



## Capital Health System

*Outstanding Care. Extremely Close.*

March 22, 2007

J-9

United States Nuclear Regulatory Commission  
Region I  
Department of Medical Licensing  
475 Allendale Road  
King of Prussia, PA. 19407

**Attention: Ms. Tara Weidner**  
**Fax: 610-337-5269**

03002441

**Re: Byproduct Material License No. 29-01698-02**

Dear Ms. Weidner,

As per your voice mail conversation with our consulting Medical Physicist, Ms. Janet Bryant, Capital Health System at Mercer wishes to re-submit our amendment request regarding the relocation of our PET scanner (see attached letter dated December 18, 2006). Please note that the scanner gantry contains a 20 mCi Cs-137 rod source for attenuation correction (Isotope Product Lab model HEG-137- 20 mCi source, total possession limit 40 mCi), which is listed on our NRC license.

Should you have any questions, please feel free to contact our Radiation Safety Officer, Ms. Janet Bryant, at 609-394-4000, extension 1998, or through her office offsite at 908-788-9440 ext. 40.

Sincerely,

Alireza Maghazehe  
Chief Executive Officer

CC. Martin Healey, M.Ed.  
Janet Bryant, MS, DABR.

140306

**NMSS/RGN1 MATERIALS-002**

☐ **Fuld Campus** ■ 750 Brunswick Avenue ■ Trenton, New Jersey 08638 ■ (609) 394-6000

☐ **Mercer Campus** ■ 446 Bellevue Avenue ■ Trenton, New Jersey 08618 ■ (609) 394-4000



## Capital Health System

*Outstanding Care. Extremely Close.*

December 18, 2006

United States Nuclear Regulatory Commission  
Region I  
Department of Medical Licensing  
475 Allendale Road  
King of Prussia, PA. 19407

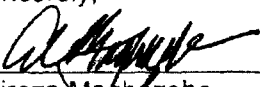
**Re: Byproduct Material License No. 29-01698-02**

To Whom It May Concern:,

Capital Health System at Mercer wishes to inform you that we are relocating our PET scanner which is currently located in our Nuclear Medicine Department, to an area along the same corridor within our Radiology Department. This will become an extension of our Nuclear Medicine Department. The scanner will be located in our old Co-67 teletherapy room, which contains 1 foot of concrete on all 3 sides, and 1/16" of lead will be placed in the control room. The injection room will be located across the hallway and will be shielded with 1/4" lead bordering the toilet, 1/16" bordering the janitor's closet. To the right side is the CT computer room, which contains 1/16" lead. We are attaching the shielding report performed by our Medical Physicist and Radiation Safety Officer, as well as the diagram of both rooms.

We will perform a final survey and wipe test of our old PET scanner room and all injection rooms prior to releasing the area as an unrestricted area. Should you have any questions, please feel free to contact our Radiation Safety Officer, Ms. Janet Bryant, at 609-394-4000, extension 1998, or through her office offsite at 908-788-9440 ext. 40

Sincerely,

  
Alireza Maghazehe  
Chief Executive Officer

CC. Martin Healey, M.Ed.  
Janet Bryant, MS, DABR.

**BIO MED ASSOCIATES, INC.**  
4 MAIN STREET SUITE 100 NEW JERSEY 08822

908-788-9440  
908-788-6757

**Capital Health System- Mercer  
PET Center Shielding Survey  
January 4, 2007**

**Assumptions:** Linear attenuation co-efficient for F-18: 0.405 cm Pb  
U for F-18: 1.71 cm<sup>-1</sup>

**Formula:**  $I(f) = I(o)e^{-ux}$

$$X = \frac{\ln I(f)}{I(o)}$$

$$\frac{0.693}{U}$$

where x is the calculated thickness of lead based on the measurement 1 foot behind the barrier, which is I (f) compared with the measurement of F-18 at 1 foot with no lead interposed, which is I (o) and  $u = \frac{0.693}{0.405 \text{ cm}} = 1.71 \text{ cm}$

**Instrumentation:** Victoreen 451 B ionization survey meter calibrated 12/19/06.  
Activity of F-18: 48.7 mCi at 10:15, measured dose rate: 210 mR/hr  
Final activity: 28.9 mCi at 11:35, measured dose rate: 136 mR/hr

**Results:** All barriers meet or exceed minimum lead specifications.

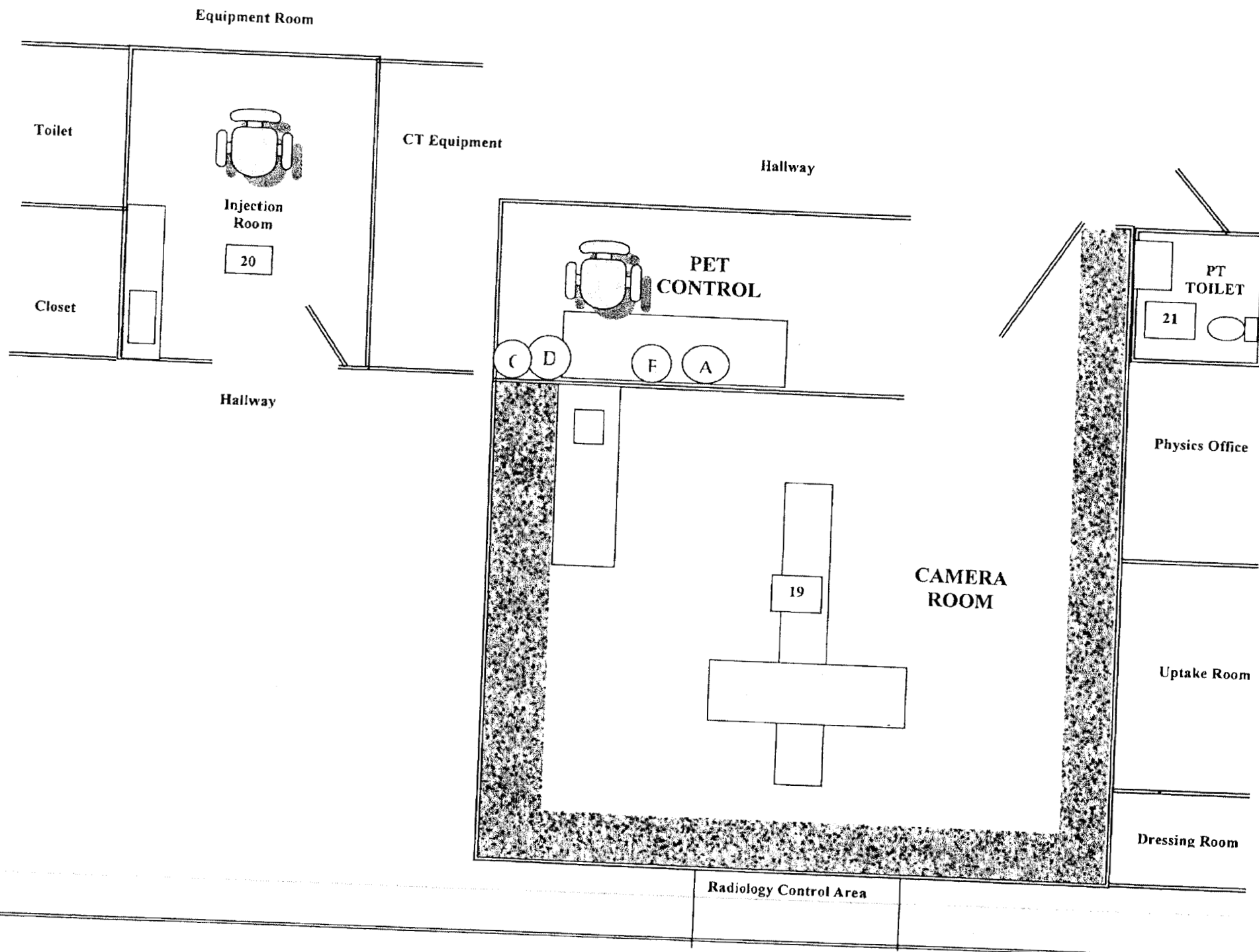
**Survey Performed By:**

*Janet Bryant*  
Janet Bryant, MS/DABR  
Certified Medical Physicist

**Capital Health System- Mercer  
PET Center Shielding Survey  
January 4, 2007**

Source-PET Scanner	Reading @ 1 ft	Activity-Time	Barrier @ 1 ft	Pb Equivalent Required	Pb Equivalent Measured
North: Control Room Door	210 mR/hr	48.7 mCi 10:15	66 mR/hr	0.16 cm = 1/16"	0.67 cm = ¼"
South: Radiographic Rm 10 & Image Processing	210 mR/hr	48.7 mCi 10:15	0.01 mR/hr	No lead required due to existing 12" concrete wall	12" concrete
East: Physicist Office	210 mR/hr	48.7 mCi 10:15	0.01 mR/hr	No lead required due to existing 12" concrete wall	12" concrete
East: Uptake Room	210 mR/hr	48.7 mCi 10:15	0.11 mR/hr	No lead required due to existing 12" concrete wall	12" concrete
East: Patient Dressing	210 mR/hr	48.7 mCi 10:15	0.01 mR/hr	No lead required due to existing 12" concrete wall	12" concrete
West: Corridor	210 mR/hr	48.7 mCi 10:15	0.01 mR/hr	No lead required due to existing 12" concrete wall	12" concrete
West: Fluoro Rm	210 mR/hr	48.7 mCi 10:15	0.01 mR/hr	No lead required due to existing 12" concrete wall	12" concrete
Above: Medical Records	210 mR/hr	48.7 mCi 10:15	0.01 mR/hr	No lead required due to existing 14" concrete floor	14" concrete
Below: Grade	N/A	N/A	N/A	No lead required due to existing 14" concrete floor	N/A
Source: Pt. Injection				Pb Equivalent Required	Pb Equivalent Measured
North: Dead Space	136 mR/hr	28.9 mCi 11:35	N/A	No lead required	N/A
South: Corridor (to include door)	136 mR/hr	28.9 mCi 11:35	51 mR/hr	No lead required	0.58 cm = ¼"
East: CT Scanner	136 mR/hr	28.9 mCi 11:35	1.4 mR/hr	No lead required	2.6 cm = 1"
West: Pt. Toilet	136 mR/hr	28.9 mCi 11:35	9.1 mR/hr	0.6 cm = 1/4"	1.58 cm = ½"
West: Janitor Closet	136 mR/hr	28.9 mCi 11:35	16.1 mR/hr	0.19 cm = 1/16"	1.21 cm = ½"
Above: Medical Records	136 mR/hr	28.9 mCi 11:35	0.02 mR/hr	No lead required due to existing 14" concrete floor	14" Concrete
Below: Grade	N/A	28.9 mCi 11:35	N/A	No lead required due to existing 14" concrete floor	N/A

Source-PET Scanner	Reading @ 1 ft	Activity-Time	Barrier @ 1 ft	Pb Equivalent Required	Pb Equivalent Measured
A. North; Control Room Glass Window	169 mR/hr	35.5 mCi 11:05	36 mR/hr	0.16 cm = 1/16"	0.90 cm = 1/3"
B. Wall below window	169 mR/hr	35.5 mCi 11:05	32 mR/hr	0.16 cm = 1/16"	0.97 cm = 1/3"
C. Wall 13" adjacent to window	169 mR/hr	35.5 mCi 11:05	43 mR/hr	0.16 cm = 1/16"	0.80 cm = 1/3"
D. Wall patch edge of window	136mR/hr	28.9 mCi 11:35	31 mR/hr	0.16 cm = 1/16"	0.90 cm = 1/3"



This is to acknowledge the receipt of your letter/application dated

3/22/2007, and to inform you that the initial processing which includes an administrative review has been performed.

☒ Ahead. 29-0688-02  
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

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A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned Mail Control Number 140306.  
When calling to inquire about this action, please refer to this control number.  
You may call us on (610) 337-5398, or 337-5260.