



Waltham Weston  
Hospital &  
Medical Center

August 1, 1985

John E. Glenn, Ph.D, Chief  
Nuclear Materials Safety Division B,  
Division of Radiation Safety and Safeguards  
Nuclear Regulatory Commission, Region I  
631 Park Avenue  
King of Prussia, PA. 19406

License No. 20-13486-02

Reference: Inspection Report No. 030-15295/85-01

Dear Sir:

In response to the Notice of Violation resulting from the inspection conducted on June 12, 1985, the following corrective actions have been taken:

- A. The dosimetry system in use at the Waltham Weston Hospital & Medical Center was calibrated by direct intercomparison with the system in use at Massachusetts General Hospital, which has been calibrated in accordance with 35.23. The calibration was conducted by Peter Biggs, Radiation Physicist from Massachusetts General Hospital on July 24, 1985. Documentation is attached.

A schedule of required calibrations for all equipment at the Waltham Weston Hospital & Medical Center has been established to monitor the dates these calibrations are due on an ongoing basis.

Full compliance has been achieved as of August 1, 1985.

- B. Submission of the radiation survey report following installation of a new source was delayed because leak test results from a firm in Illinois had not been received. Failure to notify your office of the delay was due to an oversight.

All staff have been informed of a 30 day requirement for compliance, and correspondence from the Nuclear Regulatory Commission will be dated according to the required deadline for reply.

Full compliance has been achieved as of August 1, 1985.

Also included is a copy of the certificate of name change from The Waltham Hospital to Waltham Weston Hospital & Medical Center.

Sincerely,

*Sheryl Duncan*  
Director, Cancer Management Program

Attachments: Two

Hope Avenue  
Waltham, MA 02254-9116  
617-647-6000

8509160166 850910  
REG1 LIC30  
20-13486-02 PDR

24<sup>th</sup> July 1985  
PSB

# Intercalibration of Walkman Chamber and Electrometer $\bar{c}$ NBS Standard

(Leftover check from source installation density check)

## 8. Output Calibration:

NBS STANDARD

Farmer S/N 221  
Keithley #13256  
13256

Farmer .6 cc chamber S/N 221 with Keithley 616 electrometer S/N  
Calibration factor =  $C_f = 47.92 \times 10^8$  R/coul; ECF = .988

30.29  
P = 769 mm Hg; T = 23.4°C;  $\phi = .992$

$Q_1^+$  (1 min readings on  $10^{-8}$  coul scale)  $Q_{1/2}^+$  (2 x 0.5 min readings on  $10^{-8}$  coul scale)

(i) 3.002

(i) 2.972

(ii) 2.990

(ii) 2.961

(iii) 2.990

(iii) 2.964

Average =  $2.994 \pm .007$

Average =  $2.967 \pm .007$

Exposure rate,  $\dot{X}$ , =  $(2 \times Q_1^+ - Q_{1/2}^+) \times C_f \times \phi \times ECF / 41.88 \text{ R/min}$  ( $\pm 1\%$ )

Canonical exposure rate,  $\dot{X}_0$ , = 150.43 R/min on

Decayed canonical exposure rate,  $\dot{X}_c$ ,  $\dot{X}_0 \exp(-0.0003601 \times \text{elapsed days}) = 143.19 \text{ R/min}$

$\therefore$  Measured exposure rate/canonical exposure rate =  $\dot{X}/\dot{X}_c = .991$

% Discrepancy =  $100(\frac{\dot{X}}{\dot{X}_c} - 1) = -0.9\%$  ( $\pm 0.5\%$ )

Timer error =  $(Q_{1/2}^+ - Q_1^+) / (2Q_1^+ - Q_{1/2}^+) = -.007 \text{ min}$

8. Output Calibration:

WALTHAM EXPT - SPOT CHECK

Farmer 0 cc chamber S/N 4126 with Keithley 616 electrometer S/N 60498A

Calibration factor =  $C_f =$

$\times 10^8$  R/coul; ECF =

30.29"

CCF \* ECF =  $48.65 \times 10^8 / C$

P = 769 mm Hg; T = 23.4°C;  $\phi = .992$

$Q_1^+$  (1 min readings on  $10^{-8}$  coul scale)  $Q_2^+$  (2 x 0.5 min readings on  $10^{-8}$  coul scale)

(i) 2.94

(i) 2.915

(ii) 2.935

(ii) 2.915

(iii) 2.94

(iii) 2.91

Average =  $2.935 \pm .003$

Average =  $2.913 \pm .003$

Exposure rate,  $\dot{X}$ , =  $(2 * Q_1^+ - Q_2^+) * C_f * \phi * ECF$  143.19/min ( $\pm 0.2\%$ )

Canonical exposure rate,  $\dot{X}_0$ , = 150.43 R/min on 3/9/85

Decayed canonical exposure rate,  $\dot{X}_c$ ,  $\dot{X}_0 \exp(-0.0003601 \times \text{elapsed days}) = 143.19$  R/min

$\therefore$  Measured exposure rate/canonical exposure rate =  $\dot{X}/\dot{X}_c = .999$

% Discrepancy =  $100(\frac{\dot{X}}{\dot{X}_c} - 1) = -0.1\%$  ( $\pm 0.2\%$ )

Timer error =  $(Q_2^+ - Q_1^+) / (2Q_1^+ - Q_2^+) = -.008$  min

Results:

Waltham / Canonical =  $.999 \pm 0.5\%$

NBS / " =  $.991 \pm 0.2\%$

Waltham / NBS =  $1.008 \pm .005$

Conclude that calibration of Waltham equipment is still OK

PSS

APPENDIX A

NOTICE OF VIOLATION

The Waltham Hospital  
Waltham, MA 02254

Docket No. 030-15295  
License No. 20-13486-02

As a result of the inspection conducted on June 12, 1985, and in accordance with the NRC Enforcement Policy (10 CFR 2, Appendix C), the following violations were identified:

- A. 10 CFR 35.23(b) requires that the dosimetry system used to perform the spot-check measurements on a teletherapy unit required by §35.22(b)(4) be calibrated in accordance with §35.23(a) or by direct intercomparison with a system that has been calibrated in accordance with §35.23(a).

Contrary to the above, as of June 12, 1985, the dosimetry system used to perform the spot-check measurements required by §35.22(b)(4) had not been intercompared with a system calibrated in accordance with 10 CFR 35.23.

This is a Severity Level IV violation. (Supplement VI)

- B. Condition 18 of License No. 20-13486-02 requires that, following each installation of a teletherapy source, a radiation survey be performed and a report of the results of the survey be submitted to the Commission within 30 days.

Contrary to the above, as of April 9, 1985, a radiation survey report had not been submitted to the Commission following the installation of a new teletherapy source on March 9, 1985, a period of more than 30 days.

This is a Severity Level V violation. (Supplement VI)

Pursuant to the provisions of 10 CFR 2.201, The Waltham Hospital is hereby required to submit to this office within thirty days of the date of the letter which transmitted this Notice, a written statement or explanation in reply, including: (1) the corrective steps which have been taken and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved. Where good cause is shown, consideration will be given to extending this response time.

The Commonwealth of Massachusetts

MICHAEL JOSEPH CONNOLLY

FEDERAL IDENTIFICATION

Examined

Secretary of State

NO. 04-2105811

ONE ASHBURTON PLACE, BOSTON, MASS. 02108

042626013

ARTICLES OF AMENDMENT

General Laws, Chapter 180, Section 7

This certificate must be submitted to the Secretary of the Commonwealth within sixty days after the date of the vote of members or stockholders adopting the amendment. The fee for filing this certificate is \$10.00 as prescribed by General Laws, Chapter 180, Section 11C(b). Make check payable to the Commonwealth of Massachusetts.

We, Richard A. Rielly  
Regina S. Rockefeller

President ~~XXXXXX~~ and

~~XXXXXX~~ Assistant Clerk of

THE WALTHAM HOSPITAL

(Name of Corporation)

Name  
Approved

located at Hope Avenue, Waltham, Massachusetts 02154

do hereby certify that the following amendment to the articles of organization of the corporation was duly adopted at a meeting held on April 25, 1985, by vote of 165 members

~~XXXXXXXXXXXXXX~~ being at least two thirds of its members legally qualified to vote in meetings of the corporation (or, in the case of a corporation having capital stock, by the holders of at least two thirds of the capital stock having the right to vote thereon):

VOTED:

To ratify and approve the change of the name of this Corporation from "The Waltham Hospital" to "WalthamWeston Hospital & Medical Center" and to amend the Articles of Organization and By-Laws to reflect this change.

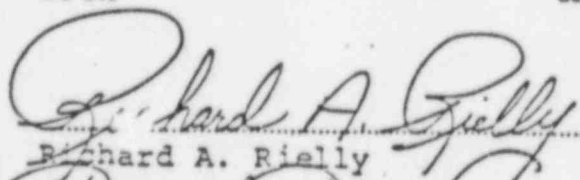
c ☐

P.C.

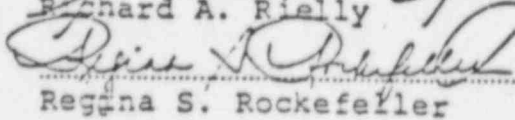
Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on separate 8 1/2 x 11 sheets of paper leaving a left hand margin of at least 1 inch for binding. Additions to more than one article may be continued on a single sheet so long as each article requiring each such addition is clearly indicated.

The foregoing amendment will become effective when these articles of amendment are filed in accordance with Chapter 180, Section 7 of the General Laws unless these articles specify, in accordance with the vote adopting the amendment, a later effective date not more than thirty days after such filing, in which event the amendment will become effective on such later date.

IN WITNESS WHEREOF AND UNDER THE PENALTIES OF PERJURY, we have hereto signed our names this  
25th day of April, in the year 1985

  
Richard A. Rielly

President ~~XXXXXX~~

  
Regina S. Rockefeller

~~XXXXX~~ Assistant Clerk

12994

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SECRETARY OF THE  
COMMONWEALTH

WES APR 25 A 3 51

CORPORATION DIVISION

RECEIVED  
THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF AMENDMENT

(General Laws, Chapter 180, Section 7)

I hereby approve the within articles of amendment  
and, the filing fee in the amount of \$ 10.00  
having been paid, said articles are deemed to have been  
filed with me this 30th  
day of April, 1985.

*Michael Joseph Connolly*  
MICHAEL JOSEPH CONNOLLY  
Secretary of State

TO BE FILLED IN BY CORPORATION  
PHOTO COPY OF AMENDMENT TO BE SENT

TO:  
Regina S. Rockefeller, Esquire  
Hutchins & Wheeler  
One Boston Place  
Boston, Massachusetts 02108  
Telephone (617) 725-1500

Copy Mailed