030-29523

AT&T

AT&T Bell Laboratories

600 Mountain Avenue
Murray Hill, NJ 07974-2070
201 582-3000

May 16, 1989

U.S. Nuclear Regulatory Commission
Region I
Nuclear Materials Section
475 Allendale Road
King of Prussia, PA 19406

Re: Reference No. 030-29523

As per Condition 16 of our materials license (29-00170-04), we are enclosing two copies of the radiation survey of a newly installed J.L. Shepherd Model 89-400 Calibration Range. The Shepherd unit was installed 4/17-18/89 at our Holmdel, NJ facility.

Should you have any questions regarding the survey, please contact me at (201)582-4645.

S. S. Voris
Radiation Protection Department

Enc.
As above

Copy to
S. Eagels
D. Longo
J. W. Rodgers
P. A. Spader
G. M. Sturchio
G. H. Zeman

FEE EXEMPT
Air Survey

110732

OFFICIAL RECORD COPY ML 10

MAY 19 1989

AT&T Bell Laboratories

subject: Radiation Survey of the J. L. Shepherd Calibration Range at the Holmdel Facility Case 48100-2

date: May 16, 1989

from: G. M. Sturchio
MH 79162
1F101A, x5608

MEMORANDUM FOR RECORD

Delivery of the J. L. Shepherd Model 89-400 Shielded Calibration Range containing 400.13 curies of ^{137}Cs took place on April 17, 1989. The Shepherd representative completed installation of the unit into the second story radiation laboratory (Room 8A-225) of the Waveguide Building on April 18, 1989. I performed the radiation survey after the installation of the source and before the initiation of the irradiation program.

INSTRUMENTATION

Health Physics Industries (HPI) Model 1010 Tissue Equivalent Ionization Chamber (Serial #208, calibrated 4/89).

Eberline Model E-120 Survey Meter with a thin end window GM probe (Serial #9519, calibrated 10/88).

MEASUREMENTS

The radiation level survey of the Waveguide Building radiation laboratory is attached. Based upon the measurements at the walls, the radiation levels in the laboratory areas adjacent to the radiation laboratory are within the limits of 10CFR20.105 for unrestricted areas. However, dosimeters were placed in the adjacent areas for long term monitoring of the radiation environment.

The maximum radiation level at contact with the enclosure, as measured with an Eberline E-120, was 11 mR/h at the bottom of the rear cable port. The cable port is a lead conduit which is mounted on the back of the enclosure. The direction of the

leakage radiation is straight down and the field decreases to 3.8 mR/h at 10 centimeters from the bottom of the conduit. Radiation streaming in the area of the lower door hinge caused a surface radiation level of 3.2 mR/h. Additional shielding will be added to lower the radiation levels at the two cable ports and the door hinge.

The following table presents radiation measurements made in the unrestricted laboratory on the floor below the radiation laboratory. Two measurement locations were selected: 1) directly below the source and 2) at Frank Spollen's desk. The position below the source should show the greatest radiation level increase and the desk location shows the radiation level increase in routinely occupied areas.

Date	Source Position	Radiation Levels* Below Source (mrad/h)	Desk (mrad/h)
4/[illegible]/78	**	0.011	0.007
4/18/89	DOWN	0.008	0.007
4/18/89	UP	0.011	0.006

* Measured with HPI 1010 in integrate mode for 15 minutes.
** Before source arrival.

The radiation levels in the downstairs laboratory are within the limits of 10CFR20.105 for unrestricted areas. The measurements suggest that the ^{137}Cs source hasn't increased the radiation levels in the downstairs laboratory. However, dosimeters were placed below the source and at Frank Spollen's desk for long term monitoring.

Glenn

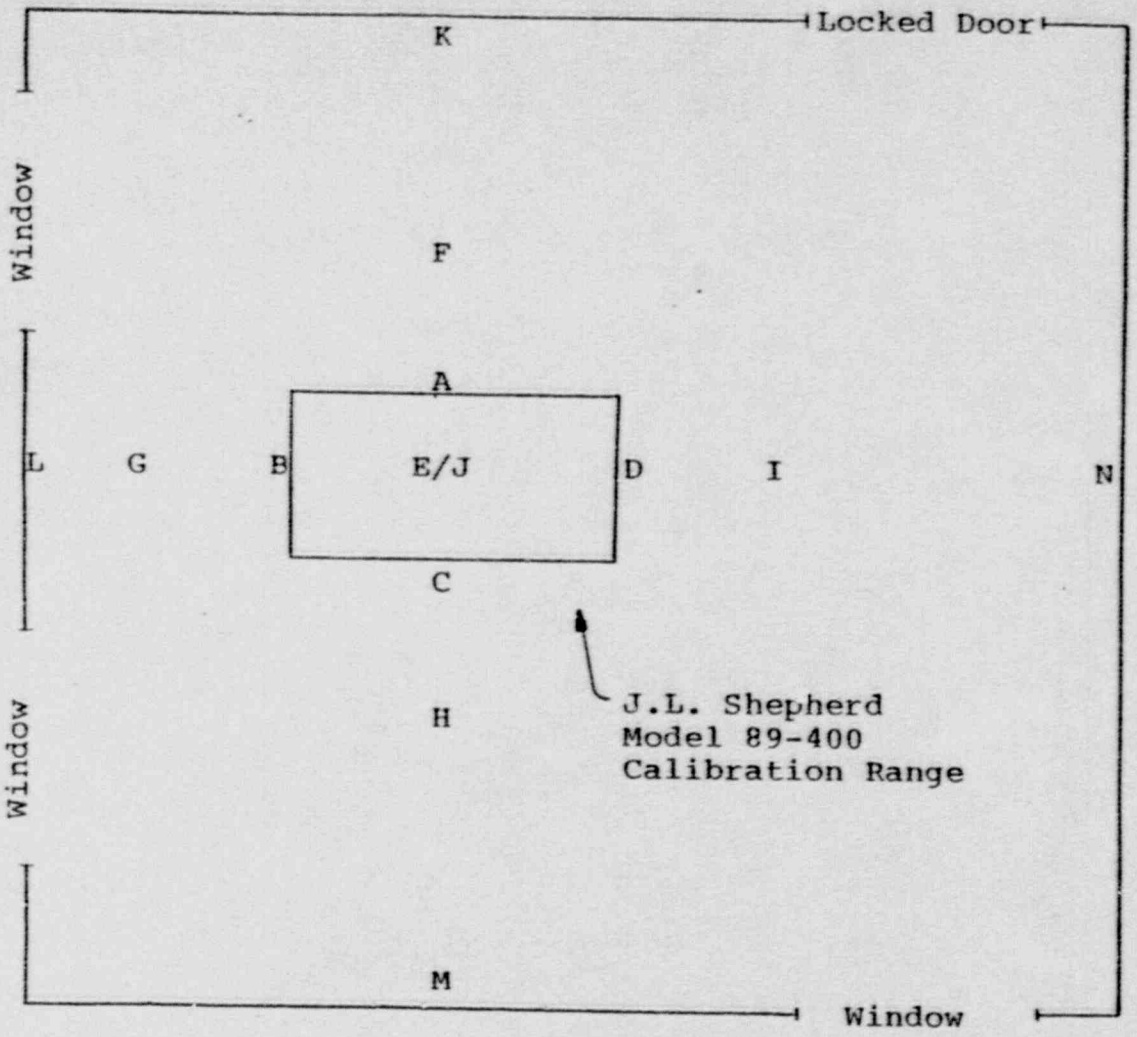
MH-79162-GMS-js

Glenn M. Sturchio

Att.
As above

Copy to
N. A. Beauchamp
S. R. Eagels
D. S. Longo
J. W. Rodgers
R. K. Samras
J. A. Scholl
P. A. Spader
F. J. Spollen
S. S. Voris
G. H. Zeman

RADIATION LEVEL SURVEY OF THE WAVEGUIDE BUILDING RADIATION LABORATORY (HO 8A-225)



RADIATION MEASUREMENTS IN HO 8A-225

Location	Distance** (inches)	Radiation Level* Source UP (mrad/h)	Source DOWN (mrad/h)
A	2	1.7	<0.02
B	2	1.6	<0.02
C	2	0.6	<0.02
D	2	0.7	<0.02
E	2	3.2	<0.02
F	20	0.40	<0.02
G	20	0.58	<0.02
H	20	0.14	<0.02
I	20	0.07	<0.02
J	20	0.32	<0.02
K	55	0.08	<0.02
L	38	0.30	<0.02
M	64	0.03	<0.02
N	78	<0.02	<0.02

* Measured with HPI 1010 Ion Chamber (cal. 4/89)
** Distance from center of detector to enclosure

Scale: 1" approximately 2.5'

Note: The radiation laboratory is on the second floor of a two story building. Radiation levels within the room did not indicate the need to monitor outside the building or on the roof.

Survey date: April 18, 1989

Survey by: Glenn M. Sturchio

Glenn M. Sturchio
Holmdel facility RSO

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE: 03520
STATUS CODE: 0
FEE CATEGORY: 3E
EXP. DATE: 19911130
FEE COMMENTS: ----------------

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED
   APPLICANT/LICENSEE: AT&T BELL LABORATORIES
   RECEIVED DATE: 890519
   DOCKET NO: 3029523
   CONTROL NO.: 110732
   LICENSE NO.: 29-00170-04
   ACTION TYPE: AMENDMENT

2. FEE ATTACHED
   AMOUNT: $0
   CHECK NO.: 0

3. COMMENTS

SIGNED R. J. Brown
DATE 5-22-89

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED /__/)

1. FEE CATEGORY AND AMOUNT: 3E FEE EXEMPT

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR: Mr. purvey
   AMENDMENT ✓
   RENEWAL
   LICENSE

3. OTHER

SIGNED S. Kimberly
DATE 7/1/89