

## Document Separator Sheet



**Document Title:**

AVIATION RADIOGRAPHIC INSTALLATION SURVEY NON-DESTRUCTIVE INSPECTION SURVEY

**Document ID/File Name:**

924



**Document Date:**

11/5/1981

**In NRIS:**

NO

**Installation:**

ANDERSEN\_NSA

**Author Affiliation:**

**Contract Number/CTO:**

**Command:**

MARIANAS

**Notes:**

**Original Box #:**

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61577 C  
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RASO CONTROL NO. : 850497

DATE RECEIVED: 07NOV85

ORIGINATOR: NAS AGANA

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SUBJECT: RAD VAULT SURVEY

ROUTING A: 20 <sup>P3</sup>

ROUTING I: 00 <sup>HPD</sup> 11-7

ROUTING I: 01 <sup>S</sup> 11-8

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3252.25

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SUBJ: OEHL NDI Inspection Report

DATE RECEIVED: 10 April 85 NO. COPIES 1

ACTION CODE: 6446u DUE DATE: \_\_\_\_\_

CODE	INITIAL	DATE
6446B	S	11 Apr 85
6446u	J	4/11/85

COMMENTS:

Please file in:  
 Drawing - facilities  
 OEHL Survey - in file  
 TAV file



500

NON-DESTRUCTIVE INSPECTION SURVEY  
US NAVAL AIR STATION GUAM

5 NOVEMBER 1981

**OL-AD  
USAF OCCUPATIONAL  
and  
ENVIRONMENTAL HEALTH LABORATORY**

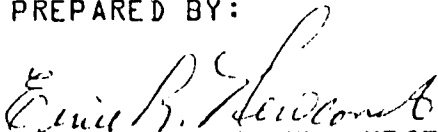
**AEROSPACE MEDICAL DIVISION (AFSC)**

**CLARK AIR BASE  
REPUBLIC OF THE PHILIPPINES  
APO SAN FRANCISCO 96274**

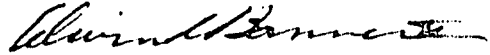
NON-DESTRUCTIVE INSPECTION SURVEY  
US NAVAL AIR STATION GUAM

5 NOVEMBER 1981

PREPARED BY:

  
ERNIE L. NEWCOMB, MSGT, USAF  
HEALTH PHYSICS TECHNICIAN

APPROVED BY:

  
EDWIN C. BANNER III, LT COLONEL, USAF, BSC  
CHIEF, OL-AD, USAF OEHL

## I. INTRODUCTION

This report contains the results of the non-destructive inspection survey conducted on 5 November 1981 at the US Naval Air Station Guam, AIMD, NDI Laboratory. This survey was conducted by MSgt Ernie N. Newcomb, Health Physics Technician, OL-AD, USAF Occupational and Environmental Health Laboratory, Clark AB, Philippines. This survey was conducted in accordance with Air Force Technical Order 33B-1-1, Chapter 5 and 29 CFR 1910.96 at the request of the OIC, Preventive Medicine Officer, USNRMC, Guam.

## II. PERSONNEL CONTACTED

J. R. McCormick, Cmdr	OIC, Preventive Medicine
C. L. Hattel, Civ	Industrial Hygienist
Oswalt, AMSC	Chief In Charge, NDI Laboratory

## III. INSTRUMENTATION USED

- A. Item: MDH X-Ray Monitor  
Model No: 1015C  
Serial No: 1864  
Date Calibrated: 23 December 1980
- B. Item: MDH Ionization Chamber  
Model No: 10 x 5 - 0.6  
Serial No: 7077  
Date Calibrated: 23 December 1980
- C. Item: Victoreen Panoramic Survey Meter  
Model No: 470A  
Serial No: 1686  
Date Calibrated: 16 October 1981

## IV. FACILITY AND EQUIPMENT SURVEYED

### A. Building:

1. The Laboratory is located in the Aircraft Intermediate Maintenance Department, Air Frames Division, Hangar. The facility is lined with 1/8" lead on all walls, door, and roof. The exterior walls are 8" reinforced concrete. The interior walls are 1/2" gypsum boards (sheet rock). The ceiling is concrete.

B. Equipment: This agency has a Magnaflux X-radiation unit, with potential of 150 KVP and 7 MA, model 376176, serial number 76541.

## V. FINDINGS

A. Scatter: X-Radiation measurements were taken on all exterior walls, ceiling, and doors of the room (Ref Atch 2 for measurements and locations). The maximum leakage recorded was



2 MR/HR on the roof directly above the beam output.

B. The door of the facility did not have interlocks installed.

C. There was no emergency shutoff switch inside of the room.

D. The mobile operation does not have specific areas/hangars authorized by the radiation protection officer.

E. There was no locally produced checklist concerning specific instruction for areas, equipment, etc.

#### VI. RECOMMENDATIONS

A. Interlocks should be installed on the door to insure the beam is cut off when the door is opened.

B. An emergency shutoff switch should be installed inside the room. This provides the personnel a method of discontinuing the beam during an emergency.

C. An authorization letter should be kept on file and used outlining specific hangars and areas for mobile operations. Included should be any limitations and specific cautions concerned with each area authorized.

D. A locally prepared checklist should be implemented concerning specific equipment operation, area monitoring, area controls, etc.

#### VII. CONCLUSIONS

A. This section will meet the requirements of Technical Order 33B-1-1 and 29 CFR 1910.96 when the recommended corrective actions are taken.

B. All personnel contacted were very efficient and courteous during this survey in the performance of their duties. The courtesy extended to the surveyor is greatly appreciated by this organization.

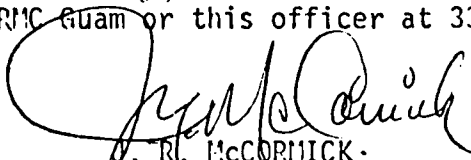


DEPARTMENT OF THE NAVY  
U.S. NAVAL REGIONAL MEDICAL CENTER  
FPO SAN FRANCISCO 96330

IN REPLY REFER TO  
37:CLH:jf  
6260  
5 November 1981

From: Commanding Officer  
To: OLAD, USAF, OEHL, APO San Francisco 96274  
Subj: X-Ray survey of NDT equipment; request for

1. It is requested that assistance in the subject area be rendered. Captain Fink, the Bioenvironmental Engineer for Anderson Air Force Base indicated that the Air Force survey team would be on island November 4, 1981 and would be available upon request.
2. Recent surveys by the Navy Environmental Health Center, Norfolk, Virginia were done on Navy medical and dental units, however, the NDT units were not completed due to a shortened time frame. It is therefore greatly appreciated that this assistance has been offered by the Air Force to complete the required surveys.
3. Point of contact is the Industrial Hygiene Branch of the Occupational and Environmental Health Service, NRMHC Guam or this officer at 339-2189.

  
J. R. MCCORMICK  
By Direction

Copy to:  
Bioenvironmental Engineer,  
Anderson AFB

SURVEY PERFORMED BY: MSgt Newcomb

REPORT NO: I-180-11-81  
SURVEY DATE: \_\_\_\_\_

I. FACILITY IDENTIFICATION:

A) BASE: Nav Air FAC B) ORGANIZATION: US Navy Air Facility  
C) STATE: Guam D) BLDG NUMBER: \_\_\_\_\_  
E) COMMAND: \_\_\_\_\_ F) ROOM NUMBER: \_\_\_\_\_  
G) OFFICE SYMBOL: AIMB H) PHONE NUMBER: AV

II. PERSONNEL CONTACTED:

(SEE ATCh: \_\_\_\_\_)

	NAME	RANK	TITLE
A)	<u>Oswalt</u>	<u>AMSC</u>	<u>Supervisor</u>
B)	<u>Suniega</u>	<u>AMS2</u>	<u>HDI Inspector</u>
C)	<u>Hattel</u>	<u>GS-11</u>	<u>Industrial Hygienist</u>
D)	_____	_____	_____
E)	_____	_____	_____

III. ENVIRONMENTAL CONDITIONS AND MDH SETTINGS:

A) ROOM TEMPERATURE: 85.0 DEGREES F  
B) BAROMETRIC PRESSURE: 100.7 MILLIBARS  
C) MDH PULSE FRACTION THRESHOLD: .2

IV. RADIOGRAPHERS: N/A

	NAME	RANK	COURSE NUMBER	DATE GRAD
1)	_____	_____	_____	_____
2)	_____	_____	_____	_____
3)	_____	_____	_____	_____
4)	_____	_____	_____	_____
5)	_____	_____	_____	_____
6)	_____	_____	_____	_____
7)	_____	_____	_____	_____
8)	_____	_____	_____	_____
9)	_____	_____	_____	_____
10)	_____	_____	_____	_____

(ATCh: 2, PAGE: 1)

V. MONITORING INSTRUMENTS:

	MANUFACTURER	MODEL	SERIAL NO	CALIBRATION DATE
1)	Texas Instruments	-----	-----	-----
2)	-----	-----	-----	-----
3)	-----	-----	-----	-----
4)	-----	-----	-----	-----
5)	-----	-----	-----	-----
6)	-----	-----	-----	-----
7)	-----	-----	-----	-----
8)	-----	-----	-----	-----
9)	-----	-----	-----	-----
10)	-----	-----	-----	-----

B) CALIBRATION:

- 1) INTERVAL: 90 DAYS  
 2) INTERVAL EQUAL TO 90 DAYS: YES: X NO: ---  
 3) DATES STAGGERED: YES: X NO: ---

- C) SUFFICIENT NUMBER OF INSTRUMENTS ON HAND: YES: X NO: ---  
 D) ALL INSTRUMENTS FUNCTION PROPERLY: YES: X NO: ---  
 E) NONE AVAILABLE: ---

VI. DOSIMETERS:

A) FILM:

- 1) ONE PER RADIOGRAPHER: YES: X NO: ---  
 2) WORN DURING RADIOGRAPHY: YES: X NO: ---  
 3) STORED PROPERLY WITH CONTROL: YES: --- NO: ---

B) POCKET:

- 1) DATE OF LAST USAGE: -----  
 2) NUMBER ISSUED TO EACH INDIVIDUAL: 2  
 3) QUANTITY:  
 ON HAND: 12 AT PMEL: 0  
 4) SUFFICIENT NUMBER ON HAND: YES: X NO: ---  
 5) WORN DURING RADIOGRAPHY: YES: X NO: ---  
 6) CALIBRATION:  
 (A) INTERVAL: 90 DAYS  
 (B) INTERVAL EQUAL TO 90 DAYS: YES: X NO: ---  
 (C) ALL ON HAND CALIBRATED: YES: X NO: ---  
 7) ALL FUNCTION PROPERLY: YES: X NO: ---  
 8) UTILIZATION LOG: YES: X NO: ---  
 DATE OF LAST ENTRY: -----

- C) NONE AVAILABLE: ---

(ATCH: 2, PAGE: 2)

VII. EQUIPMENT IDENTIFICATION:

- 2) SPER 5: -----
- 3) MAGNAFLUX 150: X
- 4) ----- : -----
- 5) ----- : -----

B) DESCRIPTION:

X-RAY UNIT	MANUFACTURER	MODEL	SER NO	KVP	MA	WORKING
(1) CONSOLE TUBE	Magnaflux Magnaflux	376176 376176	76541 76541	150	7	Y N
(2) CONSOLE TUBE	-----	-----	-----	-----	-----	Y N
(3) CONSOLE TUBE	-----	-----	-----	-----	-----	Y N
(4) CONSOLE TUBE	-----	-----	-----	-----	-----	Y N

VIII. EXPOSURE AREA DESCRIPTION:

A) DEDICATED FACILITY:

PROTECTIVE: \_\_\_ ENCLOSED: X NONE: \_\_\_

1) CONSTRUCTION:

(A) DATE OF CONSTRUCTION: Unknown  
 (B) DESIGN CRITERIA: (NOT AVAILABLE: X)  
 KVP: \_\_\_\_\_ MA: \_\_\_\_\_ WORKLOAD: \_\_\_\_\_ HRS/WEEK  
 (C) DIMENSIONS (FT):  
 LENGTH: 15' WIDTH: 9' HEIGHT: 16'

2) SHIELDING:

COMPASS DIRECTION	LEAD OR CONCRETE (IN)	USE FACTOR	OCCUPANCY FACTOR
(A) N	See Narrative	-----	-----
(B) S	-----	-----	-----
(C) E	-----	-----	-----
(D) W	-----	-----	-----
(E) C	-----	-----	-----
(F) F	-----	-----	-----

B) MOBILE OPERATIONS:

YES: X NO: \_\_\_

1) INSIDE HANGAR:

YES: X NO: \_\_\_

(A) SPECIFIC HANGAR:

YES: \_\_\_ NO: X

BLDG: \_\_\_\_\_

(B) OTHERS AS REQUIRED:

YES: X NO: \_\_\_

2) OPEN AIR:

YES: X NO: \_\_\_

WHERE: Flight line as needed

IX. SAFETY CHECK:

A) OPERATING PROCEDURES:

1) WRITTEN:	---	X	---
2) ADEQUATE:	---	X	---
3) NONE:	X	---	---

B) X-RAY TUBE UTILIZATION LOG:

1) DATE OF LAST USAGE:	4 Nov 81		
2) UTILIZATION LOG MAINTAINED:			
(A) FOR ENCLOSED FACILITIES:	X	---	---
(B) FOR UNSHIELDED OPERATIONS:	X	---	---
(C) DATE OF LAST ENTRY:	4 Nov 81		

C) INTERLOCKS:

1) ON ALL ENTRANCES:	---	X	---
2) TYPE:			
SINGLE: --- DUAL: --- DUAL INDEPENDENT: ---			
4) ALL FUNCTION PROPERLY:	---	---	X
5) INTERVAL TESTED: ----- D W M Y			

D) SIGNS:

1) AFTO FORM 9E ON INSIDE WALLS:	X	---	---
(A) HOW MANY SIGNS: <u>2</u>			
(B) VISIBLE FROM ALL LOCATIONS:	X	---	---
2) AFTO FORM 9 ON OUTSIDE ENTRANCES:	X	---	---
(A) ONE PER ENTRANCE:	X	---	---
(B) ALL LEGIBLE:	X	---	---
(C) SIGNS ON ROOF:	---	X	---
(D) SIGNS ON ACCESSES TO ROOF:	---	X	---

E) AUDIBLE SIGNAL: NONE

1) TYPE:			
(A) BELL: --- HORN: --- BUZZER: --- SIREN: ---			
(B) OTHER: -----			
2) LOCATION:			
(A) INSIDE:	---	---	X
(B) OUTSIDE:	---	---	X
3) FUNCTION PROPERLY:	---	---	X
4) CAN BE HEARD CLEARLY:			
(A) INSIDE EXPOSURE ROOM:	---	---	X
(B) OUTSIDE EXPOSURE ROOM:	---	---	X
5) ACTIVATED 15 SECONDS BEFORE EXPOSURE:	---	---	X
6) SIGN ADJACENT EXPLAINING FUNCTION:	---	---	X

F) VISIBLE SIGN

YES NO N/A

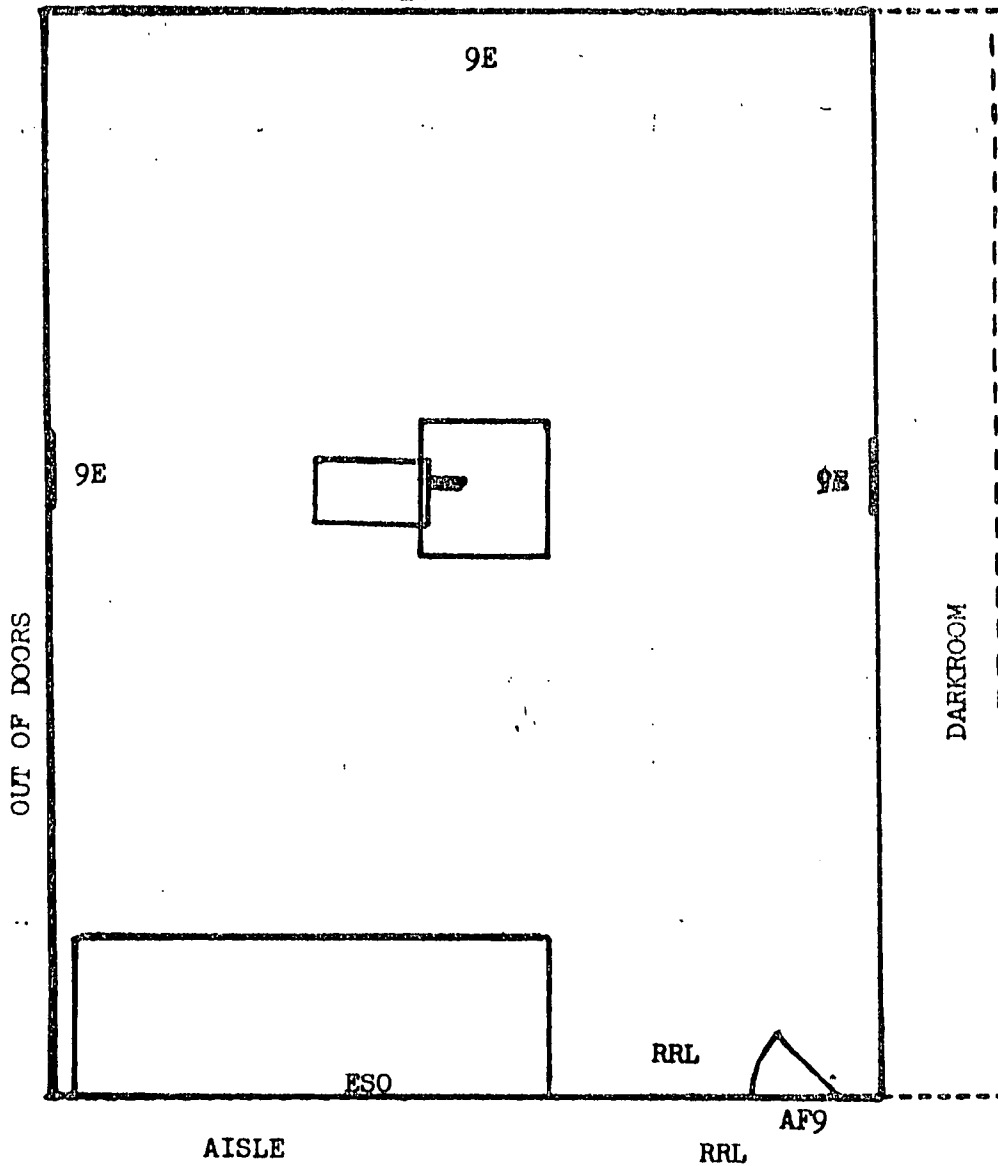
- 1) LIGHTS INSIDE EXPOSURE ROOM:
  - (A) ROTATING: --- X ---
  - (B) NUMBER:
    - RED: --- YELLOW: --- WHITE: ---
    - OTHER (-----: ---)
  - (K) STATIONARY: --- --- X
  - (F) NUMBER:
    - RED: --- YELLOW: --- WHITE: ---
    - OTHER (-----: ---)
  - (I) ALL FUNCTION PROPERLY: --- --- X
  - (J) ALL READILY VISIBLE: --- --- X
  - (K) ACTIVATED 15 SEC BEFORE EXPOSURE: --- --- X
  - (L) SIGN ADJACENT EXPLAINING FUNCTION: --- --- X
  
- 2) LIGHTS OUTSIDE EXPOSURE ROOM:
  - (A) ROTATING: X --- ---
  - (B) NUMBER:
    - RED: 4 YELLOW: 1 WHITE: ---
    - OTHER (-----: ---)
  - (E) STATIONARY: --- X ---
  - (F) NUMBER:
    - RED: --- YELLOW: --- WHITE: ---
    - OTHER (-----: ---)
  - (I) ALL FUNCTION PROPERLY: X --- ---
  - (J) ALL READILY VISIBLE: X --- ---
  - (K) ACTIVATED 15 SEC BEFORE EXPOSURE: X --- ---
  - (L) SIGN ADJACENT EXPLAINING FUNCTION: X --- ---
  
- G) EMERGENCY SHUT-OFF:
  - 1) TYPE: -----
  - 2) FUNCTIONS PROPERLY: --- --- X
  - 3) READILY ACCESSIBLE: --- --- X
  - 4) SIGN ADJACENT EXPLAINING FUNCTION: --- --- X
  
- H) PRE-START:
  - 1) TYPE: -----
  - 2) RESET REQUIRED BEFORE FIRST EXPOSURE: --- --- X
  - 3) RESET REQUIRED IF INTERLOCK TRIPPED: --- --- X
  - 4) RESET REQUIRED IF ESU PRESSED: --- --- X
  - 5) FUNCTIONS PROPERLY: --- --- X
  - 6) LOCATED INSIDE EXPOSURE ROOM: --- --- X

X. TUBE OUTPUT:

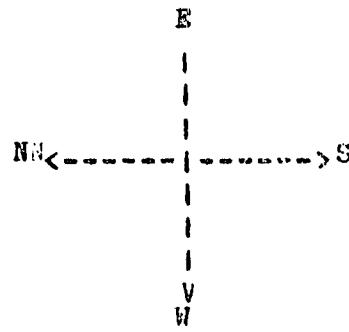
X-RAY UNIT	KVP	MA	TIME (SEC)	*SCD (IN)	EXPOSURE (R)	R/MIN
(1)	150	6	60	40	93	93
(2)	140	5	60	40	75.5	75.5
(3)	---	---	---	---	---	---
(4)	---	---	---	---	---	---

\* SOURCE TO CHAMBER DISTANCE

SUPPLY



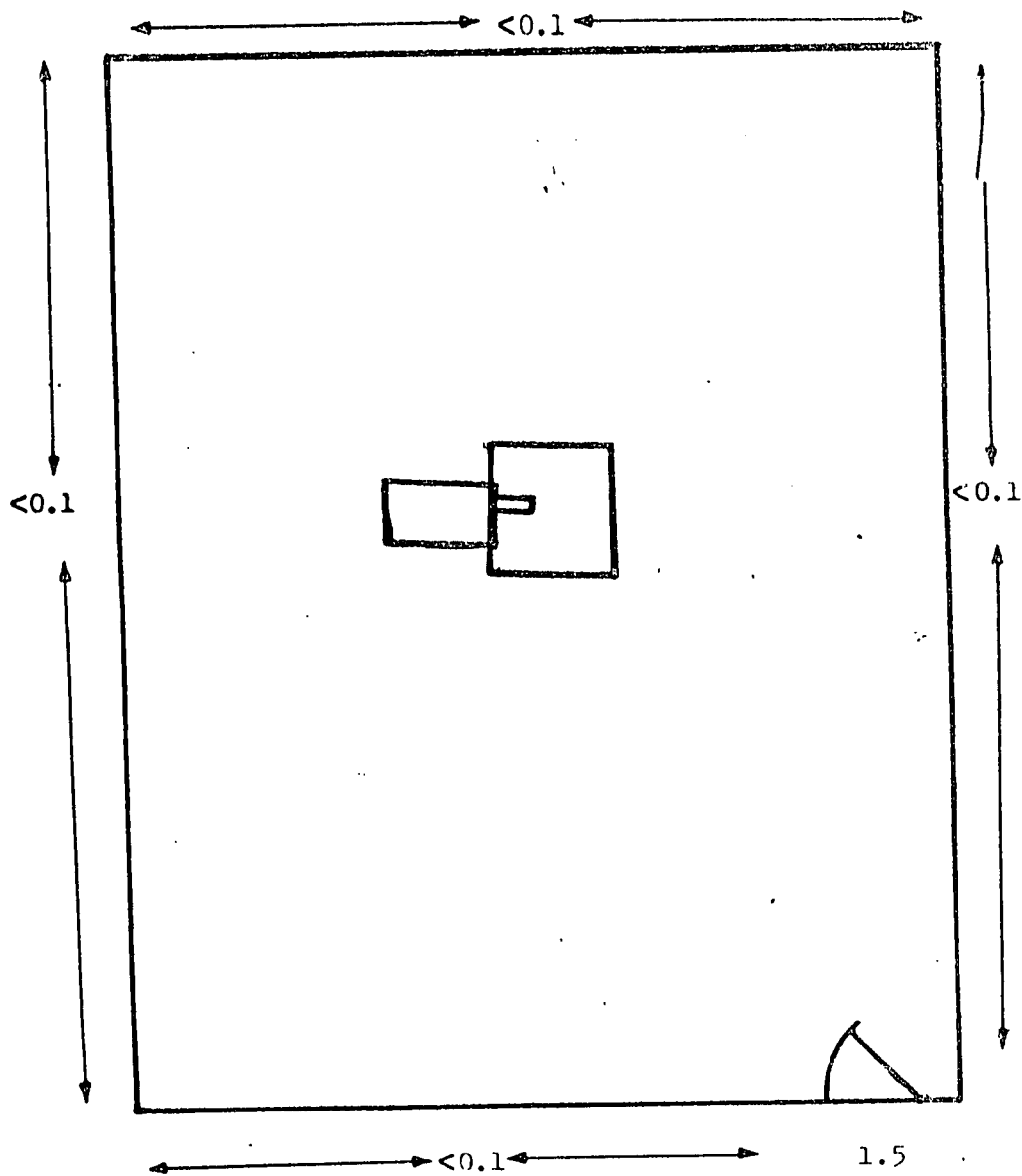
- AF9 = AFTO FORM 9
- AF9E = AFTO FORM 9E
- AS = AUDIBLE SIGNAL DEVICE
- CON = OPERATORS CONSOLE
- DIL = DUAL INTERLOCKS
- ESO = EMERGENCY SHUT-OFF SWITCH
- IL = INTERLOCK
- PB = LEAD SHEET ON FLOOR
- PS = PRE-START SWITCH
- R( )L = ROTATING ----- LIGHT
- S( )L = STATIONARY ----- LIGHT
- PR( )L = PORTABLE ROTATING ----- LIGHT
- PS( )L = PORTABLE STATIONARY ----- LIGHT





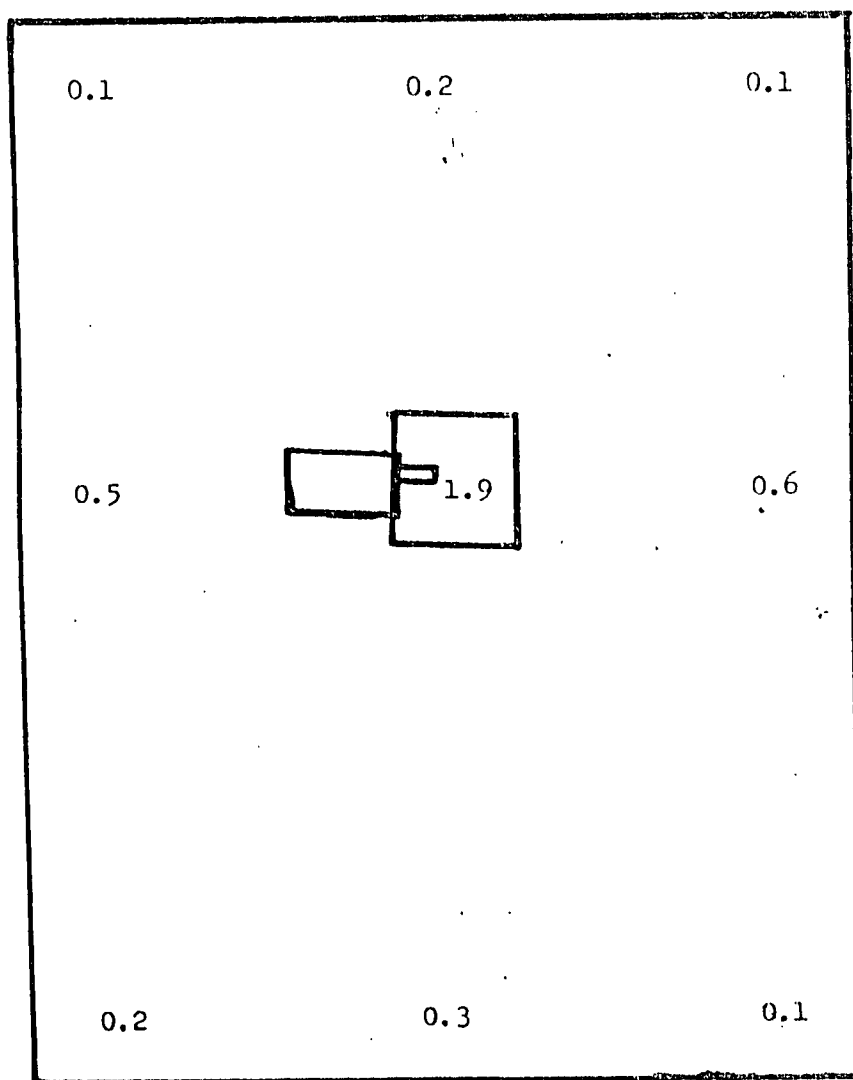
#### XIV. Scatter Measurements

Walls. The beam was directed toward each individual wall for each measurement. The unit was operating at 150 KVP and 6 MA for all measurements. All measurements are millireontgens per hour.



### XIII. Scatter Measurements

Ceiling. Beam pointing directly at ceiling. The tube was mounted in stand 40" from floor. The unit was operating at 150 KVP and 6 MA for these measurements. And notations are in millirentgens per hour.



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