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Radiology

October 26, 1992

U.S. Nuclear Regulatory Commission ATTN: Document Control Desk Washington, D.C. 20555

Gentlemen:

In accordance with the reporting requirements of NRCB 92-02, please find enclosed MetroHealth Medical Center's response to this NRC bulletin. Since the bulletin was received at this institution on September 14, 1992, I believe that the institution's response is submitted in a timely manner. If there are any questions about the response, feel free to contact me directly.

For MetroHealth Medical Center,

Stanley E. Skubic, Ph.D. Chairman, Radiation Safety Committee

cc: S. Hahn, M.D., Chief of Radiation Oncology E. Bellon, M.D., Director of Radiology J. Stelma, Vice President of Management and Information Services

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MetroHealth Medical Center 2500 MetroHealth Drive Cleveland, OH 44109 NRC Teletherapy License No. 34-03749-07

Response to NRCB 92-02

1. Unit: AECL (Theratronics) Theratron 80

2. Date of Manufacture:

Unknown. (Unit has been installed at MetroHealth Medical Center since December, 1965.)

3. Serial Number 44

4. Present use of unit:

The unit is currently in routine clinical use, with a patient workload of 15 to 25 patients per day. The Theratron 80 (T-80) is one of two teletherapy units at our facility. The other unit is a dual energy linear accelerator which is used to treat 45 to 50 patients per day. It is in full clinical use and would be unable to accommodate any of the T-80 patients in the event that the T-80 was removed from clinical service. Removing the T-80 from service would result in patient needs not being met.

In response to the various safety notices from Theratronics International concerning older model Theratron 80 teletherapy units, MetroHealth Medical Center has procured a much newer, but used, Theratron 780 teletherapy unit from an area institution that terminated its teletherapy services. Consultation with Theratronics International revealed the Theratron 780 requires a larger treatment room than the older Theratron 80 and will not fit into the current vault used to house the Theratron 80.

Radiation Oncology has recently moved into a new site in the Ambulatory Plaza (a newly completed outpatient facility adjacent to the hospital). This facility will be the future site for the Theratron 780. The Ambulatory Plaza facility has a vault for the linear accelerator and space for a vault for the Co-60 unit. It is anticipated that construction of the Co-60 vault will commence in the summer of 1993, with intended occupancy in January of 1994 and not later than June of 1994. At the time of the move to the vault in the Ambulatory Plaza facility, the Theratron 80 will be retired from service and the Theratron 780 installed for clinical treatments. Continued use of the Theratron 80 is only on an interim basis until completion of the site and installation of the Theratron 780. MetroHealth Medical Center is committed to performing dye penetrant and other inspections per Theratronics revised Survey and Inspection Procedure I 1024 G091G10 REV C. These inspections have been performed on the unit for a number of years and will continue on a semiannual basis. The tests on our unit were initiated as a preventative measure before Theratronics formally expressed concern. In the event that st ess cracking is discovered, patient treatments on the unit will immediately cease and the unit will be retired.

 Service record summary for the past 5 years (beginning in July, 1987):

The service record for this unit is summarized in the attached Appendix. Our service records for the years 1987, 1988, and 1989 do not contain the detailed information requested by NRCB 92-02. The listing contained in the Appendix for these years covers only those service calls where the requested information is available. The desired detailed information may be obtained from the service repair worksheets. These are on file with Theratronics, International and may be obtained from them. The downtime value shown for each repair visit is an estimate, since down time is not routinely recorded in our records.

- The Theratron 80 teletherapy unit is NOT covered by a service contract.
- MetroHealth Medical Center is committed to assure the continued safe clinical use of its Theratron 80 teletherapy unit. Details on how we meet this commitment are described below.

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a. Inspections

The unit will be inspected on a semiannual basis by Theratronics International service personnel. The inspection will include performing the dye penetrant test to check for stress cracking. At time of this inspection, the personnel will also perform a check of overall system integrity.

Operational checks will be performed by technologists and medical physicists as part of our ongoing quality assurance program. The checks include tests of field size, accuracy of optical distance indicator, laser alignment, x-ray field -- light field congruence, output, and timer transit error.

b. Service

Service will be performed on an "as-required" basis by Theratronics International service personnel. Service meets all manufacturer's recommendations for service.

c. Parts replacement

Replacement parts will be obtained from the manufacturer, as they are at present. Since the parts come from the manufacturer, compliance with manufacturer's recommendations are assured.

d. Service, source exchange, and 5-year inspections

Our Theratron 80 teletherapy unit received a 5 year inspection in August, 1992. The inspection was performed by Theratronics International service personnel. Since the unit will be retired from service before it requires a 5 year inspection that is not part of a source exchange, there is no need for any additional 5 year inspections.

The unit is due for a source exchange. It is this institution's hope that the source exchange will be performed by Theratronics International. In the event that this is not possible, arrangements have been made with Neutron Products, Inc. to perform a source exchange.

Note that the unit will be retired from service within approximately 2 years Therefore arrangements for source exchanges and 5 year inspections are cally needed for this period.

e. In the event that there are any needed repairs or essential inspections for which necessary resources are unavailable or delayed, the Theratron 80 unit will be removed from clinical service until such time that the necessary repairs and or inspections have been accomplished.

Appendix

Service Record Summary Theratronics T-80, SN 44

1.	Service Date: a. Problem: b. Downtime: c. Farts repla	Sept. 23, 1992 replace arm rotation drivebelt, couch lateral movement needs repair, realign optical backpointer, repair table locks, adjust ODI none sed: nylon bearing (4), arm rotation drive belt, neon lamp
2.	Service Date: a. Problem: b. Downtime: c. Parts repla	Sept. 23, 1992 perform semiannual dy penetrant test and arm survey 4 hours aced: none
3.	Service Date: a. Problem: b. Downtime: c. Parts repla	<pre>Aug. 15, 1992 5 year inspection and service (scheduled visit, not in response to a known problem) none aced: lamps (9 total), contactors (2), contact block (2), detente pin, solenoid valves (2), brush (2), negator spring (3), air cylinder kit (2), pressure switch, rider rings (2), air regulator, check valve, applicator, hose (3)</pre>
4.	Servic Date: a. Problem: b. Downtime: c. Parts repla	July 24, 1992 sluggish table lateral movement sc.ew none aced: none
5.	Service Date: a. Problem: b. Downtime: c. Parts repla	Feb. 6, 1992 perform dye penetrant test and arm survey (scheduled visit) 4 hours aced: none
6.	Service Date: a. Problem: b. Downtime: c. Parts repla	Jan. 8,1992 no clockwise gantry rotation none aced: none
7.	Service Date: a. Problem: b. Downtime: c. Parts repla	Nov. 18, 1991 semiannual preventative maintenance none aced: none

- 8 .. Service Date: Aug. 27, 1991

 - a. Problem: no couch rotationb. Downtime: estimated to be minimal

c. Parts replaced: brake kit, solenoid

- Service Date: April 22, 1991 9. sticking couch lock, flickering field light, a. Problem: foot interlock for gantry rotation had intermittent problem estimated to be minimal
 - b. Downtime:
 - c. Parts replaced: none
- 10. Service Date: Feb. 4, 1991 (problem occurred in Dec., 1990) gantry "spontaneously rotated", cracking the a. Problem: couch stretcher top and damaging the ODI (see letter addressed to USNRC Region III, dated Feb. 5, 1992, for details)
 - 28 clinical days (unit was partially Downtime: b. operational for some of that period)
 - c. Parts replaced: stretcher top replaced and gantry rotation "deadman" footswitch added to unit
- Service Date: 11. Nov. 13, 1990 a. Problem: rebuild air cylinder, adjust longitudinal lock on stretcher, adjust lasers, check ODI b. Downtime: none
 - c. Parts replaced: #2k002208 kit
- Service Date: Nov. 4 to 7, 1990 12. a. Problem: defective hand control and pushbutton on timer b. Downtime: estimated to be minimal c. Parts replaced: hand control
- Service Date: Oct. 8, 1990 13. source intermittently sounded like it was not a. Problem: coming out all the way b. Downtime: none
 - c. Parts replaced: none

Service Date: Sept. 20, 1990 14. a. Problem: optical backpointer out, longitudinal stretcher lock sticks, tens digit on timer was not functional b. Downtime: estimated to be minimal

- c. Parts replaced: backpointer switch
- Service Date: July 19, 1990 15.
 - a. Problem: no beam on
 - b. Downtime: 1 day
 - c. Parts replaced: none

16. Service Date: April 24, 1990 bad cord for collimator power, couch vertical a. Problem: motion is squeaky b. Downtime: 1/2 day

c. Parts replaced: collimator power cord

- Service Date: Feb. 14, 1990 17. a. Problem: no collimator jaw movement b. Downtime: 1 day c. Parts replaced: none
- Service Date: Jan. 20, 1990 18. a. Problem: couch moving poorly in vertical direction b. Downtime: none c. Parts replaced: couch drive belt, bulb
- Service Date: Dec. 13, 1989 19. a. Problem: reset switch on timer broken b. Downtime: one day c. Parts replaced: cap, switch, and bulb
- Service Date: Nov. 10 & 11, 1989 20. a. Problem: stuck trimmer bars b. Downtime: .5 day c. Parts replaced: trimmer bar plates and springs (4 of each)
- Service Date: Feb. 3. 1 9 21. a. Problem: ODI falled b. Downtime: estimated to be minimal c. Parts replaced: ODI assembly
- Service Date: 22. Jan. 4, 1989 a. Problem: couch footlock failed, optical backpointer failed b. Downtime: estimated to be minimal

 - c. Parts replaced: none
- 23. Service Date: Nov. 16, 1988 collimator ' s not closing properly, field a. Problem: light is d' b. Downtime: estimated _ be minimal c. Parts replaced: conductive tape (2), bolts (8)
- 24. Service Date: April 26, 1988
 - a. Problem: replaced analogue timer with digital timer
 - b. Downtime: one day
 - c. Parts replaced: dual digital timer added (old timer left in place, but nonfunctional)

25.	Ser	vice Date:	Sept. 16, 1987	
	а.	Problem:	nonfunctional longitudinal and rotational	L
			locks on couch table	
	b.	Downtime:	estimated to be minimal	
	с.	Parts repl	aced: rebuild kit	