

# Beth Israel Hospital

Department of Radiology  
330 Brookline Avenue  
Boston, MA 02215

(617) 735-3531

A major teaching hospital of  
Harvard Medical School

A constituent agency of  
Combined Jewish Philanthropies

Sven Paulin, M.D.  
Radiologist-in-Chief  
(617) 735-2506

November 5, 1985

Dr. John Glenn, Ph.D.  
Materials Section B  
Regional Office of Inspection and Enforcement  
U.S.N.R.C.  
631 Park Avenue  
King of Prussia, PA 19406

RE: License #20-00742-18  
Expiration Date: December 31, 1985

Dear Dr. Glenn:

We wish to make three amendments to our license as follows:

A. Increase our maximum possession limit of  $^{137}\text{Cs}$  from 350mC to 2882 curies. The 2882 curies is as follows:

- a. 350 mCi as currently approved
- b. 1500 mCi for the following: thirty four Cesium-137 tubes containing a total of approximately 1500 mCi to replace our current Ra-226 tubes. These sources will be purchased from 3M Company in St. Paul, Minnesota (Model 6500, 6501, 6502, and 6503). These Cs-137 tubes will be a 4 inch thick lead storage safe which is located in the current Radiation Therapy Source Storage Room. Frequency of leak Testing will be once every 3 years as stated by 3M under agreement from the NRC.
- c. 2880 curies (2400 curies + 20%) of  $^{137}\text{Cs}$  source in a AECL Gammacell 1000 Model D Blood Irradiator for our Blood Bank.

\* See  
letter re: fee  
for this

The manufacturer will provide on installation a course on use of the Gammacell for all users.

A dose rate survey will be performed around, above, and below it and a report filed with the NRC within 30 days of receipt. It will be wipe tested in accordance with our license conditions.

The Irradiator will be housed in their locked freezer room which is only transiently occupied. Access to it is limited to technical and supervisory staff of the Blood Bank who have keys to the room.

License Fee Information  
on next page other  
11/5/85 etc.

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REG1 LIC30  
20-00742-18 PDR

- B. Change permissible levels of radiation in unrestricted areas (reference: Radioisotope Manual 6.1.1. and 10 CFR 20.105b (1) and (2) )

FROM:

An unrestricted area means any area into which entry is not controlled by the permit holder or the RSO. Such areas must conform to the following rules:

1. If an individual is continually present in the area, he/she cannot receive a dose exceeding 3 mrem in any one hour or more than 100 mrem in any seven consecutive days.
2. After allowance is made for expected occupancy and time variations in dose rate, no individual is likely to receive a dose exceeding 500 mrem in a calendar year.

TO:

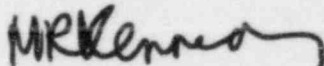
An unrestricted area means any area into which entry is not controlled by the permit holder or the RSO. Such areas must conform to the following rules:

1. If an individual is continually present in the area, he/she cannot receive a dose exceeding 2 mrem in any one hour or more than 150 mrem in any seven consecutive days.
2. After allowance is made for expected occupancy and time variations in dose rate, no individual is likely to receive a dose exceeding 500 mrem in a calendar year.

- C. Change area survey procedures as agreed upon in our letter of 30 October, 1980, from those stated in Appendix I, Regulatory Guide 10.8, Revision 1 October 1980 to the proposed Area Survey procedure (Attachment A) based on the Tables 1 and 2 of Regulatory Guide 8.23 Revision 1 January 1981.

A check for \$120 Amendment fee is enclosed. Please call me at (617) 735-2510 if you have any questions about this request.

Sincerely,



M. Rosemary Kennedy  
Radiation Protection Officer

MRK/mn

PROPOSED

## RADIATION SAFETY PROCEDURE #09

## AREA SURVEY PROCEDURES

1. All elution, preparation, and injection areas will be surveyed daily with an appropriately low-range survey meter and decontaminated if necessary.\*
2. Laboratory areas where only small quantities of radioactive material are used (less than 200 uCi at any one time) will be surveyed monthly.
3. Waste storage areas and all other laboratory areas will be surveyed weekly.
4. The weekly and monthly surveys will consist of:
  - a. A measurement of radiation levels with a survey meter sufficiently sensitive to detect 0.1 mR/hr.
  - b. A series of wipe tests to measure contamination levels. The method for performing wipe tests will be sufficiently sensitive to detect 200 dpm per 100 squared centimeters for the contaminant involved.  
Wipes of elution and preparation areas or other "high background" areas will be removed to a low background area for measurement.
5. A permanent record will be kept of all survey results, including negative results. The record will include:
  - a. Location, date, and identification of equipment used, including the serial number and pertinent counting efficiencies.
  - b. Name of person conducting the survey.
  - c. Drawing of area surveyed, identifying relevant features such as active storage areas, active waste areas, etc.
  - d. Measured exposure rates, keyed to locations on the drawing.
  - e. Detected contamination levels, keyed to locations on the drawing.
  - f. Corrective action taken in the case of contamination or excessive exposure rates, reduced contamination levels or exposure rates after corrective action, and any appropriate comments.

AREA SURVEY PROCEDURES - Page #2

6. Area will be cleaned if the removable contamination level exceeds levels in Table 2 below (Source: Regulatory guide 8.23 revision 1)

Table 2

ACTION LEVELS FOR REMOVABLE SURFACE CONTAMINATION

Type of Surface	Type of Radioactive Material**					
	Alpha Emitters		Beta or X-Ray Emitters		Low-Risk Beta or X-ray Emitters	
	(u Ci/cm <sup>2</sup> )	(dpm/100cm <sup>2</sup> )	(uCi/cm <sup>2</sup> )	(dpm/100cm <sup>2</sup> )	(uCi/cm <sup>2</sup> )	(dpm/100cm <sup>2</sup> )
Unrestricted areas	10 <sup>-7</sup>	22	10 <sup>-6</sup>	220	10 <sup>-5</sup>	2,200
Restricted area	10 <sup>-6</sup>	220	10 <sup>-5</sup>	2,200	10 <sup>-4</sup>	22,000

\*For daily surveys where no abnormal exposures are found, only the date, the identification of the person performing the survey, and the survey results will be recorded.

\*\*Beta- or x-ray emitter values are applicable for all beta- or x-ray emitters other than those considered low risk. Low-risk nuclides include C-14, H-3, S-35, Tc-99m, and others whose beta energies are less than 0.2 Me V maximum, whose gamma-or x-ray emission is less than 0.1 R/h at 1 meter per curie, and whose permissible concentration in air (see 10 CFR Part 20, Appendix B, Table 1) is greater than 10<sup>-6</sup> uCi/ml.

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(OVER)

EEI-2614 William O. Miller Chief  
License Fee Management Branch  
Office of Administration

John E. Glenn, Chief  
Nuclear Materials Section B  
Division of Engineering and  
Technical Programs

Verbal OK  
11/18/85

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED

Applicant/Licensee: Beth Israel Hospital

Application Dated: 11/5/85

Control No.: 104619

License No.: 20-00742-18

2. FEE ATTACHED

Amount: \$ 120.00

Check No.: 010436

3. COMMENTS

02/10  
12/85

Signed Brenda Plotchek

Date 11/8/85

B. LICENSE FEE MANAGEMENT BRANCH

1. Fee Category and Amount: TB (\$120)

2. Correct Fee Paid. Application may be processed for:

Amendment ✓

Renewal \_\_\_\_\_

License \_\_\_\_\_

Signed W Jackson

Date 11/20/85



"SECTION COPY"

Beth Israel Hospital

OPERATING ACCOUNT

010436

INVOICE MO. DAY YR.	INVOICE NUMBER	VENDOR NUMBER	EDOC	VOUCHER REF. NUMBER	INVOICE AMOUNT	DISCOUNT	NET
10 18 85	Applhosplt	00870		2	120.00	0.00	120.00

✓ DUE TO GOVERNMENT REGULATIONS RELATING TO RESEARCH GRANTS, THE GROSS FIGURE APPEARING ABOVE IS ACTUALLY AT NET IF DISCOUNTS ARE APPLICABLE AND EARNED.

DETACH BEFORE DEPOSITING

OPERATING ACCOUNT



**Beth Israel Hospital**

330 Brookline Avenue, Boston, MA 02215 (617) 735-2000

010436

MO.	DAY	YR.	VENDOR #
11	06	85	00870

CHECK #	AMOUNT
10436	\$*****120.00

5-133  
110

PAY TO  
THE  
ORDER  
OF

U.S. NUCLEAR REGULATORY COMMISSION

VOID AFTER 90 DAYS

UNITED STATES TRUST CO.  
BOSTON, MASS.

MUST BE COUNTERSIGNED OVER \$5000.00

*[Signature]*  
AUTHORIZED SIGNATURE

⑈010436⑈ ⑆011001331⑆ 880 1405900⑈