



James G. Terwilliger  
Vice President of Operations  
UPMC Presbyterian  
UPMC Shadyside

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terwilligerjg@msx.upmc.edu

April 12, 2006  
Region 1  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406-1415

Br. 1

2006 APR 20 AM 11:14

RECEIVED  
REGION 1

**\*\*PLEASE EXPEDITE THIS REQUEST\*\***

RE: Amendment to License No. 37-02523-01 03003021

Dear Madams/Sirs:

Please amend License No. 37-02523-01 as follows. Additional information is enclosed.

**ITEMS 9, 10, Facilities and Equipment, Locations of Use**

- A. Please add an area of use within 5230 Centre Avenue, UPMC Presbyterian Shadyside (Shadyside Campus): Enclosed are floor plans for additional Nuclear Cardiology Department where activities under 10CFR35.100 and 200 will be conducted. All policies and procedures in practice at UPMC Presbyterian Shadyside (Shadyside Campus) will continue for uses in this new area. Specific areas are addressed below.
1. Facility Diagram (Enclosed): The areas of use shall be maintained under surveillance and/or locked at all times when licensed materials are contained within the rooms. The hot lab shall have a lock and access will be controlled to only authorized personnel at all times.
    - a. Designated on the drawing are Hot Lab, Imaging Rooms and other areas where licensed activities will be conducted.
    - b. Only Nuclear Cardiology procedures will be performed in this new area. Accordingly, the walls are typical drywall and no additional radiation shielding is required in walls, doors or floors to maintain radiation doses to occupationally exposed staff or public below regulatory limits.
    - c. No radioactive gases will be used
  2. Personnel responsible for radiation protection (Radiation Safety Officer, Authorized Users for 10 CFR 35.200): Unchanged.

138745  
NMCS/RONI MATERIALS-002

3. Radiation Monitoring Equipment: A calibrated radiation detection survey meter and radiation measurement survey meter (or single unit meeting both criteria) shall be on site at all times. Meters will be calibrated annually by a person qualified to perform survey meter calibrations.
4. Dose calibrator: Equipment used to measure doses, if used, will be calibrated in accordance with nationally recognized standards or manufacturer's instructions.
5. Radiation protection program: The radiation protection program in place at UPMC Presbyterian Shadyside (Shadyside Campus) will continue and include the new Nuclear Cardiology Department.
6. Occupational dose monitoring: All personnel involved in activities in the new Nuclear Cardiology Department who are likely to receive 10% of any applicable maximum permissible dose as defined in 10CFR20 will be monitored in accordance with "Criteria" in NUREG-1556, Vol. 9, Rev. 1. Monitoring, dose report review and reporting will follow the procedures in place at UPMC Presbyterian Shadyside (Shadyside Campus).
7. Area surveys: We have developed and will implement and maintain written procedures for area surveys in accordance with 10 CFR 20.1101 that meet the applicable requirements of 10 CFR 20.1501.
8. Safe use of unsealed licensed material: We have developed and will implement and maintain procedures for the safe use of unsealed licensed material that meet the applicable requirements of 10CFR 20.1101 and 10 CFR 20.1301.
9. Spill procedures: We have developed and will implement and maintain procedures for safe responses to spills of licensed material that meet the applicable requirements of 10CFR 20.1101.
10. Waste management: We have developed and will implement and maintain written waste procedures for licensed material that meet the applicable requirements of 10CFR 20.1101 and 10 CFR 35.92.

- B. Please add area of use, new location and address: Enclosed are floor plans for additional location/physical address where, in addition to 5230 Centre Avenue site, activities under 10CFR35.100 and 200 and 300 will be conducted. The added location of use is as follows:

UPMC Monroeville Imaging Center at Oxford Drive  
600 Oxford Drive  
Monroeville, PA 15146


All policies and procedures in practice at UPMC Presbyterian Shadyside (Shadyside Campus) will be extended for uses in this new location.

1. Facility Diagram (Enclosed): The areas of use shall be maintained under surveillance and/or locked at all times when licensed materials are contained within the rooms. The hot lab shall have a lock and access will be controlled to only authorized personnel at all times.

- a. Designated on the drawing are Hot Lab, Imaging Rooms and other areas where licensed activities will be conducted.
  - b. General Nuclear Medicine procedures including PET examinations will be conducted. Attached are radiation barrier calculations for additional shielding necessary in order to maintain radiation doses to occupationally exposed staff or public below regulatory limits.
  - c. No radioactive gases will be used
2. Personnel responsible for radiation protection (Radiation Safety Officer, Authorized Users for 10 CFR 35.100, 35.200, 35.300): Unchanged.
3. Radiation Monitoring Equipment: A calibrated radiation detection survey meter and radiation measurement survey meter (or single unit meeting both criteria) shall be on site at all times. Meters will be calibrated annually by a person qualified to perform survey meter calibrations.
4. Dose calibrator: Equipment used to measure doses will be calibrated in accordance with nationally recognized standards or manufacturer's instructions.
5. Radiation protection program: The radiation protection program in place at UPMC Presbyterian Shadyside (Shadyside Campus) will continue and now include the new UPMC Monroeville Imaging Center at Oxford Drive.
6. Occupational dose monitoring: All personnel involved in activities in the new UPMC Monroeville Imaging Center at Oxford Drive who are likely to receive 10% of any applicable maximum permissible dose as defined in 10CFR20 will be monitored in accordance with "Criteria" in NUREG-1556, Vol. 9, Rev. 1. Monitoring, dose report review and reporting will follow the procedures in place at UPMC Presbyterian Shadyside (Shadyside Campus).
7. Area surveys: We have developed and will implement and maintain written procedures for area surveys in accordance with 10 CFR 20.1101 that meet the applicable requirements of 10 CFR 20.1501
8. Safe use of unsealed licensed material: We have developed and will implement and maintain procedures for the safe use of unsealed licensed material that meet the applicable requirements of 10CFR 20.1101 and 10 CFR 20.1301.
9. Spill procedures: We have developed and will implement and maintain procedures for safe responses to spills of licensed material that meet the applicable requirements of 10CFR 20.1101.
10. Waste management: We have developed and will implement and maintain written waste procedures for licensed material that meet the applicable requirements of 10CFR 20.1101 and 10 CFR 35.92.
11. Additional information: Therapeutic use of unsealed licensed materials will be limited to those administrations where patients are released from confinement under 10 CFR 35.75. All required release criteria procedures will be followed and required documentation will be maintained.
12. Additional information: No radioactive gases will be used that require ventilation.

Should you have any questions or require further information, please contact Mr. Ronald Scala at (412) 623-1052 or at (412) 496-9225).

Sincerely,

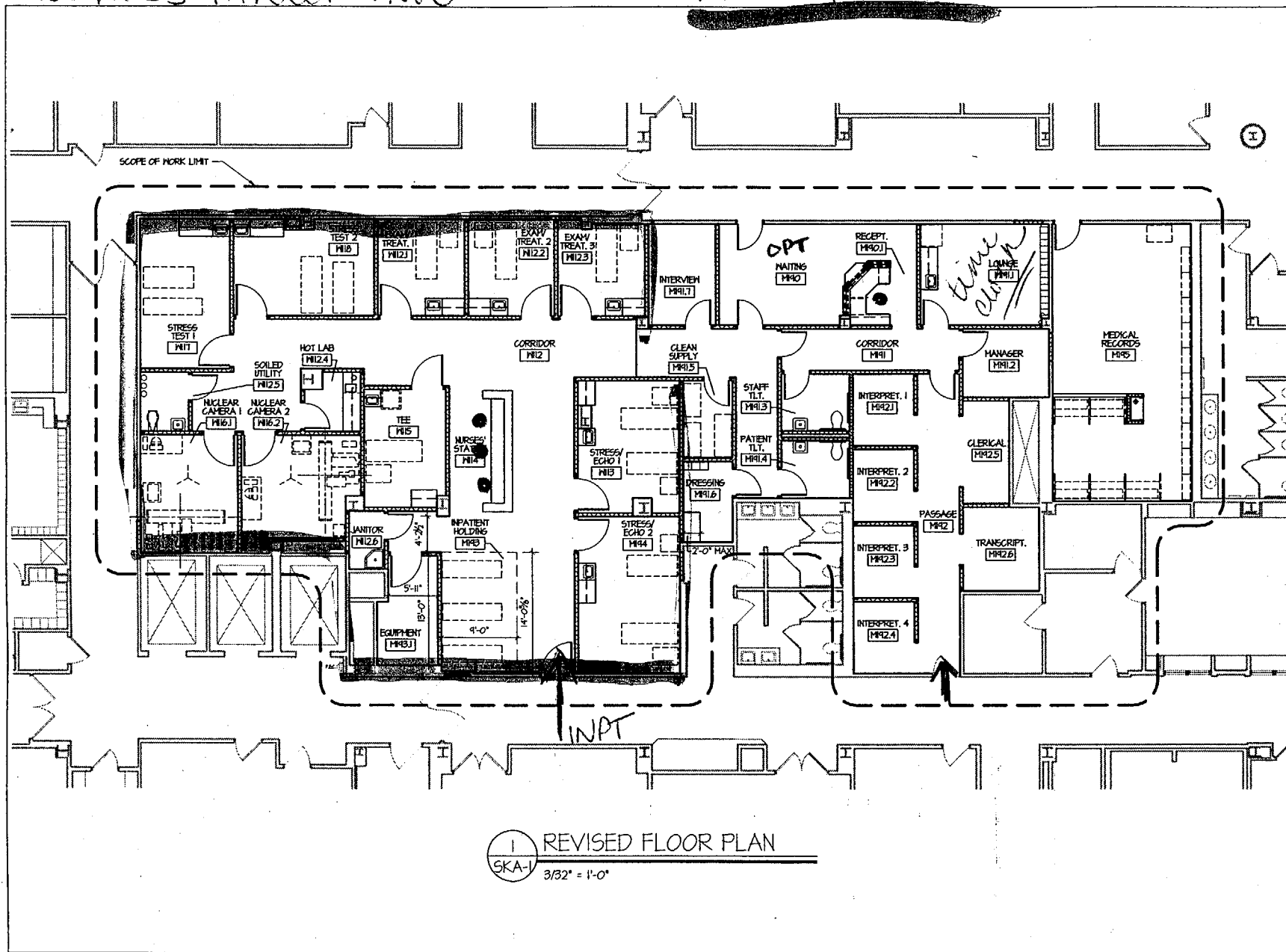
  
James G. Terwilliger  
Vice President of Operations  
UPMC Presbyterian Shadyside

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codines Printer → NUC.

~~UPMC SHADYSIDE~~  
~~NUCLEAR CARDIOLOGY~~  
First Floor

Andy: Flat panels  
Computers for  
Station

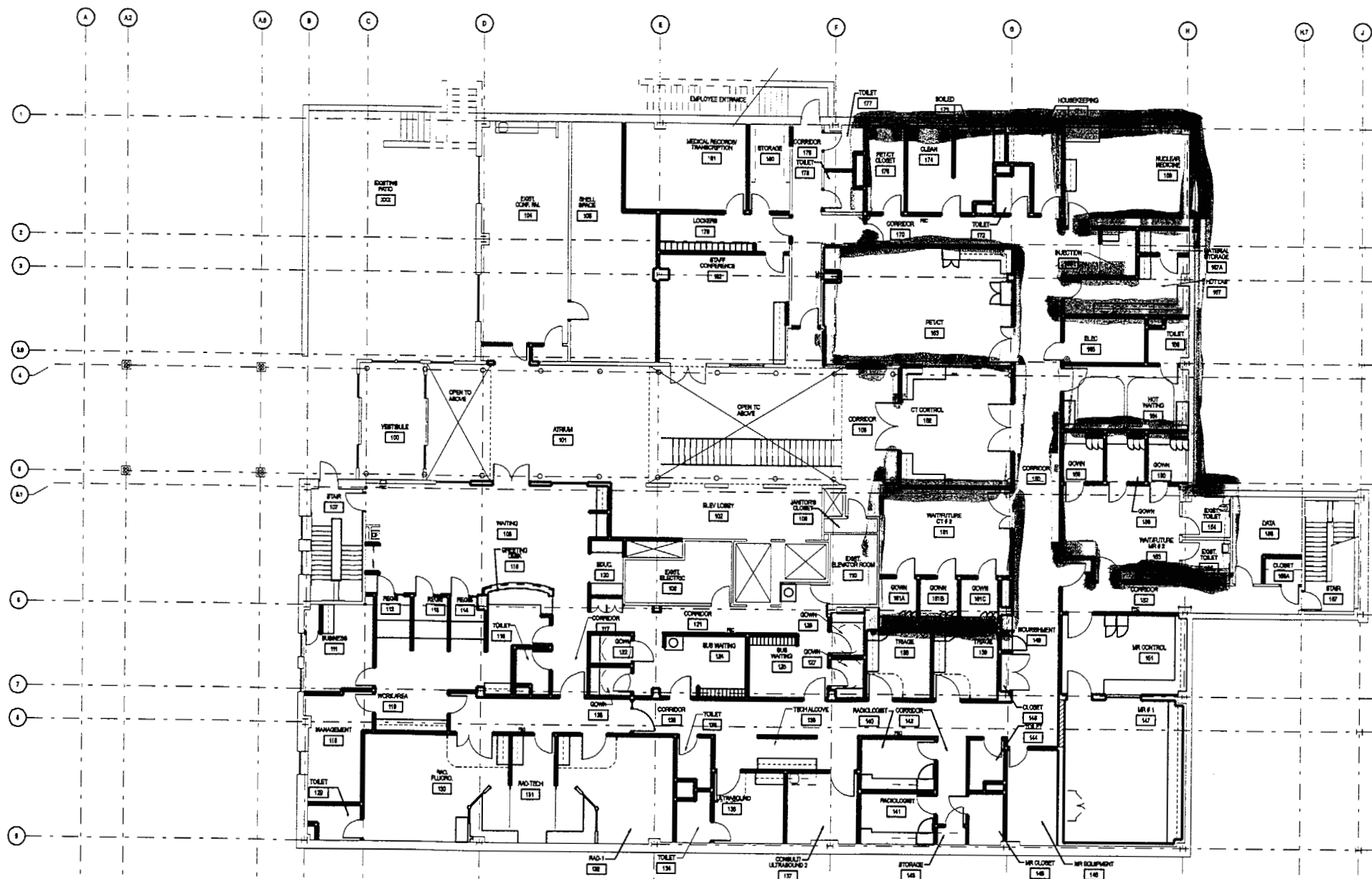


1 REVISED FLOOR PLAN  
SKA-1 3/32" = 1'-0"

<b>RADELET McCARTHY</b> ARCHITECTS AND INTERIOR DESIGNERS	
300 FIRST & MARKET BUILDING 100 FIRST AVENUE PITTSBURGH PENNSYLVANIA 15222	
412/471-4445 FAX 412/471-2881	
REVISIONS	
<small>U:\projects\040200\Shadyside\Heart Station\Rev\REVISED.mxd</small>	
DATE	10 NOVEMBER 2005
SCALE	3/32"=1'-0"
PROJECT NO.	04020
PROJECT TITLE	
HEART STATION UPMC SHADYSIDE	
DRAWING TITLE	
REVISED FLOOR PLAN	
DRAWING NUMBER	
SKA-1	

- IV ROOM
- - ? BIG ENOUGH 3 PEOPLE → ECHO/EKG STAFF'S PAPERWORK.
- NUCLEAR WORK AREA → KARLEEN'S STUFF
- WORKSTATION INCLUDED IN ROOM?
- A - NUC TECH
- 1 - office
- 1 - D.N.

# UPMC Monroville Imaging Center at Oxford Drive



Restricted areas for isotope use, Imaging, patients

October 27, 2005  
Dan Humphreys, Director PACS/RIS  
UPMC Passavant  
9100 Babcock Blvd  
Pittsburgh, PA 15237

RE: Shielding for Monroeville installations

Dear Dan,

The following are the calculated radiation shielding requirements for the Monroeville installations;  
PET-CT, Radiographic, Radiographic-fluoroscopic

**PET CT**

**ASSUMPTIONS:-**

1. Room diagram provided and accurate (enclosed on hardcopy).
2. Scale 1/8" = 1'
3. Occupancy is as follows
  - 0.2 uncontrolled for corridors (N, W, S)
  - 0.125 uncontrolled for doors (W, S)
  - Full controlled for control area
  - Full uncontrolled for occupied areas above and below (if any)
4. Weekly Workload as follows:
  - PET: 80 patients at 20mCi F-18
  - CT: 20 Head, 30 Body
5. Permissible weekly exposure is 2mR uncontrolled and 100mR controlled. Controlled areas calculated to 10% MPD (10mrem/week)
6. Installation: Unspecified. Calculation data for CTDI assumed GE LightSpeed Ultra as documented in IMPACT
7. Shielding need only extend to a height of 7 feet on walls
8. Normal construction means 2 x 5/8" drywall on metal studding.
9. Compass orientation used for wall designation was arbitrary with North assigned at top of the drawing.

In accordance with the above conditions and methodology described in NCRP Report 147, the shielding requirements for the PET-CT installation are as follows. Please refer to enclosed room diagram for wall designation.

- North Corridor: 3/32" lead in addition to normal construction
- East Corridor: 1/32" lead in addition to normal construction
- East Door: 1/32" lead in door and frame
- South Control: 3/32" lead in addition to normal construction
- Control Window: 2.0mm lead equivalent glass
- South Corridor: 1/16" lead in addition to normal construction
- South Door: 1/16" lead in door and frame
- West Corridor: 1/8" lead in addition to normal construction
- Ceiling/floor (if occupied): 3.9" poured concrete equivalence. Note: this is satisfied by a 3" poured concrete floor on 20g steel deck

## **RADIOGRAPHIC/FLUOROSCOPIC**

### **ASSUMPTIONS:-**

1. Room diagram provided and accurate (enclosed on hardcopy).
2. Scale 1/8" = 1'
3. Occupancy is as follows
  - 0.2 uncontrolled for corridors (N) and management (N)
  - 0.125 uncontrolled for doors (N)
  - 0.5 uncontrolled for work area (N)
  - 0.5 uncontrolled for Rad Tech Area (E)
  - 1.0 uncontrolled for management W
  - Full controlled for control area
  - 0.05 uncontrolled for outside area
  - Full uncontrolled for occupied areas above and below (if any)
4. Workload as follows:
  - 4 patients per day fluoroscopic with filming
  - 6 patients per day radiographic
6. Permissible weekly exposure is 2mR uncontrolled and 100mR controlled. Controlled areas calculated to 10% MPD (10mrem/week)
10. Installation: Unspecified.
11. Shielding need only extend to a height of 7 feet on walls
12. Normal construction means 2 x 5/8" drywall on metal studding.
13. Compass orientation used for wall designation was arbitrary with North assigned at top of the drawing.

In accordance with the above conditions and methodology described in NCRP Report 147, the shielding requirements for the R&F installation are as follows. Please refer to enclosed room diagram for wall designation.

- North Work Area: 3/16" lead in addition to normal construction
- North Room Doors: 1/64" lead in door and frame
- North Corridor: 1/64" lead in addition to normal construction
- East Rad Tech Area: 1/64" lead in addition to normal construction
- East Control: 1/32" lead in addition to normal construction
- Control Window: 0.75mm lead equivalent glass
- South Outside: 30mm concrete equivalence
- West Toilet and door: 1/64" lead
- West Management: 3/32" lead in addition to normal construction
- North Management: 1/32" lead in addition to normal construction
- Ceiling Floor: 3.9" poured concrete equivalence (3" plus 20g steel deck)



## RADIOGRAPHIC ROOM

### ASSUMPTIONS:-

1. Room diagram provided and accurate (enclosed on hardcopy).
2. Scale 1/8" = 1'
3. Occupancy is as follows
  - 0.2 uncontrolled for corridors (N)
  - 0.125 uncontrolled for doors (N)
  - 0.05 uncontrolled for toilets (E)
  - Full controlled for control area
  - 0.5 uncontrolled for Rad Tech Area (W)
  - 0.05 uncontrolled for outside area (S)
  - Full uncontrolled for occupied areas above and below (if any)
4. Workload as follows:
  - 25 patients per day radiographic
7. Permissible weekly exposure is 2mR uncontrolled and 100mR controlled. Controlled areas calculated to 10% MPD (10mrem/week)
14. Installation: Unspecified.
15. Shielding need only extend to a height of 7 feet on walls
16. Normal construction means 2 x 5/8" drywall on metal studding.
17. Compass orientation used for wall designation was arbitrary with North assigned at top of the drawing.

In accordance with the above conditions and methodology described in NCRP Report 147, the shielding requirements for the R&F installation are as follows. Please refer to enclosed room diagram for wall designation.

- North Corridor: 1/16" lead in addition to normal construction
- North Room Doors: 1/64" lead in addition to normal construction
- East Toilet (N) and Toilet (S): 1/64" lead in addition to normal construction
- South Outside: 30mm concrete equivalence
- **West Control: 3/64" lead in addition to normal construction**
- **Control Window: 0.9mm lead equivalent glass**
- West Rad Tech Area: 1/64" lead in addition to normal construction
- Ceiling Floor: 3.9" poured concrete equivalence (3" plus 20g steel deck)

Should you have any questions please feel free to contact me at 412-496-9225 or 412-623-1052.

Sincerely,

Ronald Scala, MS  
Certified Radiological Physicist

November 2, 2005  
Dan Humphreys, Director PACS/RIS  
UPMC Passavant  
9100 Babcock Blvd  
Pittsburgh, PA 15237

RE: Shielding for Monroeville installations

Dear Dan,

The following are the calculated radiation shielding requirements for the Monroeville installations; PET-Waiting, PET Injection and PET Hot Lab

#### **PET WAITING ROOM**

##### **ASSUMPTIONS:**

1. Room diagram provided and accurate (enclosed on hardcopy).
2. Scale 1/8" = 1'
3. Occupancy is as follows
  - 0.2 uncontrolled for all walls
4. Weekly Workload as follows:
  - PET: 80 patients at 20mCi F-18
5. Permissible weekly exposure is 2mR uncontrolled
6. Permissible dose rate is 2.0mrem in any one hour (2mR/hr)
6. Shielding need only extend to a height of 7 feet on walls
7. Normal construction means 2 x 5/8" drywall on metal studding.
8. Compass orientation used for wall designation was arbitrary with North assigned at top of the drawing.

In accordance with the above conditions and methodology described in NCRP Report 147, the shielding requirements for the PET-Waiting Room are as follows. Please refer to enclosed room diagram for wall designation.

- North, Electric, North Toilet, East Outside: No shielding required
- South, Gown: Shielding to reduce the instantaneous dose rate to 2mR/hr is 10mm lead\*
- West, Corridor: 5/16" (7.5mm) lead\*
- West, door: 1/8" lead\*
- Ceiling/floor: 3" concrete on 20g steel deck or 3.9" poured concrete

\* See **Qualifications** on page 2

### **PET INJECTION ROOM**

#### **ASSUMPTIONS:**

1. Room diagram provided and accurate (enclosed on hardcopy).
2. Scale  $1/8" = 1'$
3. Occupancy is not considered. See below
4. Patients are held for injection then moved to Hot Waiting. Hence exposure rate is minimal when averaged over one hour.

In accordance with the above conditions and methodology described in NCRP Report 147, the shielding requirements for the PET-Injection Room are as follows. Please refer to enclosed room diagram for wall designation.

- No shielding is required for any adjacent wall

### **PET HOT LAB**

#### **ASSUMPTIONS:**

1. Room diagram provided and accurate (enclosed on hardcopy).
2. Scale  $1/8" = 1'$
3. Occupancy is not considered. See below
4. Doses are at all times shielded except during dose calibration. Hence exposure rate is minimal when averaged over one hour.

In accordance with the above conditions and methodology described in NCRP Report 147, the shielding requirements for the PET-Hot Lab are as follows. Please refer to enclosed room diagram for wall designation.

No shielding is required for any adjacent wall.

**QUALIFICATIONS:** Extensive shielding from the PET Waiting Room is based on the stated assumptions. This can be reduced if the assumptions are legitimately changed as discussed below.

- PA regulation requires that no area have a dose rate such that, if present for one hour, a person could receive 2 mrem. The gownned waiting room far exceeds this dose rate based on two injected patients housed within the Hot (PET) Waiting Room. Hence, significant shielding is needed. Little can be done to reduce this requirement.
- West corridor and door assume that a member (same person) of public (non-occupationally exposed) person will be present for 20% and 12.5% of each day. This is highly unlikely, as the area is inside the imaging facility. When lower occupancy is used (0.05), no shielding is required. However, you must be able to defend this with documented operating procedures (administrative control). This implies assess by public is restricted and that all staff within the imaging facility are considered "occupationally exposed" personnel, they are given radiation safety instruction and wear radiation monitors.

Should you have any questions please feel free to contact me at 412-496-9225 or 412-623-1052.

Sincerely,

Ronald Scala, MS  
Certified Radiological Physicist

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

4/12/2006, and to inform you that the initial processing which includes an administrative review has been performed.



Amendment 37-02523-01  
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

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 138745.  
When calling to inquire about this action, please refer to this control number.  
You may call us on (610) 337-5398, or 337-5260.