

# CITIZENS GENERAL HOSPITAL

NEW KENSINGTON, PENNSYLVANIA 15068

MS 18  
KO

August 15, 1985

John D. Kinneman  
U.S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, Pa. 19406

Mail Control No: 03349  
License No: 37-09016-01

Dear Sir:

In reference to your letter of May 21, 1985, concerning our application dated January 10, 1985, the responses to your requests for additional information are as follows:

1. Please note that the Nuclear Medicine area has moved since the application. The new area with shielding is attached.

All radioactive material for clinical use is received as unit doses from a radiopharmaceutical supplier, (Syncor Corp.).

Surveys of the new area are done daily.

A close-out survey of the former Nuclear Medicine Department was performed. No removable contamination was found and there were no radiation levels above background.

2. The xenon traps will be used for all procedures where Xe-133 is administered to a patient.

Saturated charcoal cartridges will be capped, if possible or sealed in a polyethylene bag before storing for disposal. The cartridges will be held for at least 10 half-lives and then air will be blown through the trap and collected in a polyethylene bag. This bag will be counted in front of a gamma camera with no collimator to determine if there is any activity collected. Any counts that are two standards deviation above background will be determined to be evidence of leakage. A period of ten more half-lives will be used after no evidence of leakage is found before the cartridges are opened and the charcoal surveyed to determine if levels are background before disposal.

25 10 1985 01 NOV 5081

RECEIVED-RECORD

03349

"OFFICIAL RECORD COPY"

SERVING THE COMMUNITY SINCE 1912

8511180741 850916  
REG1 LIC30  
37-09016-01 PDR

ML18

AUG 19 1985

The xenon trap has a Radx Xenalarm on the trap to monitor for leakage. The alarm will be checked quarterly to assure proper operation. The procedure set forth by Radx Corporation will be used to check the alarm.

3. Airflow measurements of the new area have been done.

The flow rates are 85 cfm supply and 310 cfm exhaust for the Hot Lab; 425 cfm supply and 1025 cfm exhaust for the Scan Room; and 435 cfm supply and 795 cfm exhaust for the office. Measurements were made on August 12, 1985, by

Schneider Sheet Metal  
Pennsylvania & Prebel Ave.  
Pittsburgh, Pa.

Air flows will be measured semiannually.

4. The total exhaust rate is 2130 cfm to the roof which is an unrestricted area. According to Section 6, Appendix M of Regulatory Guide 10.8, January, 1980, an average release of 182 m Ci of Xe-133 would be allowable assuming an escape fraction of 0.2. However, no more than 20 patients per week at 20 m Ci per patient will conceivably be done. This is a weekly release of 80 m Ci which is less than half the allowable amount. In actuality, no more than 5 patients per week are expected based on past experience, so the actual xenon release is only 20 m Ci which is 0.11 of the permissible amount.

The concentrations in restricted areas are also less than permissible based on the same criteria. In the Hot Lab where the trap will be stored, assuming all xenon will go to the trap and then 0.2 escape fraction, 20 m Ci will be released. With a ventilation rate of 310 cfm, 210 m Ci are permissible, therefore, the actual xenon concentration is less than 10% of the permissible amount.

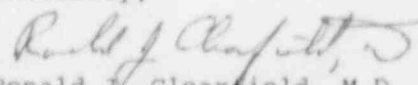
5. Reference sources which are available are:

Cs-137	195 u Ci	+ 5% accuracy
Ba-133	263 u Ci	+ 5% accuracy
Co-57	0.89 m Ci	+ 5% accuracy

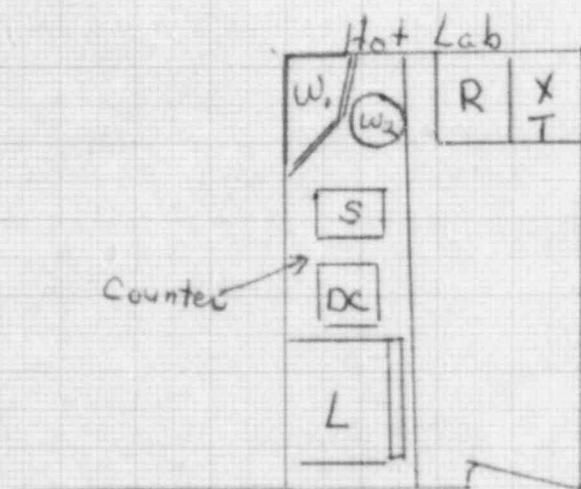
Please note that a new Co-57 source with an activity of at least 1 m Ci has been ordered.

6. Regulatory Guide 10.8, January, 1980, will be used.

Sincerely,

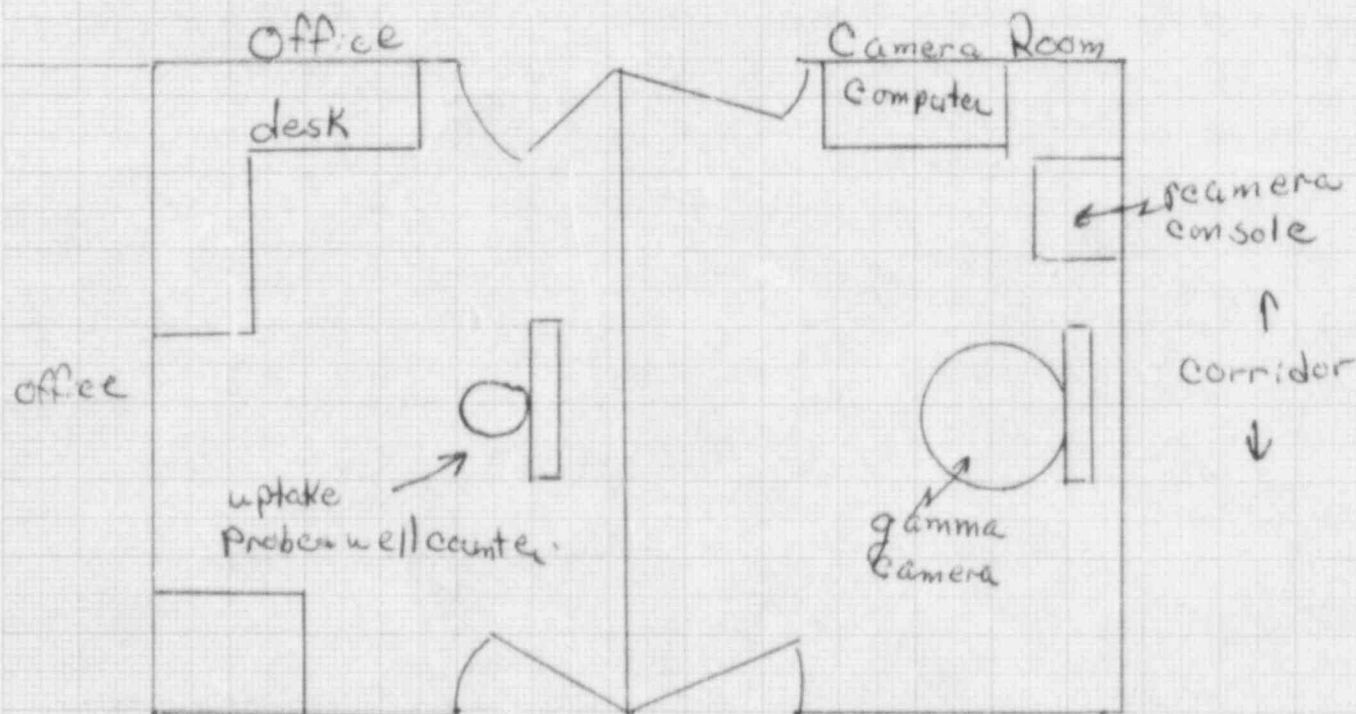
  
Ronald J. Clearfield, M.D.  
Chairman, Dept. of Radiology

Citizens General Hospital  
New Kensington, PA  
Nuclear Medicine  
(not to scale)



L - L block 2" Pb  
DC - dose calibrator  
S - sink  
W<sub>1</sub> - waste storage  
2" Pb brick  
W<sub>2</sub> - waste storage  
1/4" Pb cylinder  
2 1/4" Pb cover  
R - refrigerator  
XT - Xenon trap

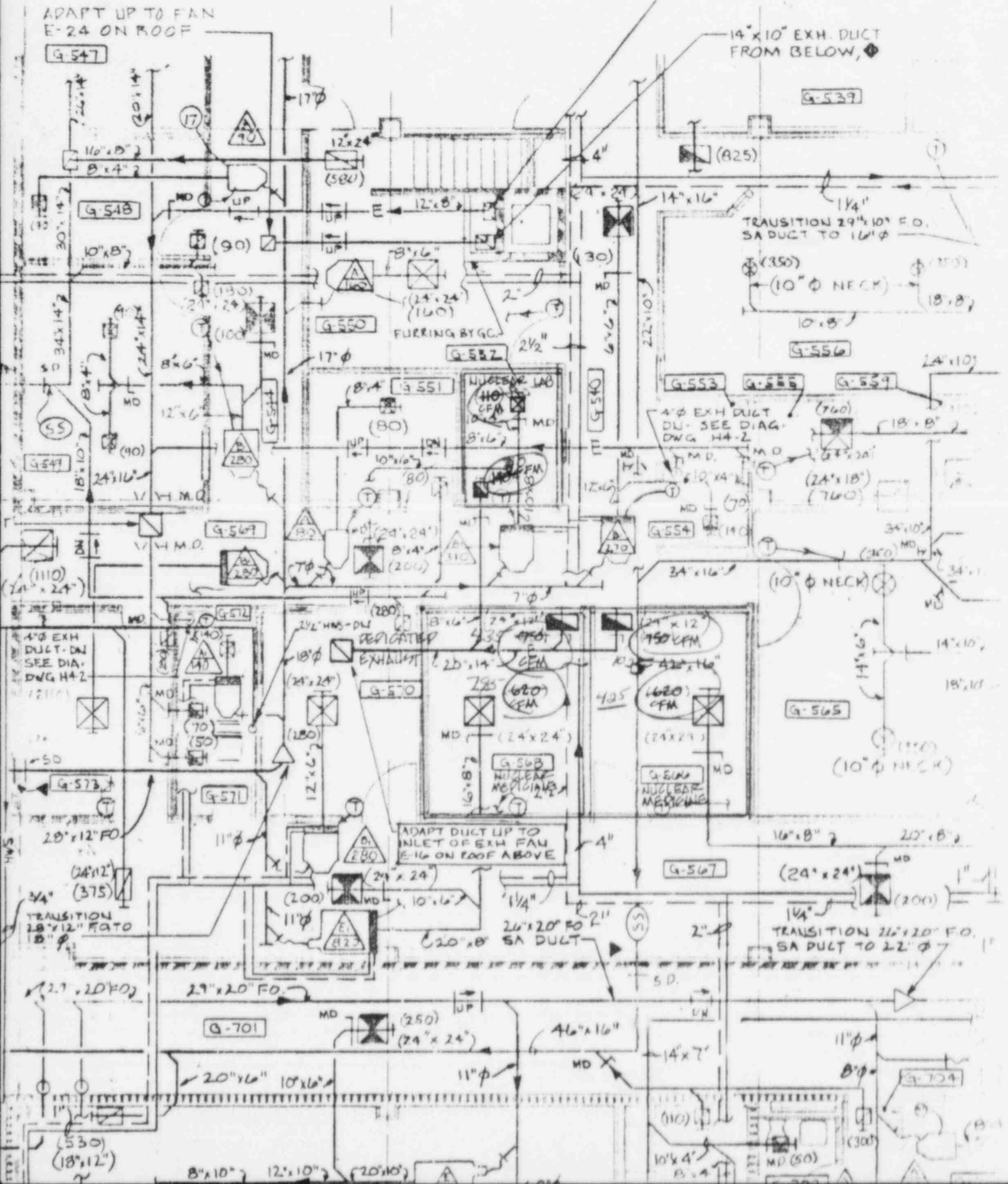
← Corridor →



← Corridor →

# Citizens General Hospital

note: flow rates in red are measured  
See response to item 3



Citizens General Hospital  
New Kensington, Pennsylvania  
Department of Nuclear Medicine  
DAILY RADIATION LEVEL SURVEY  
(all readings in mR per hour)

*Loss - Out Survey 2.228*

Date	2/19/85	2/20/85	2/21/85	2/22/85	2/25/85	2/26/85	2/27/85	2/28/85
L O C A T I O N	1							
	2	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr
	3							
	4							
	5							
	6							
	7					0.0mr/hr		
	8	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr
	9							
	10							
	11				0.0mr/hr			
	12	0.0mr/hr	0.0mr/hr	0.0mr/hr		0.0mr/hr	0.0mr/hr	0.0mr/hr
	13							
	14							
	15							
	16							
Survey meter	gm meter							
(x1) Background reading*	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr	0.0mr/hr
(x1) Check source reading**		0.3mr/hr			0.2mr/hr	0.4mr/hr	0.3mr/hr	0.2mr/hr
Surveyor	rz	rt	rt	rt	rz	rz	jw	jw
Comments								

\* Background of survey meter taken in hallway outside department.  
\*\* Check source is located on side of survey meter.



Citizens General Hospital  
New Kensington, Pennsylvania

*Close-Contact Survey 2-22-85*

Department of Nuclear Medicine

CONTAMINATION LEVEL SURVEY  
(all readings in net cpm)

Date	2/20/85	2/21/85	2/22/85	2/25/85	2/26/85	2/27/85	2/28/85	3/1/85
1			399	386	379	409	427	400
2	390	425						
3								
4								
5								
6								
7								
8	356	398	345	397	342	372	322	290
9								
10								
11						333	321	356
12	333	355	228	324	289			
13								
14								
15								
16								
17*	301	310	289	269	301	332	299	300
18	345	278	276	228	385	362	386	329
19								
holder								
syringe								
analyzer	scintillation well counter							
ONE								
1/5 minute background	156	145	223	268	249	199	200	229
window(KeV)								
1 minute standard	29,024	32,256	32109	31093	32456	35426	33833	32879
surveyor	rt	rt	rt	rz	rs	jw	jw	rt
comments								

Standard is cobalt 57

Citizens General Hospital  
New Kensington, Pennsylvania  
Radioactive Waste Disposal Log

*Case-Dr. Fisher 2-23-85 \**

<u>Date</u>	<u>Isotopes</u>	<u>Survey Meter</u>	<u>Check Source Reading</u>	<u>Background Reading</u>	<u>Waste Reading</u>	<u>Final Action</u>	<u>Surveyor</u>
2/19/85	tc99m	gm meter	0.2mr/hr(x1)	0.0mr/hr	0.0mr/hr	0.0mr/hr	rz
2/20/85	tc99m	gm meter	0.3mr/hr(x1)	0.0mr/hr	0.0mr/hr	0.0mr/hr	rt
2/21/85	tc99m	gm meter	0.2mr/hr(x1)	0.0mr/hr	0.0mr/hr	0.0mr/hr	rt
2/22/85	tc99m	gm meter	0.3mr/hr(x1)	0.0mr/hr	0.0mr/hr	0.0mr/hr	rt
2/25/85	tc99m	gm meter	0.2mr/hr(x1)	0.0mr/hr	0.0mr/hr	0.0mr/hr	rz
2/26/85	tc99m	gm meter	0.4mr/hr(x1)	0.0mr/hr	0.0mr/hr	0.0mr/hr	rz
2/27/85	tc99m	gm meter	0.1mr/hr(x1)	0.0mr/hr	0.0mr/hr	0.0mr/hr	jw
2/28/85	tc99m	gm meter	0.3mr/hr(x1)	0.0mr/hr	0.0mr/hr	0.0mr/hr	jw
3/1/85	tc99m	gm meter	0.2mr/hr(x1)	0.0mr/hr	0.0mr/hr	0.0mr/hr	rt
3/4/85	tc99m	gm meter	0.4mr/hr(x1)	0.0mr/hr	0.0mr/hr	0.0mr/hr	rz
3/5/85	tc99m	gm meter	0.2mr/hr(x1)	0.0mr/hr	0.0mr/hr	0.0mr/hr	rz