

St. Joseph Mercy Hospital

U.S. NUCLEAR REG
COMMISSION
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MAR 14 AM 10 55

RECEIVED

February 27, 1980

Vandy L. Miller
Chief, Management Branch
Division of Fuel Cycles and
Materials Safety
Nuclear Regulatory Commission
Washington, D. C. 20555

NRC license # 21-00943-04

| | |
|------------------|-------------|
| RECEIVED BY LFMB | |
| Date | MAR 18 1980 |
| Log | AAAR PG 14 |
| By | Brown |
| Orig. To | |
| Action Compl. | |

Dear Miss Miller:

This is a statement of the radiation survey done on our Cobalt 60 Teletherapy unit, AECL Theratron 780 performed on February 21, 1980. The type of the sealed source is C-146 containing 6,032 curies of Cobalt 60 as of December 18, 1979. The source was installed on December 18, 1979.

The ionization chamber used to calibrate the output of the Cobalt 60 unit was a Victoreen model 550 using a model 550-6 ionization chamber. The 550 was calibrated on February 21, 1980 using a Victoreen R meter with a 100 R chamber as comparison. The Victoreen R meter was calibrated on January 17, 1979. A Victoreen model 490 GM meter was used to do the radiation room surveys. This unit was calibrated on February 18, 1980, using an 85 millicurie Cesium 137 calibration source.

The Cobalt 60 Teletherapy source output was measured at 109.7 Rmm when installed in the therapy head. The output was measured to be 147.5 rads per minute at 80 cm SSD at maximum built up point in a water phantom with a 10x10 cm field. Enclosed is a copy of the survey of the teletherapy head with the source in the off position.

Enclosed is a drawing indicating the limits of beam orientation permitted by mechanical and electrical switches including mercury switches. Also indicated on the drawing are the positions of the teletherapy unit and the maximum radiation levels in each adjacent area to teletherapy facility.

Tests were performed of the room door interlock by opening the door during source in the on position. The source was moved back to the off position when the door was opened. The unit did not restart when the door was closed. The teletherapy off-on indicators were checked and were found to function properly based on visual inspection of the rod attached to the source in the teletherapy head. Measurements were taken to verify that the teletherapy unit's beam stopper functions properly and that it attenuates 99.5% of the primary beam. The teletherapy treatment timing device was found to function properly as compared to timing on electronic stop watch. All

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INSPECTION AND ENFORCEMENT

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Free exempt teletherapy
survey

February 27, 1980

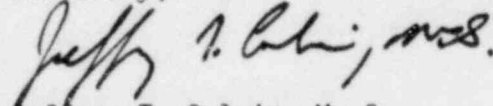
Vandy L. Miller
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emergency off buttons were tested inside and outside of the room and were found to shut the machine off completely when activated.

This letter satisfies the report on teletherapy survey as indicated in the draft licensing guide for teletherapy programs #NUREG-0339.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jeffrey T. Colvin, M.S.", written in a cursive style.

Jeffrey T. Colvin, M. S.
Medical Physicist

JTC/dt

(Source in "OFF" position.
Measurements taken one meter
from source)

Top View - Showing orientation
of Views A through D

Radiation
Level
Position No. (mR/hr)

View A 1 0.4
2 0.2-0.3
3 1.0
4 0.1

View B 5 0.2
6 0.3
7 0.2
8 0.2

View C 9 0.2
10 0.2

View D 11 0.1
12 0.2
13 0.3
14 0.2

Average value 0.275

Maximum value 1.0

Instrument used

Berthold Ra to -F

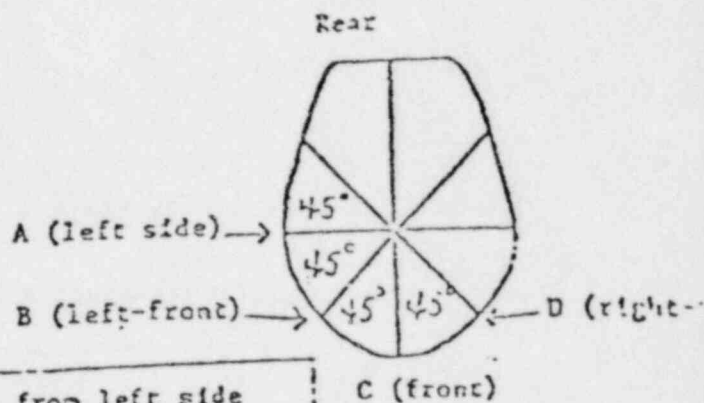
RH/F 94.7 ± 37.

Curies 6032

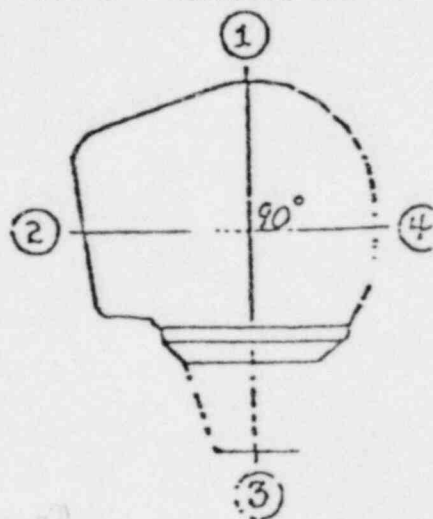
&

Date 12/18/79

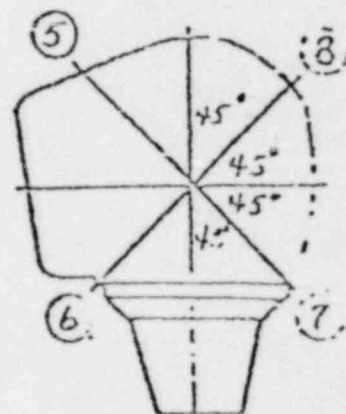
Manufacturer's
name & model #
of teletherapy
unit AECL 780



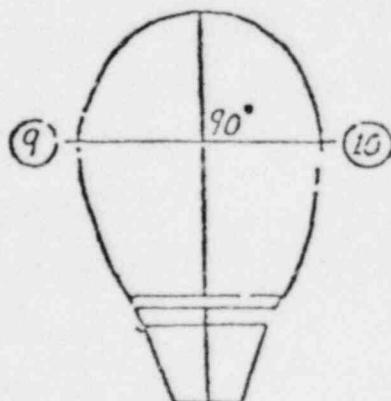
View A - Vertical from left side



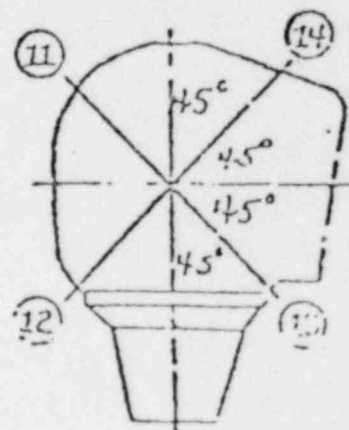
View B - Vertical from left-front



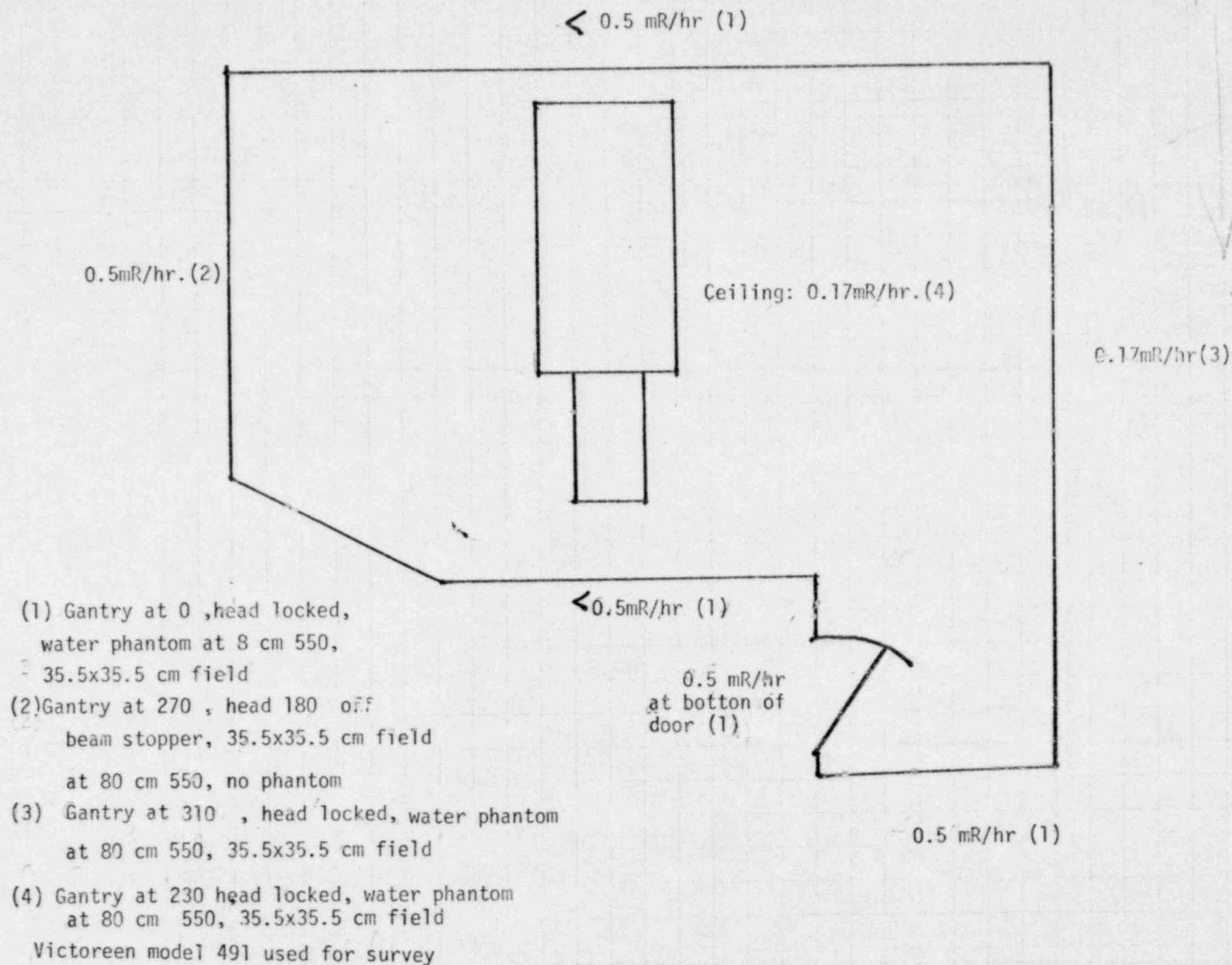
View C - Vertical from front

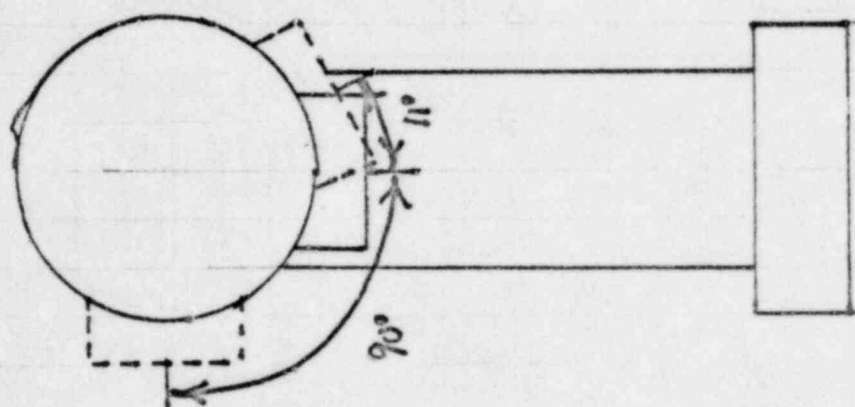


View D - Vertical from right-front



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Head Rotation off
beam stopper