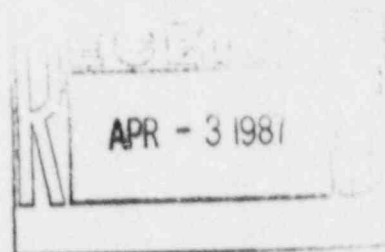




March 10, 1987



United States Nuclear  
Regulatory Commission  
Region IV  
611 Ryan Plaza Drive,  
Suite 1000  
Arlington, Texas 76011

SUBJECT: Amendment Request - Doctors' Medical Center, Inc.  
Tulsa, Oklahoma  
License No. 35-17926-02

Dear Sirs:

We wish to amend our Nuclear Regulatory Commission materials license to allow the relocation of our nuclear medicine laboratory from its present basement location to a new location on the second floor. We wish to move the hot lab as well, but wish to retain the existing waste storage area at its present location in the basement. With the exception of the change in laboratory location, all phases of our nuclear medicine operation which are on file with the Commission will remain unchanged. We have attached new facility and survey diagrams for the proposed relocation and have included new Xenon-133 airborne contamination calculations which reflect the airflow rates which were measured in the new area.

We have enclosed a check for \$120 to cover the processing of this amendment request. If you have any questions regarding this application, please do not hesitate to contact us.

Sincerely yours,

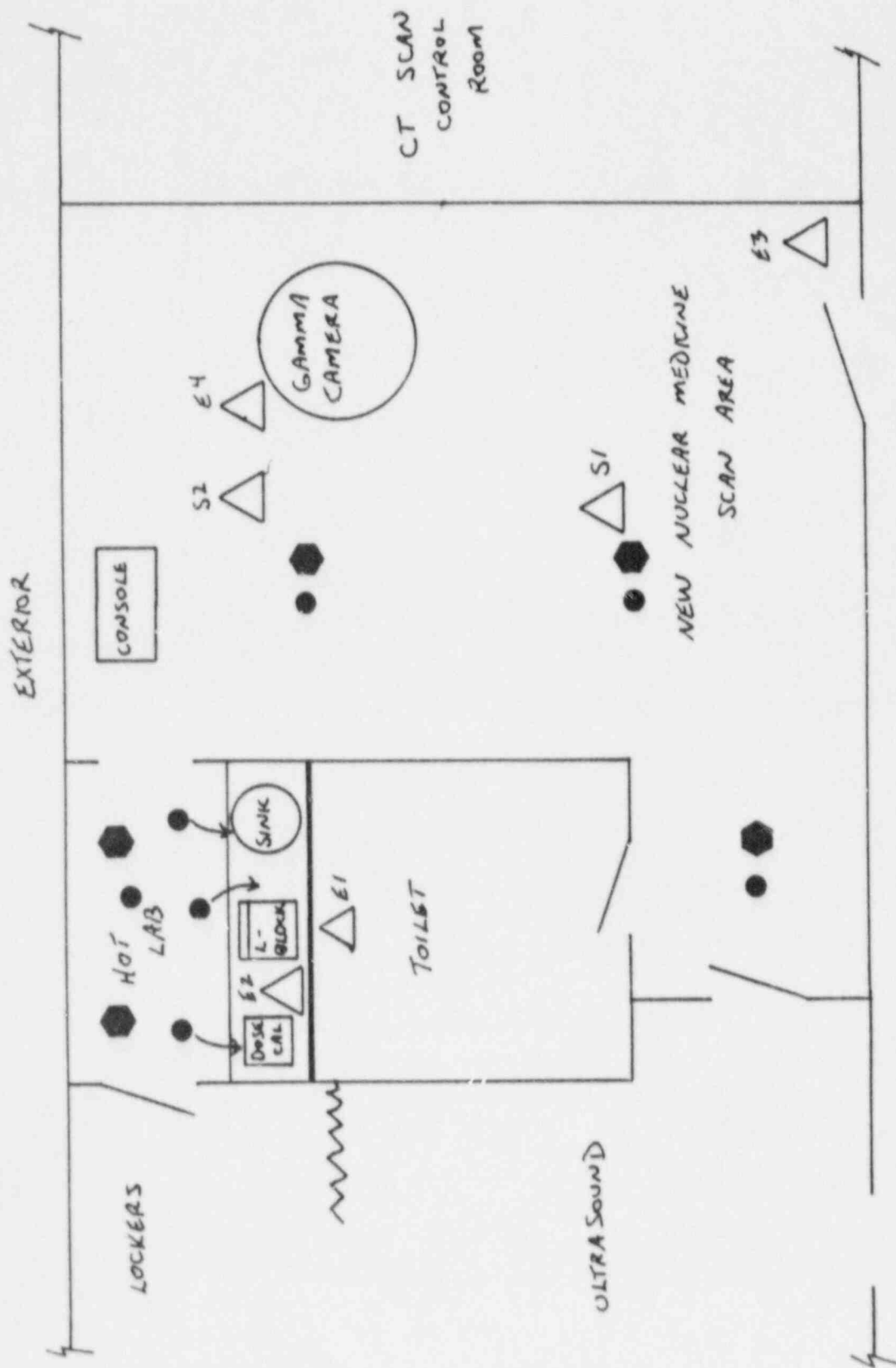
Harvey Shapiro,  
Executive Director

Log	<i>Apr-2-IV</i>
Remitter	
Check No.	<i>453781</i>
Amount	<i>\$120</i>
For	<i>PC</i>
By	<i>Amel</i>
Date	<i>4/6/87</i>
Signature	<i>[Signature]</i>

8801250131 870706  
REG4 LIC30  
35-17926-02 PDR

4323 South Harvard Avenue, Tulsa, Oklahoma 74114 918 744-4000

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● = SURVEY POINT FOR REMOVABLE CONTAMINATION  
 ⬡ = SURVEY POINT FOR EXPOSURE RATE

HALLWAY	
SUPPLY VENTS	EXHAUST VENTS
S1: 95 CFM	E1: 35 CFM
S2: 135	E2: 30
230	E3: 65
	E4: 105
	315

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Calculated Airborne Concentrations of Xe-133  
Doctor's Medical Center, Inc.

Assumptions:

5 studies/week  
10 mCi/study  
25% loss rate

Concentrations in Restricted Area (Exam Room):

$$\text{Airflow} = 35 + 185 + 65 + 30 = 315 \text{ CFM}$$

$$\times 6.8 \times 10^7 \text{ ml/CFM per 40 hr week} = 2.14 \times 10^{10} \text{ ml/week}$$

$$\text{Activity released} = 5 \times 10 \times 0.25 = 12.5 \text{ mCi/week} = 1.25 \times 10^4 \text{ } \mu\text{Ci/week}$$

$$\text{Maximum concentration} = \frac{1.25 \times 10^4 \text{ } \mu\text{Ci/wk}}{2.14 \times 10^{10} \text{ ml/wk}}$$

$$= 5.8 \times 10^{-7} \text{ } \mu\text{Ci/ml} (< 1 \times 10^{-5} \text{ } \mu\text{Ci/ml})$$

Concentrations in Unrestricted Area:

Airflow (ignoring further dilution in air-handling system)

$$= 315 \text{ CFM} \times 1.48 \times 10^{10} \text{ ml/CFM per year} = 4.66 \times 10^{12} \text{ ml/year}$$

$$\begin{aligned} \text{Activity released} &= 5 \times 10 \times 0.25 \times 52 = 6.50 \times 10^2 \text{ mCi/year} \\ &= 6.50 \times 10^5 \text{ } \mu\text{Ci/year} \end{aligned}$$

$$\text{Maximum concentration} = \frac{6.50 \times 10^5 \text{ } \mu\text{Ci/year}}{4.66 \times 10^{12} \text{ ml/year}} = 1.39 \times 10^{-7} \text{ } \mu\text{Ci/ml}$$

$$= 1.39 \times 10^{-7} \text{ } \mu\text{Ci/ml} (< 3 \times 10^{-7} \text{ } \mu\text{Ci/ml})$$

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