



Ocean Medical Center
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REGION 1

United States
Nuclear Regulatory Commission
Div. of Nuclear Materials Safety,
475 Allendale Road
King Of Prussia, PA 19406-1415

March 28, 2008

License No: 29 20690-01

Docket No. 03020725 / 208001

Enclosed: Updated Varian HDR Timer Accuracy, Linearity Procedure sheet

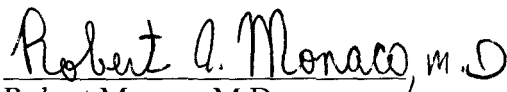
To Whom It May Concern:

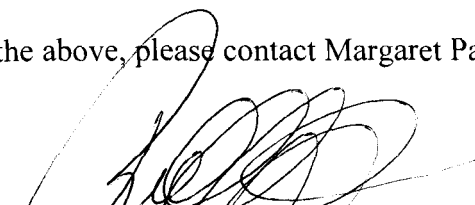
During an inspection conducted by Michelle R. Simmons, of the NRC Division of Nuclear Materials Safety, on March 20, 2008, one issue was identified. Ms. Simmons brought to our attention, a deficiency related to the Timer Linearity Procedure. While inspecting our High Dose Delivery Programme (Varian High Dose After loader) she noted that we currently perform this test for 5 seconds to 35 seconds. Ms. Simmons indicated to us, that this test should be performed for typical patient treatment duration. After consulting 10 patient charts it was determined that the maximum time needed to deliver a treatment course is no more then 850 seconds.

Correction action has been taken.

Timer Linearity test will be performed for 900 seconds to 980 seconds. We have attached an updated test page with appropriate measured data. We will include this page in our Source Change Quality Assurance Protocol.

If you should have any questions pertaining to the above, please contact Margaret Payton at 732-836-4206.


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Ocean Medical Center


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NMSS/RGNI MATERIALS-004

OCEAN MEDICAL CENTER
Varian HDR Timer Accuracy, Linearity Procedure

Date: 3/24/08 Name: Sharad Saraf Signature: S. K. Saraf

Timer Accuracy, Linearity, Reproducibility, Error

Varian HDR Model #: VariSource 200 Serial #: VS-321 Source Model #: VS-2000 Serial #: 02-01-0214-001-022208-
 Standard Imaging HDR-1000 Plus chamber S/N A023052 ($4.696 \times 10^{-4} \text{ Gy m}^2 \text{ h}^{-1} \text{ nA}^{-1}$; calibrated: 10/3/06) 10774-33
 Standard imaging electrometer Model CDX-2000B S/N J023104 (1.000 nA/Reading; calibrated: 10/3/06)
 Activity conversion factor $248.1 \text{ Ci Gy}^{-1} \text{ m}^2 \text{ h}$
 Run plastic tipped 100 cm catheter into bottom of chamber well
 Settings: Applicator length 100 cm, Position 95.5 cm.

Time Set	Charge (nC)	Net Time*	Net Reading (nC)**	Current (nA)	Ratio
900.0 sec	67699.2	0.0 sec			
920.0 sec	69213.4	20.0 sec	1514.2	75.71	1.0028
940.0 sec	70719.3	40.0 sec	3020.0	75.50	0.99947
960.0 sec	72231.8	60.0 sec	4532.6	75.54	1.000
980.0 sec	73742.9	80.0 sec	6043.7	75.55	1.0001

* Net Time = Time set - 900.0 seconds

** Net Reading = Charge at a time set - Charge at 900.0 sec Time set

Time Set	Charge (nC)				
900.0 sec w/4 interruptions (A)	67718.2				
900.0 sec w/o interruptions (B)	67699.1	67692.8	67695.2	Mean = 67695.7	Max/Min = 1.009
Timer error = (A-B)/(5B-A)	0.0000830				
Measured time (w/ stopwatch) for 900.0 sec run = 903.8 sec.					
error (diff/900.0) = 0.0042 (<2%)					

Applicator Inspection

- ☒ All transfer tubes and quick connects inspected
- ☒ Vaginal cylinder applicators and transfer tubes inspected
- ☒ Ring and tandem applicators and transfer tubes inspected
- ☒ Bronchial catheters inspected