



March 27, 2008

Ms. Michelle R. Simmons
Health Physicist
Div. of Nuclear Materials Safety, NRC
475 Allendale Road
King of Prussia, PA 19406

29-20670-01
0302025 / 2008001

Dear Ms. Simmons,

On your NRC visit to Radiation Oncology Department on March 20, 2008, we Submit the following response.
Inspecting our High Dose Delivery Programme (Varian High Dose Afterloader), There was one deficiency related to the Timer Linearity Procedure. Currently We perform this test for 5 seconds to 35 seconds, where as you pointed out it should be performed for a typical patient treatment duration. After consulting 10 patients charts It was determined that the maximum time needed to deliver a treatment course is no more than 850 seconds.

Therefore a corrective action has been taken.
In future the Timer Linearity test will be performed for 900 seconds to 980 seconds.

I have attached with this letter the corrected test page with appropriate measured data.

This new test page will now be part of our Source Change Quality Assurance Protocol.

Please do not hesitate to call us if we can be of further assistance.

Thank you very much for your cooperation.

Sincerely Yours
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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