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Materials Engineering & Testing
a Rockwood Company

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JUN 26 2007

DNMS

June 25, 2007

Vivian Campbell
U.S. Nuclear Regulatory Commission
Nuclear Materials Inspection Branch
611 Ryan Plaza Drive, STE 400
Arlington, TX 76011-4005

License No: 42-27593-01
Docket No: 030-34780

Dear Ms. Campbell:

In response to your letter to me dated June 01, 2007, please allow me to provide the additional information you requested relative to the violation received at our VA Beach facility.

Violation of 10 CFR 20.1301 (a) (1) & 10 CFR 20.1302 (b) (1):

I have enclosed the letter from my RSO at the VA Beach facility, describing the conditions and calculations in relation to requirements in Part 20 for Dose Limits to the General Public.

I trust this information is sufficient for your review. Please contact me if you should require any further clarification.

Regards,

Lloyd A. Gray, Director
Radiation Safety & Environmental Compliance
Acuren Inspection, Inc.
lgray@acuren.com

: Enclosures

Cc: Norman Boggs - Acuren VA Beach RSO
Gary Uptain - Acuren Southeast Region Compliance Manager
Regional Administrator for Region IV



June 25, 2007

To: Lloyd Gray
Corporate Radiation Safety Officer
Acuren Inspection, Inc.

From: Norman C. Boggs, Jr.
Acuren Inspection
Va. Beach, VA Office

RE: Protection to the Public Calculations

Lloyd,

The following are the calculations for the protection to the public numbers here for the office. The calculations are in line with the request of the NRC pertaining to calculations from the years 2002 through 2006, when we had just 2 cameras stored at our facility. The calculations will be based on both office personnel and extraneous personnel (i.e., delivery persons, mailpersons, etc.).

Given Information

- 1) The most likely of the public to receive the highest dose is a delivery person who may make several deliveries per week.
- 2) Delivery person not allowed in the vault area
- 3) Average time for a delivery is 10 minutes with maximum number of deliveries per week by the same person is assumed to be 2.
- 4) Exposure to all other members of the public would be incidental.

Based on Given Information

- 1) Total time a delivery person would be exposed would be 26 hours per year based on 52 weeks per year.
- 2) The closest a delivery person can get to the storage area is 5 feet away from 6 inch thick solid concrete blocks providing shielding.
- 3) The most number of camera stored in the vault during the time period in question was two devices with Ir 192 and a transport index of less than 1 at 3 feet

Calculations

Calculation for delivery person based on 2 cameras in storage:

$$\frac{2\text{mr/hr} \times 3' \times 3' \times .125}{5' \times 5'} = \frac{2.25}{25} = .09\text{mr/hr} \times 26 \text{ hrs.} = 2.34 \text{ mr per year}$$

2 mr/hr – Transport index reading for two devices (1 mr/hr for each camera)

3' – Original distance for transport index reading (for each camera)

.125 – Shielding of concrete blocks

5' – Closest access to storage box for noncertified personnel (for each camera)

Calculations for office personnel (receptionist) based on 2 cameras in storage:

$$\frac{2 \text{ mr/hr} \times 3' \times 3' \times .125}{25' \times 25'} = \frac{2.25}{625} = .0036 \text{ mr/hr} \times 2080 \text{ hours} = 7.5 \text{ mr per year}$$

2 mr/hr – Transport index reading for two devices (1 mr/hr for each camera)

3' – Original distance for transport index reading (for each camera)

.125 – Shielding of concrete blocks

25' – Closest access to storage box for office personnel (for each camera)

Conclusions

Based on calculations, the total dose rates for year in the area of protection of the public are substantially less than the limit of 100 mr/yr. To receive the required 100 mr/yr, a dose rate of approximately 3.85 mr *per hour* would be required. The yearly dose rate calculated out is far less. Additionally, area monitor badges placed at strategic locations in the office building continually to be reported with no measurable readings. Subsequently, no member of the public (delivery person or office personnel) is likely to receive the maximum dose allowed to members of the general public.

Any questions on this matter feel free to contact me at 757-450-0415.

Yours truly,

Norman C. Boggs, Jr.
Radiation Safety Officer
Acuren Inspection, Inc.
Va. Beach Division