Ohio Valley Hospital.

Enclosed find the necessary response to the NRC regarding this. Kindly add the names of Drs. Joseph Concannon, James Hughes and Gerald Medwick as licensed users. All are presently licensed by the NRC on teletherapy license 37-20758-01 (Triangle Radiation Oncology) and Drs. Hughes and Concannon are licensed on Allegheny General license 37-01317-01. All the above physicians are certified in Therapeutic Radiology by the American Board of Radiology.

*Complete* If you have any questions regarding this, let me know.

Sincerely,

*Tony*  
Tony Combine

## SOURCES TO BE INCLUDED IN AMENDMENT

### A. Cesium 137 Tube Sources

These sources are 20 mm. long X 3.1 mm. diameter and have a 14 mm. active length. The manufacturer is 3M Medical Products of St. Paul, Minnesota. \*The previous catalog number on all sources was 6D6C-CA. A listing of present 3M catalog numbers and source strength and number of sources planned for source inventory is as follows:

3M No.	Nominal Strength (mg Ra <sub>eq</sub> )	Nominal Activity mCi 137 Cs	Number of Sources	Total Activity (mCi 137 Cs)
6501	10	24.8	6	149
6502	15	37.2	4	149
6503	20	49.6	4	199
		TOTAL	14	497 mCi 137 Cs

Allowing for reasonable corrections on source activity, the requested possession limit for these sources is 600 mCi.

\*The radioactive cesium is contained on tagged microspheres enclosed in doubly encapsulated stainless steel.

Item 20 Section A

### Storage of Sealed Sources

The 137 Cs sources will be stored in a locked safe (Radium Chemical Company model #47044). The walls of the safe consist of 4" of Pb shielding in all directions. An L block of 14" width and depth and of height 16 1/2" with a high density glass shielded viewing area will be positioned in front of the safe to provide a shielded work area. The thickness of the L block is 2" of Pb. The safe and L block are to be placed on a steel table and will be located in the indicated position in the <sup>60</sup>Co treatment room. (See following diagram)

The areas outside of the <sup>60</sup>Co room consist of a restricted hallway (points 11-15) and a secretarial station (points 6-10). The walls of the teletherapy room are of 2 foot thick concrete. Two 20 mg. <sup>226</sup>Ra were placed on top of the safe in an exposed position and readings were taken using Eberline COM survey meter 9507 which was calibrated on 10-15-84 by Health Physics Services, Inc. of Potomac, Maryland. All readings, at all points, were less than .2mR/hr. The above represents a maximum exposure situation that would only be approximated during loading and unloading of Cesium applicators.

Exposure levels in the vicinity of the safe, are as shown in the enclosed Health Physics Inc. survey. The safe at present contains 165 mg. of <sup>226</sup>Ra. The intention of the amendment application is to replace the above with 200 mg. Ra eq of 137 Cs. All indicated exposure levels will be below limits as specified in 20.105 (b) (1) and (b) (2) of 10 CFR 20.

The Cobalt 60 treatment room is a one-story structure. The area beneath the room is unoccupied ground and that above the room is unoccupied ceiling.



## **Health Physics Services, Inc.**

7825 Tuckerman Lane, Suite 214

Potomac, Maryland 20854-3295

Phone: (301) 299-2700 Toll Free: 800-638-8488

August 20, 1994

### **RADIATION PROTECTION SURVEY**

ATTENTION: Dr. Joe Concannon

On July 20, 1984, the undersigned conducted a radiation protection survey of the Radium Room at Ohio Valley Hospital in Steubenville, Ohio.

The survey criteria are those of the National Council on Radiation Protection, Report No. 30, "Safe Handling of Radioactive Materials" (NBS Handbook No. 92), Report No. 48, "Radiation Protection for Medical and Allied Health Personnel", along with the radiation protection regulations for the State of Ohio.

#### **FINDINGS AND RECOMMENDATIONS:**

##### **RADIUM ROOM**

1. Typical areas of occupancy in the Teletherapy room and surrounding areas were as follows:

- |    |  |      |       |
|----|--|------|-------|
| a. | One meter in front of the safe:                | 0.35 | mR/hr |
| b. | One meter to the left of the safe:             | 0.7  | mR/hr |
| c. | Adjacent hallways:                             | 0.02 | mR/hr |
| d. | Background:                                    | 0.02 | mR/hr |
| e. | All of the above are within acceptable levels. |      |       |

2. All Ra-226 sources were accounted for and properly stored at the time of the survey.

Any questions concerning this survey should be directed to the undersigned.

HEALTH PHYSICS SERVICES, INC.

*Catherine T. Haney*

Catherine T. Haney, M.M.Sc.  
Director of Technical Operations

CTH:eb

Enclosure: Leak Test Certificate

ITEM 20 SECTION B

Special Precautions to be Used While Handling Sealed Sources

1. Only classified radiation workers are to handle sources.
2. No pregnant (or possibly pregnant) person to handle sources.
3. All persons must wear a film badge to monitor whole body exposure and a ring TLD badge to monitor extremity exposure.
4. All source handling, preparation, etc. is to be done using long handled forceps. Sources are not to be touched with the hands in any circumstances.
5. All source handling, preparation, and inventory in the storage areas is to be done making use of the provided L block shielding.
6. A shielded source carrier will be used to transport all sources through unrestricted areas. All sources used in unrestricted areas will be kept in shielded source carriers prior to actual loading.
7. Loading and removal of all sources will be done by one of the listed physicians or by a trained technologist under the direction of one of the listed physicians.
8. Specific procedure instructions for each type of source and applicator are to be read by each person BEFORE handling radioactive sources.

SECTION 20 ITEM C

Method for Determining Radiation Doses to Extremities

Ring TLD badges are to be provided on a monthly basis for the radiation therapist, physicist, chief technologist and radiation therapy technologist.

All ring badges will be worn as specified in the section on source handling procedures. These ring badges will be changed on a monthly basis. All ring badges will be supplied through RS Landauer and Company.



SECTION 20 ITEM D

Equipment and Shielding Available for Transportation of Sources

For transportation of Cesium 137 Tube Sources, a Radium Chemical Company Model No. 50100 Heyman Carrier (with Fletcher Suit After Load Core #162) will be used for source transport. The above carrier provides lead shielding of 1" thickness. This is roughly 1 TVL at 137 Cs energies. Further, one Radium Chemical Company Ernst Carrier (Model No. 479) with 1" lead shielding thickness is also available for source storage and transport. For each insertion of radioactive material, it is planned to leave the Ernst Carrier with lock in the patient room until removal of radioactive material.

SECTION 20 ITEM E

Source Accountability Procedures <sup>137</sup>Cs

1. A complete listing of all departmental <sup>137</sup>Cs will be kept in a bound notebook in the dosimetry office.
2. A quarterly inventory will be done on all sources. Leak testing will be performed on a semi-annual basis.
3. The Cesium safe will remain locked, except when removing the sources.
4. All <sup>137</sup>Cs procedures are after-loading procedures with the actual loading and unloading of sources done in the patient room.
5. Each time a Cesium insertion is done and sources are removed from the safe, the technician will denote the removal of the individual sources in the Cesium Patient Logbook (see Exhibit A). At this time, a Cesium count will be made and initialed by the technician.
6. Following source removal from the patient, a complete survey is to be taken of (a) the patient, and (b) the patient room using a calibrated survey meter.
7. Following return of the sources to the safe, an entry will be made denoting sources returned and a follow up count will again be done by the technician. If at any time these counts do not agree, Physics personnel are to be notified immediately by the technician.

SECTION 20 ITEM F

Surveys to be Taken During Implant

The following survey measurements will be done as a part of all radioactive implant procedures:

1. Exposure rates at bedside.
2. Exposure rates at 1 meter from the patient.
3. Exposure rates in all accessible unrestricted areas surrounding the patient rooms.
4. Patient survey following removal of radioactive material.
5. Room survey following removal of radioactive material.

All the above surveys will be performed using a calibrated survey meter. The results of the above surveys will be recorded in the Radioactive Implant Survey Log which will be kept in the Dosimetry Office.

SECTION 20 ITEM G

Procedures in Appendix L will be followed with indicated modifications below:

- (1) All patients treated with brachytherapy sources will be placed in a private room that has a toilet.
- (2) The patient's room will be properly posted or attended in accordance with ~~66~~ 20.203 or 20.204 of 10 CFR Part 20.
- (3) Surveys of the patient's room and surrounding areas will be conducted as soon as practicable after sources are implanted. Exposure rate measurements will be taken at 3 feet (or 1 m) from the bed, and at the entrance to the room. The Radiation Safety Officer or his designee will then determine how long a person may remain at these positions and will post these times and the exposure rate at 3 feet (or 1 m) from the patient on the patient's chart.
- (4) Immediately after sources are implanted, the form "Nursing Instructions for Patients Treated with Brachytherapy Sources" will be completed and attached to the patient's chart.
- (5) Radiation levels in unrestricted areas will be maintained less than the limits specified in paragraphs 20.105 (b) (1) and (b) (2) of 10 CFR Part 20.
- (6) Nurses caring for brachytherapy patients will be assigned film badges. Pocket dosimeters may be assigned in lieu of film badges.
- (7) At the conclusion of treatment, a survey will be performed in accordance with paragraph 35.14 (b) (5) (vii) of 10 CFR Part 35 to ensure that all sources have been removed from the patient and that no sources remain in the patient's room or in any other area occupied by the patient. At the same time, all radiation signs will be removed and all film badges assigned to nurses will be collected.
- (8) Instructions to Nurses
  - a. Special restrictions may be noted on the precaution sheet on the patient's chart. Nurses should read these instructions before administering to the patient. The Radiation Safety Officer should be contacted to answer any questions about the care of these patients in regard to radiation safety precautions.
  - b. Nurses should spend only the minimum time necessary near a patient for routine nursing care. Obtain and wear a film badge as instructed by Radiation Therapy personnel.

- c. When a nurse is assigned to a therapy patient, a film badge will be obtained immediately from the Nurse's Station. The badge shall be worn only by the nurse to whom it is issued and shall not be exchanged among nurses.
- d. Pregnant nurses should not be assigned to the personal care of these patients.
- e. Never touch needles, capsules, or containers holding brachytherapy sources. If a source becomes dislodged, use long forceps and put it in the corner of the room or in the shielded container provided; contact Radiation Therapy at once.
- f. Bed bath given by the nurse should be omitted while the sources are in place.
- g. Perineal care is not given during gynecological treatment; the perineal pad may be changed when necessary unless orders to the contrary have been written.
- h. Surgical dressings and bandages used to cover the area of needle insertion may be changed only by the attending physician or radiologist and MAY NOT BE DISCARDED until directed by the radiologist. Dressings should be kept in a basin until checked by the Radiation Safety Officer or his designee.

Special orders will be written for oral hygiene for patients with oral implants.

- i. No special precautions are needed for sputum, urine, vomitus, stools, dishes, instruments, or utensils unless specifically ordered.
- j. All bed linens must be checked with a radiation survey meter before being removed from the patient's room to ensure that no dislodged sources are inadvertently removed.
- k. These patients must stay in bed unless orders to the contrary are written. In any event, patients will remain in their assigned rooms during the treatment period.
- l. Visitors will be limited to those 18 years of age or over unless other instructions are noted on the precaution sheet on the patient's chart.

m. Visitors shall remain behind the floor tape markings (areas less than 5mR/hr from the patient and shall remain no longer than the time specified on the form posted on the patient's door and on his chart.

n. No nurse, visitor, or attendant who is pregnant should be permitted in the room of a patient while brachytherapy sources are implanted in the patient. Female visitors should be asked whether they are pregnant.

o. Emergency Procedures

- (1) If an implanted source becomes loose or separated from the patient, or
- (2) If the patient dies, or
- (3) If the patient requires emergency surgery, immediately call \_\_\_\_\_

Telephone Number (days) \_\_\_\_\_

(nights) \_\_\_\_\_

p. At the conclusion of treatment, the Radiation Therapy Department will (1) survey the patient and room

- (2) count the radiation sources to be sure that all temporary implants have been removed prior to discharging the patient
- (3) record a summary of the final survey results on the patient's chart.



NURSING INSTRUCTIONS FOR PATIENTS TREATED  
WITH BRACHYTHERAPY SOURCES

Patient's Name: \_\_\_\_\_

Room Number: \_\_\_\_\_ Physician's Name: \_\_\_\_\_

Isotope and Activity: \_\_\_\_\_

Date and Time of Administration: \_\_\_\_\_

Date and Time Sources Are to be Removed: \_\_\_\_\_ Isotope: \_\_\_\_\_

EXPOSURE RATES IN mR/hr

Bedside

3 feet from bed

10 feet from bed:

(Comply with all checked items.)

- \_\_\_\_\_ 1. Wear film or TLD badges or pocket dosimeters.
- \_\_\_\_\_ 2. Wear pocket chambers for supplementary personnel monitoring of individual tasks.
- \_\_\_\_\_ 3. Wear rubber gloves.
- \_\_\_\_\_ 4. Tag the following objects and fill out the tag:
  - \_\_\_\_\_ door                      \_\_\_\_\_ chart
  - \_\_\_\_\_ bed                        \_\_\_\_\_ wrist
- \_\_\_\_\_ 5. Place laundry in linen bag and save.
- \_\_\_\_\_ 6. Housekeeping may not enter the room.
- \_\_\_\_\_ 7. Visiting time permitted: \_\_\_\_\_
- \_\_\_\_\_ 8. Visitors must remain behind tape marks provided on floor (<5 mR/hr)
- \_\_\_\_\_ 9. Patient may not leave the room.
- \_\_\_\_\_ 10. Patient may not have visitors.
- \_\_\_\_\_ 11. Patient may not have pregnant visitors.
- \_\_\_\_\_ 12. Patient may not have visitors under 18 years of age.
- \_\_\_\_\_ 13. Patient must have a private room.
- \_\_\_\_\_ 14. A dismissal survey must be performed before the patient is discharged.

- \_\_\_\_\_ 15. All items must remain in the room until approved for disposal by the Radiation Safety Officer or his designee.
- \_\_\_\_\_ 16. Contact the Radiation Safety Office when temporary sources (nonpermanent implants) are removed to perform a survey to be sure all sources are removed from the patient, to do a physical source count, and to be sure no sources remain in the room.
- \_\_\_\_\_ 17. Contact the Radiation Safety Office when the patient is discharged to survey the room prior to its assignment to another patient.

RSO

Name \_\_\_\_\_

On-duty/Off-duty Telephone No. \_\_\_\_\_



# FORMAT FOR CESIUM PATIENT LOGBOOK

OHIO VALLEY HOSPITAL

EXHIBIT A

Patient Name \_\_\_\_\_ Room # \_\_\_\_\_

Applicator(s) and Strengths \_\_\_\_\_

Applicator(s) prepared by \_\_\_\_\_

Sources used (Activities) \_\_\_\_\_

Sources not used \_\_\_\_\_

Cesium inserted (Date) \_\_\_\_\_ (Time) \_\_\_\_\_ a.m.  
p.m.

Cesium removed (Date) \_\_\_\_\_ (Time) \_\_\_\_\_ a.m.  
p.m.

Cesium removed by \_\_\_\_\_

Cesium returned to safe (Date) \_\_\_\_\_ (Time) \_\_\_\_\_ a.m.  
p.m.

by \_\_\_\_\_ (Signature)

Patient Survey: Initial exposure rate @ 1 meter \_\_\_\_\_ mR/hr.

Elsewhere \_\_\_\_\_ mR/hr. @ where/distance = \_\_\_\_\_

Follow-up Survey: Patient \_\_\_\_\_ mR/hr.; Background \_\_\_\_\_ mR/hr.

Survey performed by \_\_\_\_\_

Cesium Count (Preparation \_\_\_\_\_

by \_\_\_\_\_ (Signature)

Cesium count (Removal) \_\_\_\_\_

by \_\_\_\_\_ (Signature)

PATIENT RADIATION IMPLANT SURV  
(SEALED SOURCES)

EXHIBIT A

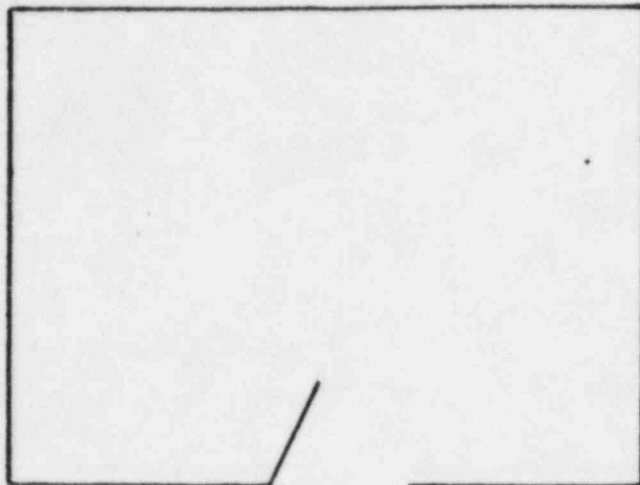
PATIENT'S NAME: \_\_\_\_\_ Room No. \_\_\_\_\_ Therapy Start Date \_\_\_\_\_

Isotope: \_\_\_\_\_ Activity \_\_\_\_\_ (millicuries)

SKETCH OF PATIENT'S ROOM/BED LOCATION (be specific)

Adjacent Room?

Yes \_\_\_\_\_  
No \_\_\_\_\_



Adjacent Room?

Yes \_\_\_\_\_  
No \_\_\_\_\_

Survey Meter Measurements: At Bedside: \_\_\_\_\_ mR/hr.  
Doorway: \_\_\_\_\_ mR/hr.  
Occupied adjacent room(s): \_\_\_\_\_ mR/hr.  
1 meter from source: \_\_\_\_\_ mR/hr.

GENERAL

Have nurses been given film badges or dosimeters and log? YES \_\_\_\_\_ NO \_\_\_\_\_

Has the 5 mR/hr. tape been placed on the floor? YES \_\_\_\_\_ NO \_\_\_\_\_

Has the patient been positioned so exposure to others is minimal? YES \_\_\_\_\_ NO \_\_\_\_\_

Have the nurses received a copy of the protocol for Nursing Care of Radiation Therapy Patients? YES \_\_\_\_\_ NO \_\_\_\_\_ (Supply with protocol if answer is NO)

Has the patient's room been properly posted? YES \_\_\_\_\_ NO \_\_\_\_\_

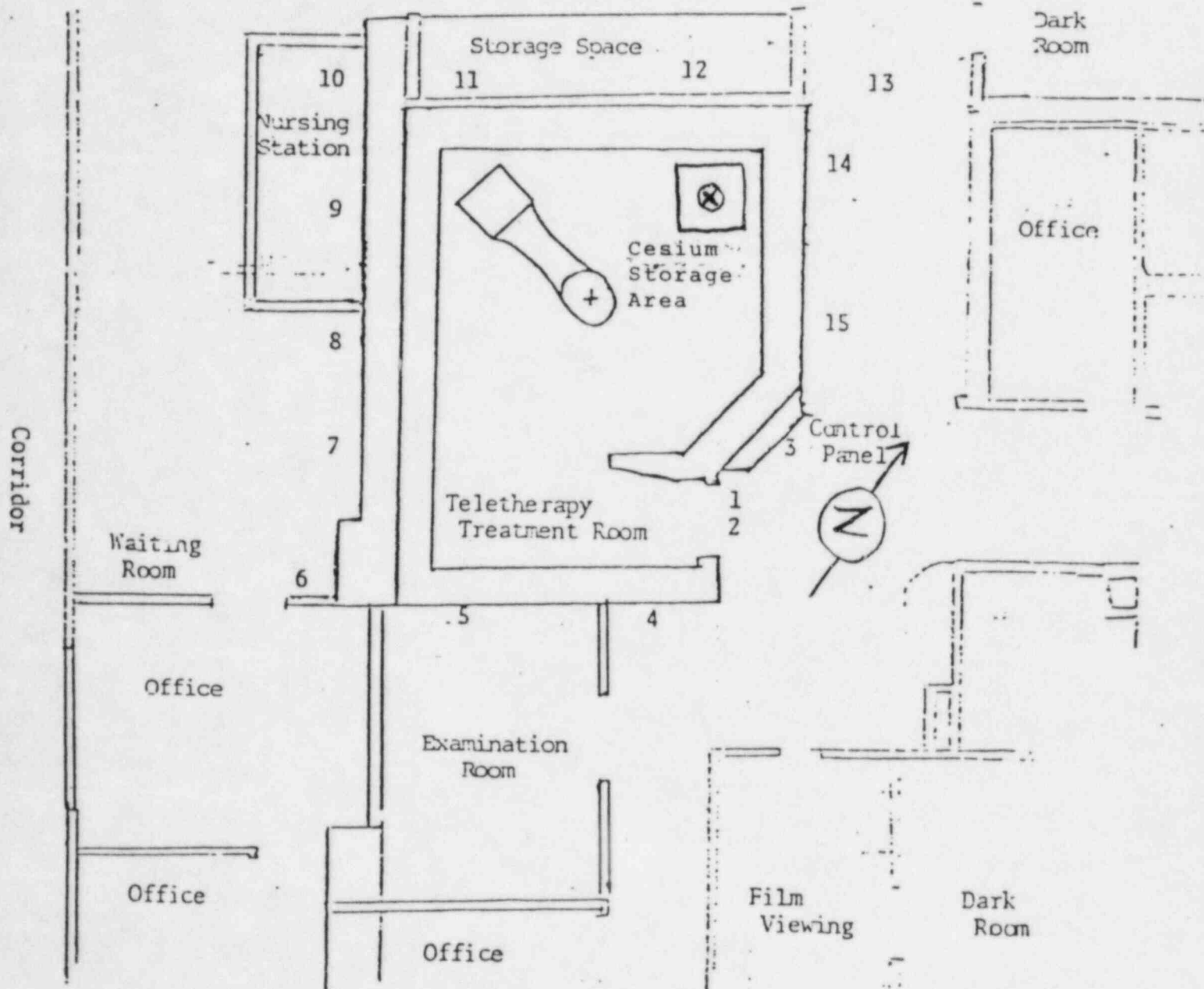
Therapy Termination Date: \_\_\_\_\_ Termination Survey Conducted By: \_\_\_\_\_

Radiation survey of patient and room confirmed removal of all radioactive materials: YES / NO  
(Circle One)

ALL radiation caution signs removed? YES \_\_\_\_\_ NO \_\_\_\_\_

Film badges or dosimeters collected? YES \_\_\_\_\_ NO \_\_\_\_\_

NOTE: If radiation levels are detected above natural background levels, IMMEDIATELY NOTIFY RADIATION SAFETY OFFICER AND THERAPIST.



Approximate Facility Diagram - Cesium Storage Area (X)  
 Ohio Valley Hospital, Steubenville, Ohio  
 Teletherapy unit. EML-34-13317-01  
 Scale approx. 1/96 (1/8" = 1')  
 Numbers refer to survey locations.