

RADIOLOGY NUCLEAR CONSULTANTS, P.A.  
RADIATION - ONCOLOGY CLINIC  
FREEHOLD PLAZA  
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FREEHOLD, N. J. 07728

PHONE 201 - 780-2030

July 11, 1980

United States  
Nuclear Regulatory Comm\_s\_sion  
Region I  
631 Park Avenue  
King of Prussia, Pennsylvania, 19406

Gentlemen:

This letter is to inform you about an incident of failure of a Cobalt machine.

On Friday July 11, 1980 at approximately 5:30p.m. I tested the timer of the Cobalt machine and turned the unit on 3 times. At the 3rd time the unit did not turn fully off. Both, the green light and the red light remained activated.

I opened the door and made measurements using the Victoreen Minimonitor and noticed increased radiation in the room approximately 20 mr/hr near the door.

I closed the door and equipped myself with 2 lead aprons and my pocket ionization chamber. Then I entered the room and tried to bring the Cobalt source machanically into the off position. However I could only move the source for 2 inches forth and back but not further. Both, the red and green lights remained activated. Thereafter I closed immediately the shutters to the smallest opening 2x2 and left the room.

I assembled several lead bricks and kept them in readiness. I equipped myself with 2 lead aprons and the minimonitor as well as an ionization chamber which I recharged to zero position.

I re-entered the room and I attempted once more to bring the source into the off position, however I could not do so without using what appeared to me undue force.

Immediately thereafter I put several lead bricks on the treatment stretcher and brought the machine into a horizontal position so that the lead bricks covered the small collimator opening 2x2 cm. The radiation level around the collimator remained approximately at 300 to 500 mr/hr.

I locked the Cobalt room and took the key with me.

Thereafter I went to Red Bank in order to pick up additional 10 lead bricks and a steel table, to be used as further protection in the Cobalt room in Freehold.

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Diplomate  
of the  
American Board of Radiology

July 11, 1980

I re-entered the Cobalt room in Freehold and put a total of 18 lead bricks around the collimator of the Cobalt unit. The bricks were positioned on the treatment stretcher as well as on the steel table.

I took a photograph of the arrangement of the lead bricks.

After the lead bricks were put into position there was a radiation level of approximately 5 or 10 mr/hr around the machine.

My ionization chamber indicated a total exposure of 72 mr.

After the radiation hazard was taken care of I again locked the Cobalt room and kept the key with me.

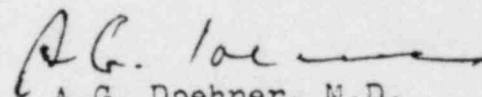
On Monday morning July 14, 1980 I phoned Advanced Medical Systems in Cleveland, Ohio to take care of the problem. On July 14, 1980 at 12:00 noon a worker from Picker company arrived and was able to reduce the Cobalt source into the off position.

When the machine was checked out it was noted that a pin manufactured from hardened steel had broken and had resulted in the inability of the motor of the Cobalt machine to bring the source back into the off position.

After a new steel pin was inserted the machine was checked out and functioned properly as before.

At this occasion the representative of Picker checked out the collimator. The collimator was found in proper order and alignment.

Sincerely yours,

  
A.G. Doehner, M.D.

AGD/dk