

RADIATION SURVEY REPORT
COBALT-60 TELETHERAPY

FACILITY: St. Joseph Health Center
1400 Tod Avenue
Warren, OH 44485
License # 34-13394-01

PERSON PERFORMING SURVEY: Shirley Z. Jucius, M.S.
Teletherapy Physicist
Radiation Safety Officer

REASON FOR SURVEY: Replacement of Cobalt-60 Teletherapy Source
installed on 9/6/96 by Neutron Products, Inc.

SOURCE IDENTIFICATION: Model: NPI-20-5000W, SN T-1383
Assay: 4610 Ci on 7/26/96

TELETHERAPY UNIT: AECL Theratron 780, SN 262

OUTPUT: Measured at 80.0 cm SAD for 10x10 cm field in
phantom, 9/7/96
= 120.2 cGy/min
= 4616 cGyHM
Measured with Keithley 35617 EBS electrometer
SN 33215 (cal 7/95) and Capintec PR-06G
Farmer chamber SN CIIG.6985 (cal 5/96)

SOURCE HEAD LEAKAGE: Leakage radiation at 1.0 meter from source
in "off" position, measured on 9/6/96 with
Ludlum 14C, SN 84604 (cal 7/96). Leakage
levels in mR/hr are on enclosed survey form.
Average level 0.66 mR/hr, maximum 3.0 mR/hr.

RADIATION SURVEY TO ADJACENT AREAS: Survey on 9/6/96 using Ludlum 14C, SN 84604.
A 25X25X25 cm polystyrene phantom was placed
at 80 cm SSD with a 35x35 cm field set.
Results are enclosed. Maximum level 0.05
mR/hr. All adjacent areas are restricted
areas, calculations show that personnel
exposures are well below the limits specified
in 10 CFR 20.1201.

BEAM ORIENTATION LIMITS: Off Beamstop interlocks were set at +/- 2 deg
normal to the floor. No other orientation
permitted.

SAFETY CHECKS: All of the following items were checked and function properly: Electrical door interlock, all beam condition indicator lights, CCTV, treatment room doors from inside and outside the treatment room, radiation monitor and backup power.

ADDITIONAL INFORMATION: Other items which were checked include: output for the range of field sizes and for the range of distances used for medical use, the coincidence of the radiation field and the field indicated by the light beam, uniformity of the radiation field and its dependence on the orientation of the useful beam, time constancy and linearity, on-off error and accuracy of all distance measuring and beam modification devices. Details are in the full calibration report of 9/7/96.

ENCLOSURES: Teletherapy Head Survey Report
Environmental Radiation Survey
Five Year Inspection Report
Inspection Checklist
Teletherapy Source Certificate

Physicist: Shirley Z Jucius, M.S. Date: Sept 13, 1996
Shirley Z. Jucius, M.S.
Certified Radiological Physicist
Teletherapy Physicist
Radiation Safety Officer

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

Top View - Showing orientation
of Views A through D

Position No.	Radiation Level (mR/hr)
View A 1	0.6
2	0.5
3	1.4
4	3.0

View B 5	0.3
6	0.35
7	0.3
8	0.1

View C 9	0.55
10	0.5

View D 11	0.1
12	0.2
13	0.4
14	0.5

Average value 0.66

Maximum value 3.0

Instrument used SN 84604

Sodium 14C

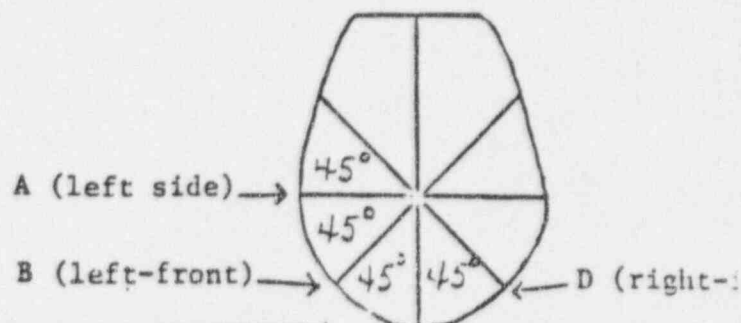
Curies 4610

Date 7-26-96

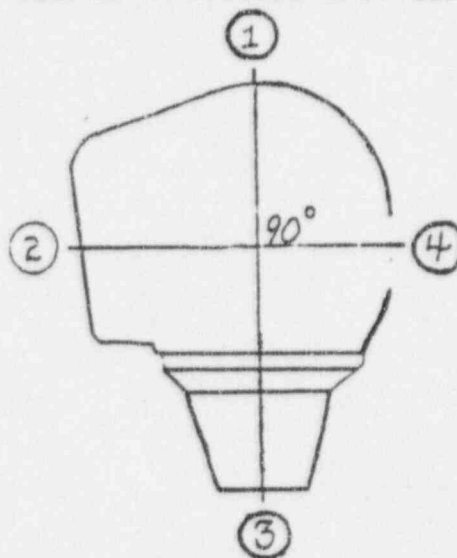
Manufacturer's
name & model #
of teletherapy
unit Institution 780

SN 262

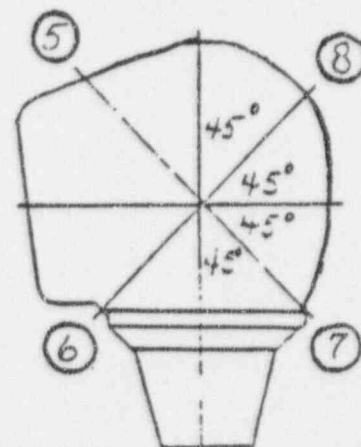
Rear



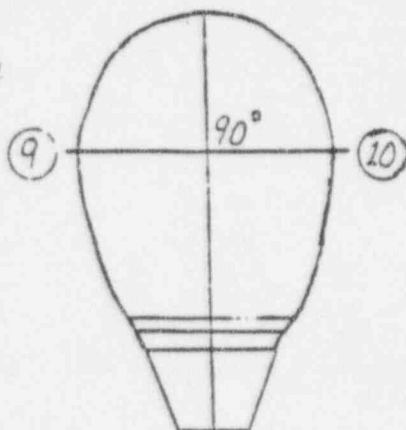
View A - Vertical from left side



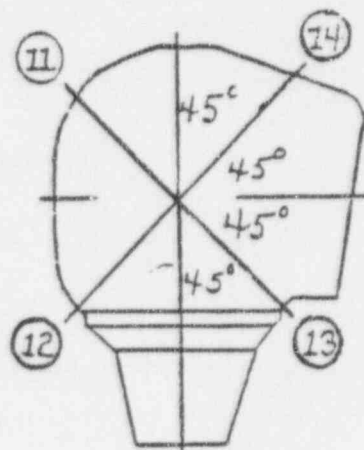
View B - Vertical from left-front

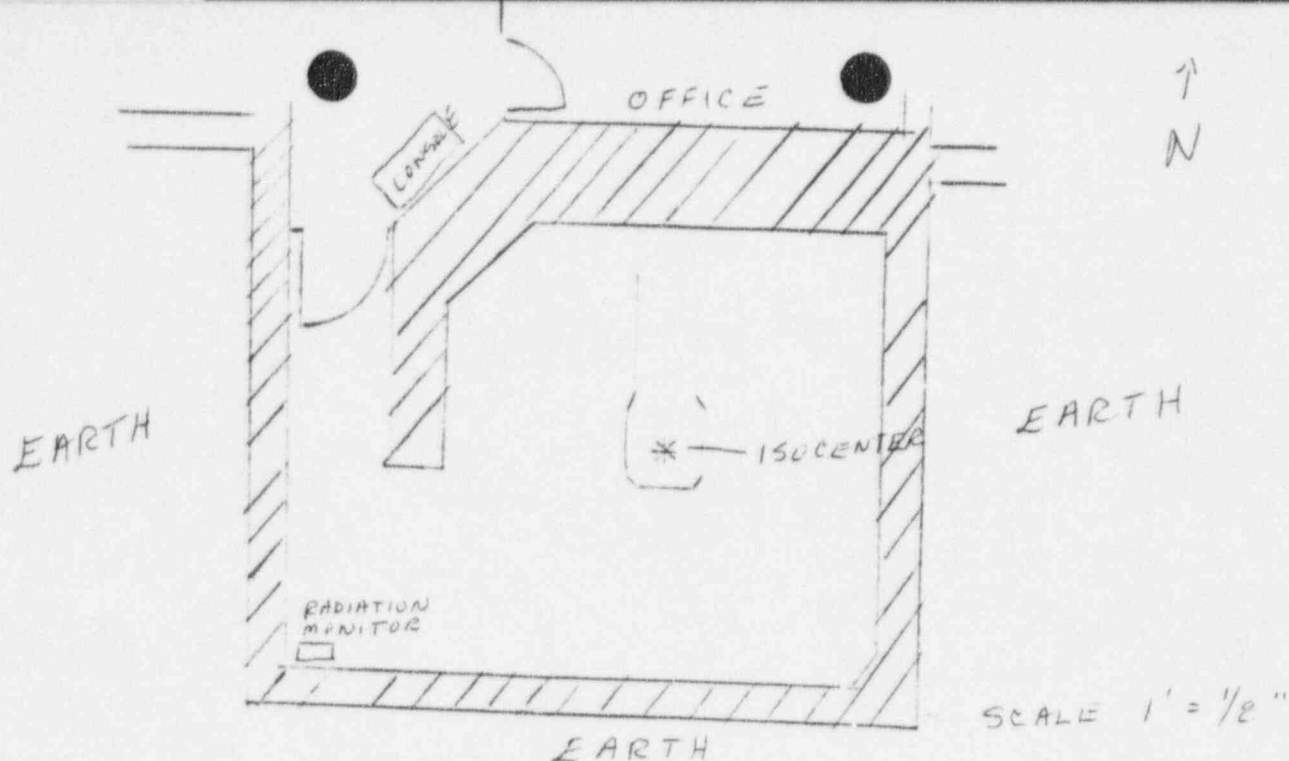


View C - Vertical from front



View D - Vertical from right-front





AECL Theratron 780 SN 262
 NPI-20-5000W, SN T-1383, 4610 Ci on 7/26/96

POSITION	GANTRY POSITION	
	0	90
Door	0.01	0.05
Console	0.01	0.03
Office	0.01	0.01
Roof	0.01	0.04

Survey Meter: Ludlum 14C, SN 84604, calibrated 7/26/96. Battery check and check source verification performed. All readings in units of mR/hr. 25 x 25 x 25 cm phantom in beam at 80 cm SSD. field size 35 x 35 cm.

TELETHERAPY SOURCE TRANSFER

This is to certify that a cobalt-60 source:

Model Number: NPTT-Series
Catalog Number: NPI-20-5000W
Serial Number: T-1383
Containing 4610 curies as of July 26, 1996

and which has been determined by helium pressure test and by wipe test to be leak free, has been installed in a teletherapy unit described as follows:

Manufacturer: Atomic Energy of Canada, Ltd. (AECL)
Model Number: Theratron 780
Serial Number: 262

This source is hereby transferred from Neutron Products' Radioactive Materials License MD-31-025-03 to St. Joseph Riverside Hospital's Radioactive Materials License 34-13394-01.

This will also certify that a cobalt-60 source, described as follows:

Model Number: NPTT-Series
Serial Number: T-1110
Containing 2150 curies as of July 26, 1996

has been determined by a wipe test to be leak free and has been removed from the above teletherapy unit and transferred from St. Joseph Riverside Hospital's Radioactive Materials License 34-13394-01 to Neutron Products' License MD-31-025-03.

We have witnessed the inspection and operation of the above teletherapy unit after completion of the installation by Neutron Products, Inc. and have found the unit to be operating properly and safely.

Shirley Z. Jenkins, M.S.

Date Sept. 6, 1996

Robert S. Johnson
Neutron Products, Inc.

Date 9-06-96

NEUTRON PRODUCTS inc

REPORT OF "FIVE YEAR INSPECTION"

This is to certify that the Atomic Energy of Canada, Ltd. (AECL) teletherapy unit, Model Theratron 780, Serial Number 262, containing a cobalt-60 source, Model Number NPTT-Series, Catalog Number NPI-20-5000W, Serial Number T-1383, and located at St. Joseph Riverside Hospital, 1400 Todd Ave., N.W., Warren, Ohio 44485 was inspected on 9-06-96 by Steve Johnson in accordance with the requirements of Maryland License MD-31-025-03 for a "five year inspection" to provide assurance of the proper function of the source drive mechanism.

Signed Robert S. Johnson Date September 6, 1996

The following parts were replaced:

1- DETENT PIN
1- RIDER RING

The following nonstandard service was performed:

Signed _____ Date _____

CUSTOMER COPY

NEUTRON PRODUCTS Inc

Facility Name: St. Joseph Riverside Hospital, Warren, Ohio

INSPECTION CHECKLIST

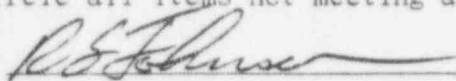
Unit Model: AECL Theratron 780 Serial No.: 262

Operation	Prior to Transfer*	Subsequent Transfer**
✓1. Determine operating history	X	
✓2. Head movement	X	X
✓3. Electrical and mechanical source condition - indicator check	X	X
✓4. Manual source/shutter return	X	X
✓5. Timer	X	X
✓6. Source holder/shutter movement check	X	X
✓7. Pneumatic activating system	X	X
✓8. Mercury shutter system	X	X
✓9. Stand and stretcher	X	X
✓10. Protective source housing, beam-off leakage (confirm measured by medical physicist)	X	X
✓11. Source-surface distance (SSD)		X
✓12. Beam orientation	X	X
✓13. Congruence of light and radiation fields		X
14. Full calibration (confirm performed by the medical physicist)		X
✓15. Facility door interlock	X	X
✓16. Teletherapy units with moving source drawer	X	X
✓17. Teletherapy units with moving shutter blocks	X	X
✓18. Teletherapy units with rotating shutter	X	X
✓19. Indicator light	X	X
20. Emergency shutoffs	X	X
✓21. Collimator	X	X

NOTE: *Circle all items not meeting attached criteria.

**Circle all items not meeting attached criteria after servicing.

Signature



Date

9-06-96

NEUTRON PRODUCTS inc

TELETHERAPY SOURCE CERTIFICATION

This certifies that the cobalt-60 source:

Model Number: NPTT-Series
Catalog Number: NPI-20-5000W
Serial Number: T-1383
Containing 4610 curies as of July 26, 1996

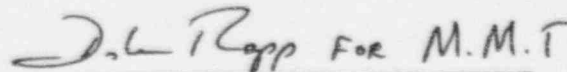
was fabricated by Neutron Products, Inc. in accordance with NPI Specification P-4, per Drawing Number A200057, and was leak tested by the helium pressurization bubble test and found to be leak free. The source was wipe tested and the removable activity was 0.19 and 0.004 microcuries, from the inner and outer encapsulations, respectively. The completed source was wipe tested on 9-3-96. This source meets or exceeds the requirements of the American National Standards Institute (ANSI) classification 77E53524.

Performed and certified by:



Jeffrey W. Corun, Manager
Hot Cell Operations

Reviewed and approved by:



Marvin M. Turkanis
Radiation Safety Officer
Date SEPT. 4. 96

NEUTRON PRODUCTS, INC.

22301 Mt. Ephraim Road, Dickerson, MD 20842
301/349-5001 FAX 301/349-5007

DATE: 9-25-96

CORRESPONDENCE CLARIFICATION SHEET

REVIEWER: John Madera
LICENSEE: ST. ELIZABETH
LICENSE NUMBER: 34-13394-01

The following correspondence has been received from the above licensee and it is not clear what action(s) is(are) required: Please review this correspondence and indicate which of the following applies, and please return to Debbie Hersey, as soon as possible.

☐ Additional Information to Control No. _____.
Process in as a new action, additional information, and no fee required.

☐ Process as new licensing action. Review has already been started on Control No. _____ and this information cannot be combined with current in-house action.

☐ Can be combined with Control No. _____. Review has not been started.

☒ Appears to be a(n) Teletherapy Report for inspector review (survey, etc.) file in appropriate place in file.

☐ Appears to be information for the license file - file it.

☐ Licensee is adding Nuclear Pharmacists.
Amendment is necessary _____. Amendment is not necessary _____.
(Information for license file)

☐ Licensee is adding authorized users.
A check is included _____. No check is included _____.
Amendment is necessary _____. Amendment is not necessary _____.
(Information for the license file)

☐ Other: _____

Thank You For Your Help!!!

02/02/95