

FOREWORD

In November of 1973, Todd Research & Technical Division undertook the decontamination of a Nuclear Fuels Fabrication Facility for Union Carbide Corporation. The building, identified as No. 10, is located on the grounds of their Carbon Products Division in Lawrenceburg, Tennessee.

The complete decontamination, to the specifications set down in "'Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for By-Product Source or Special Nuclear Material' - USAEC May 3, 1973", took a matter of six weeks. A major portion of the involved time was spent in surveying equipment and preparing radioactive waste for shipment.

This purpose of this report is to present the gathered survey data in an effort to gain unconditional release of the facility.

A/132

I. Introduction

Under 'Union Carbide Corporation (UCC) Letters of Intent' and Contract No. 70-743-1 Todd Research & Technical Division (TRT) undertook the decontamination of UCC's Building 10 at their Lawrenceburg, Tennessee Facility. The building had been previously used for Nuclear Fuel Fabrication and as such was considered to be moderately contaminated with uranium, an alpha emitter.

II. Initial Surveys

After arrival at the site and setup of equipment an initial survey of the facility was started. All interior and exterior areas were surveyed and preparations made for decon. In general, all walking areas, the office area and high bay were found to be free of contamination.

The incinerator on the west side of the building was found free of loose contamination, however; the fixed levels exceeded 2×10^6 dpm/100cm² on the fire bricks.

The working areas of the building itself were moderately contaminated 1000 - 10000 dpm/100cm² loose mostly in the overhead areas. The fixed levels in those areas ranged from 100 on up to 2×10^5 dpm/100cm². Equipment found in the work areas ran from one extreme to the other, i.e., either no contamination (loose or fixed) on most free items too heavy 1×10^4 dpm/100cm² and greater in the glove boxes.

The ventilation system was not as bad as was expected. The major contamination was confined to the directional louvers and the return ducts from the high bay area.

Prior to starting actual decon, all free material in the building was surveyed. Those items found clean were moved outside for UCC reclamation or disposal. Those for which decon was deemed too costly were set aside in two rooms for packaging as radioactive waste.

The other team started independently in the work areas. By this time most of the free clean material had been moved outside thus decon began in earnest.

In the Ashing Room the supporting structures for the furnace and ion exchange columns were cut down and removed as scrap. The glove boxes which could not be saved were filled with waste and welded shut. A few areas of deck tile had to be removed as even blasting would not help. Decon was slow but eventually completed when the room was completely striped.

The Machining Room was equally slow as one new stainless steel fume hood had to be arced down and removed. Upon completion a Lindburg Horizontal Furnace and a safe storage rack remained, both were deconed to written specifications.

The drain pipes from the janitor's sink were broken at all joints, surveyed and found to be free of contamination. The drains in the Lab and Inspection Room were clean also. As with the Ashing and Machining Rooms decon was started at the top with the duct exteriors and beams and cleaned up with vacuuming and some scrubbing.

In the Coating Room the overhead areas were found to be clean but the heavy dust deposits were vacuumed up to be on the safe side. All furnaces were removed and disassembled, all but one were clean to begin with, the other cleaned up easily with sandblasting.

The Maintenance and Batching Rooms were completely striped prior to surveying. The Maintenance Room required only superficial vacuuming and mopping prior to release. The Batching Room, however needed intensive sandblasting and scrubbing to meet specifications.

The safe storage racks in the vault were left in place for the most part. A few of the shelves had to be disposed of along with one loose cement block divider. The remainder of the room cleaned up on the first try.

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III. Decontamination

"Specifications for Decon 'Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for By-Product Source or Special Nuclear Material' USAEC, Division of Materials Licensing, May 3, 1973."

For the major portion of the task to be accomplished two decon-survey teams were set up, each headed up by a TRT Technician and staffed by subcontractor personnel.

One team was set to the ventilation system. The starting point for this system was the penthouse. By the time the filter containers were ready the penthouse had been vacuumed and no major loose surface contamination remained. At this point the filters were removed and placed in the containers in as near the same array in which they were used as possible. The remainder of the penthouse including the fan was steam sprayed and in some instances, i. e., the fan cowl and shaft, sandblasted. About half of the flow directing louvers upstream of the cooling and heating coils were removed and disposed of as radioactive waste.

The supply side of the system, i. e., downstream of the filters was released after the first survey. The filters, although badly placed, had done their intended job.

The return ducts from the high bay area proved to be the toughest to decon. All surfaces came clean however, after sandblasting.

The main work area return ducts cleaned up easily with a simple vacuuming in most cases. A few spots notably over the Ashing and Machining Rooms had to be sandblasted but it was relatively small area. All but two of the intake louver plates were disposed of as radioactive waste.

The Forming Room due to raw size and extensive overhead contamination had to be steam cleaned. This removed all the loose contamination. A few areas of external duct and building structure had to be sandblasted to bring the fixed contaminants into specifications.

One upright press, a mixer and a fume hood were left in the room upon completion along with some large boxes which had been stored in the room.

All drain lines in the building were checked and found to be within release specifications. A few required decon around the mouth. After intensive internal checks were made the contaminants were determined to have been tracked or otherwise transferred from other surfaces.

The main hall required only superficial dusting and wiping to meet specifications.

IV. Waste Material

An estimated 400 grams of uranium entirely the form of contaminants was disposed of as radioactive waste. This was loaded in 114 containers, for a total of 3,663.35 cubic feet. This was transferred from UCC to TRT and then on the Chem Nuclear System in four batches of 150, 132.5, 103.4 and 14.1 grams SNM respectively. Transfer records are included as attachment 1 to this report.

V. Exposure

Whole body exposure for all TRT and subcontractor personnel as measured by film dosimetry was nondetectable. Internal deposits of alpha contaminants was minimal, i. e., nondetectable as measured by urinalysis.

At no time, during the performance of this task, was any hazardous airborne contamination recorded.

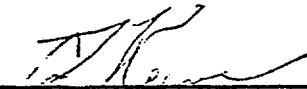
VI. Final Surveys

All release or final surveys are included in this report as attachment 2.

VII. Recommendations

Although specific recommendations would depend upon future site usage TRT prefers the following general recommendations:

1. You might consider using standard prefilters (as were in the system) for the ventilation system as the fixtures were left in place.
2. If nuclear work is anticipated restructuring of the ventilation system to put the absolute filters upstream of the blower would make the system much more accessible.



T. J. Keane, Superintendent
Nuclear Services Dept.

TRANSFER RECORDS

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RADIATIVE SHIPMENT/TRANSFER RECORD

TO: T-1000 RESEARCH & TECHNICAL DIV (6) CIVIL ENGINEERING - (CIVIL ENGINEERING)

FROM: (NAME) CARBIDE CORPORATION (6) CIVIL ENGINEERING - (CIVIL ENGINEERING)

ADDRESS: Hwy 43 S

CITY: ZIP: STATE: AGENCY: LICENSE NO. 8-371

QUANT. MATERIAL: RADIATION LEVEL: MREM/HR: AT (DISTANCE)

QUANT. MATERIAL: RADIATION LEVEL: MREM/HR: AT (DISTANCE)

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REMARKS:

The above materials (listed by item on following transfer/shipment forms) are administratively accepted by T&T prior to loading for shipment to Chem-Nuclear Systems for bonded &

CATION	CONTACT	6'	15'	LOCATION	CONTACT	6'	15'	CEN. NO.	CAL. DATE	VECH. IDENT	OWNER	DATE

SURVEY RESULTS MREM / HR

MAXIMUM SURFACE CONTAMINATION ON VEHICLE BED BEFORE UNLOADING: 1000 cpi/100 cm² AFTER UNLOADING: 1000 cpi/100 cm²

PACKED DEALS IN PLACE: YES ☐ NO ☐ YES ☐ NO ☐ IF NOT EXPLAIN UNDER REMARKS

TRANSPORT EQUIP (S): RADIOCLIDE (S): CURIE CONTENT: CHECK LABEL (S) APPLIED: ☐ I ☐ II ☐ III

SA 10 all < 1 C

117.5 c/s

Radioactive Waste

TODD SHIPYARDS CORPORATION
(GALVESTON DIVISION)
GALVESTON, TEXAS 77551

NUMBER	12 2 1 2 2
DATE PREPARED	
TODD ORDER NUMBER	
TODD REQUISITION NO.	
CUSTOMER ORDER NO.	

TO BE SHIPPED FROM
 U.S. CUSTOMER
 CASHES
 H. H. H. H. H.
 H. H. H. H. H.

SHIPPING INSTRUCTIONS (CHECK APPLICABLE BOX)							
EXP.	FRT.	P.P.	P.U.	O.T.	COLL.	P.P.D.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	S
OTHER				F.O.B. POINT		TERMS	
S.E. U.E.							

RETURN OF					SALE OF			
OVER SHIPMENT <input type="checkbox"/>	DAMAGED MATERIAL <input type="checkbox"/>	INCORRECT MATERIAL <input type="checkbox"/>	CUSTOMER MATERIAL <input type="checkbox"/>		SURPLUS INVENTORY <input type="checkbox"/>	PLANT EQUIPMENT <input type="checkbox"/>	SCRAP METAL <input checked="" type="checkbox"/>	OTHER

SHIPPING CLERK TO COMPLETE THE FOLLOWING

MAT'L REC'D IN GOOD ORDER DATE REC'D
BY

SECRET//NOFORN//SI//NF

RADIOACTIVE SHIPMENT/TRANSFER RECORD

TODD RESEARCH & TECHNICAL DIV DANGER CARBIDE - CARBON PRODUCTS, INC.		TO CHEM - NUCLEAR SYSTEMS INC.	
Hwy 45 S		ADDRESS Hwy 64	
STATE TENN	ZIP	CITY	STATE S.C. ZIP
LAWRENCE 0026	TECHN	SHARPE 006	S.C.
USE NO.	AGENCY	LICENSE NO.	AGENCY
DATE 11-16-73	RADIATION LEVEL MREM/HR	AT (DISTANCE)	QUANT. MATERIAL RADIATION LEVEL MREM/HR AT (DISTANCE)
LSA	2.1 mR/hr	<	1171.5 c/s RAD WASTE

TRANSPORT GROUP (S) 111	RADIOISOTOPE (S) 235U	CURIE CONTENT 150 grams SPIN	CHECK LABEL(S) APPLIED <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input checked="" type="checkbox"/> IV
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WELDED SEAL IN PLACE ☒ YES ☐ NO IF NOT EXPLAIN UNDER REMARKS

USE "CONTAINMENT" YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	MAXIMUM SURFACE CONTAMINATION ON VEHICLE BED BEFORE LOADING < 570 pCi/100 cm ²	AFTER UNLOADING 500 pCi/100 cm ²
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SURVEY RESULTS MREM / HR								INSTRUMENT USED E-120	
TYPE	CONTACT	6'	15'	LOCATION	CONTACT	6'	15'	SER. NO.	DATE
1	K-1	N/A	N/A	R. SIDE	K-1			2404	11-5-73
2	1	N/A	N/A	L. SIDE	1			VECH. IDENT	471
3	1			OCCUPIED AREA MAX. SCAN	1			OWNER	TRI-STATE
4	1			SURVEYED BY: Kame				DATE	11-16-73

REMARKS:

RADIOACTIVE - LSA NO LABELS REQ'D
PLACARDS REQUIRED

APPROVALS TO SHIP	DATE	APPROVALS TO SHIP	DATE
ATION CONTROL <i>[Signature]</i>	11-16-73	AUTHORIZED GATE PASS	
ERIAL CONTROL		OTHER	
JECT REP. <i>[Signature]</i>	11-16-73	OTHER	

SHIPMENT FILE 3.15	ORIGINAL	1	ACKNOWLEDGEMENT OF RECEIPT NAME <i>[Signature]</i> DATE 11-16-73 ORGANIZATION <i>[Signature]</i> Page 3
GATE PASS	CARSON	1	
MATERIAL CONTROL	CARBON	2	

RADIOACTIVE SHIPMENT RECORD FORM

RCE: UNION CARBIDE CORPORATION - CARBON PRODUCTS DIVISION - LAURENSBURG PLANT

per TOPO RESEARCH & TECHNICAL DIVISION Date 11-16 19 73

INION CRABIDE - CRABON PRODUCTS Division - LAURENSBURG, Tenn Page 1 of pages.

INSTRUCTIONS

Use complete this form and distribute as follows:
Mail original and 10th copy to Chem-Nuclear Services Inc.
P.O. Box 6304, Columbia, S.C. 29206
Hand 6th copy to truck driver.
Retain 3rd copy

Use enter each isotope known to be present in a container (up to three) on separate lines. For three or more isotopes or mixed fission products, enter MFP in the Isotope column, at the isotopes mentioned in 2 above on the shipping label.

or Inspector or a Chem-Nuclear Services, Inc. employee must initial the last column after inspection in accordance with Title 10 CFR Part 20, as follows:

Each package is marked with

CAUTION — RADIOACTIVE MATERIAL

see paragraph 20.203, (2)(1). Markers will be supplied by Chem-Nuclear Services, Inc., on request.

Each package is marked to show the isotopes, microcurie quantities, and date of measurement, see paragraph 23.281 (f) (4).

Each package is marked to show the isotopes, microcurie quantities, and date of measurement, see paragraph 20.200 (b)(4). Each package has been monitored by radiation survey instruments at surface (2 in.) and one meter (39.4 in.) and smeared. Enter smear results in Column No. 4.

Each package has been monitored by radiation survey instruments at all times during shipment.

Location: Title to all materials, whether or not they were previously Government-owned, contained in waste furnished for disposal under this contract (except material which is required by Section 52 of the Atomic Energy Act of 1954, as amended, to be owned by the Government) shall be deemed to be vested in Chem-Nuclear Services, Inc. immediately upon acceptance of such material by Chem-Nuclear Services, Inc. from the shipper or from the common carrier. The Government or shipper shall have no right to the recovery of any materials contained in such waste nor any credit for their potential value.

Pkg. No.	Mr hr		Smear Results	Isotopes	By products	SNM Grams	Source Pounds	Cubic Feet	Gallons	Container Weight	Monitor
	Surface	One Meter									
2	less than .5	less than .1	21000 dpm x 4 38	235U 238U	N/A	15	N/A	397.0	N/A	7000	X
3						15		471.0		5000	X
4						15		2.5		100	X
23						15		22.5		1000	X
28						15		7.0		100	X
29						15		7.0		100	X
30						15		40.5		1000	X
31						15		12.0		1000	X
51						15		84.0		1000	X
62						15		128.0		1000	X

TODD RESEARCH & TECHNICAL DIVISION

RADIOACTIVE SHIPMENT/TRANSFER RECORD

FROM UNION CARBIDE CORPORATION			TO TODD RESEARCH & TECHNICAL DIV @ UNION CARBIDE - CARBON PRODUCTS, INC.			
ADDRESS Hwy 43 S			ADDRESS Hwy 43 S			
CITY LAURENCEBURG	STATE TENN	ZIP	CITY LAURENCEBURG	STATE TENN	ZIP	
LICENSE NO. AGENCY			LICENSE NO. AGENCY			
			8-371 TENN			
CONTAINER (TYPE)	RADIATION LEVEL MREM/HR	AT (DISTANCE)	QUANT.	MATERIAL	RADIATION LEVEL MREM/HR	AT (DISTANCE)
LSA (54)	all < .1	C	810.4 cu ft	Radioactive Waste		

TRANSPORT GROUP (S) III	RADIOISOTOPE (S) Dep Cont 235	CURIE CONTENT 132.5 grams	CHECK LABEL (S) APPLIED <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III
SECURED SEALS IN PLACE <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF NOT EXPLAIN UNDER REMARKS			
ISLE USE SHIPMENT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	MAXIMUM SURFACE CONTAMINATION ON VEHICLE BED BEFORE LOADING p Ci/100 cm ² AFTER UNLOADING 50 Ci/100 cm ²		

SURVEY RESULTS MREM / HR								INSTRUMENT USED	
LOCATION	CONTACT	6'	15'	LOCATION	CONTACT	6'	15'	SER. NO.	
TOP OF WHEEL	N/A	N/A	N/A	R. SIDE	N/A			CAL. DATE	
BOTTOM OF WHEEL		N/A	N/A	L. SIDE				VECH. IDENT	
FRONT				OCCUPIED AREA MAX. SCAN				OWNER	
BACK				SURVEYED BY:				DATE	

REMARKS:
The above materials (listed by item on following transfer/shipment forms) are administratively accepted by TRT prior to loading for shipment to Chem-Nuclear Systems for burial &

APPROVALS TO SHIP	DATE	APPROVALS TO SHIP	DATE
ADDITION CONTROL		AUTHORIZED GATE PASS	
MATERIAL CONTROL		OTHER	
PROJECT REP.		OTHER	

SHIPMENT FILE 315 _____ ORIGINAL 1		ACKNOWLEDGEMENT OF RECEIPT	
GATE PASS _____ CARBON 1		NAME <i>[Signature]</i>	DATE 1000 11-16-73
MATERIAL CONTROL _____ CARBON 2		ORGANIZATION	Page 5

TODD RESEARCH & TECHNICAL DIVISION

RADIOACTIVE SHIPMENT/TRANSFER RECORD

FROM <u>Todd Research & Technical Div</u>			TO <u>Chem Nuclear Systems</u>		
<u>G Union Carbide-Carbon Products Div</u>			ADDRESS <u> Hwy 64</u>		
CITY <u>Lawrenceburg</u>	STATE <u>Tenn</u>	ZIP <u>38454</u>	CITY <u>Snelling</u>	STATE <u>S.C</u>	ZIP <u></u>
LICENSE NO. <u></u> AGENCY <u></u>			LICENSE NO. <u></u> AGENCY <u></u>		
CONTAINER (TYPE) <u>LSA-54</u>	RADIATION LEVEL MREM/HR <u><1</u>	AT (DISTANCE) <u>C</u>	QUANT. <u>810.4 cwt</u>	MATERIAL <u>Radioactive material</u>	

TRANSPORT GROUP (S) <u>III</u>	RADIOISOTOPE (S) <u>225 U</u>	CURIE CONTENT <u>132.5 grams</u>	CHECK LABEL (S) APPLIED <input checked="" type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <u>1/2</u>
--------------------------------	-------------------------------	----------------------------------	---

REQUIRED SEALS IN PLACE ☒ YES ☐ NO IF NOT EXPLAIN UNDER REMARKS

SCALE USE SHIPMENT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	MAXIMUM SURFACE CONTAMINATION ON VEHICLE BED	
	BEFORE LOADING <u>< 50</u> pCi/100 cm ²	AFTER UNLOADING <u>6</u> pCi/100 cm ²

SURVEY RESULTS MREM / HR								INSTRUMENT USED <u>E-120</u>	
LOCATION	CONTACT	6'	15'	LOCATION	CONTACT	6'	15'	SER. NO.	<u>2474</u>
TOP OF VEHICLE	<u>1.1</u>	<u>N/A</u>	<u>N/A</u>	R. SIDE	<u>1.1</u>			CAL. DATE	<u>11-5-93</u>
BOTTOM OF VEHICLE	<u>1</u>	<u>N/A</u>	<u>N/A</u>	L. SIDE	<u>1</u>			VECH. IDENT	<u>779</u>
FRONT	<u>1</u>			OCCUPIED AREA MAX. SCAN	<u>1</u>			OWNER	<u>TRI STATE</u>
BACK	<u>1</u>			SURVEYED BY:	<u>X</u>			DATE	<u>11-16-93</u>

REMARKS:

APPROVALS TO SHIP		DATE	APPROVALS TO SHIP		DATE
RADIATION CONTROL <u>[Signature]</u>		<u>11-16-93</u>	AUTHORIZED GATE PASS		
MATERIAL CONTROL			OTHER		
PROJECT REP. <u>[Signature]</u>		<u>11-16-93</u>	OTHER		

DISTRIBUTION:		ACKNOWLEDGEMENT OF RECEIPT	
SHIPMENT FILE 3.15	ORIGINAL 1	NAME <u>X [Signature]</u>	DATE <u>11-16-93</u>
GATE PASS	CARBON 1	ORGANIZATION <u>TRI STATE</u>	
MATERIAL CONTROL	CARBON 2		

RADIOACTIVE SHIPMENT RECORD FORM

Union Carbide - Carbon Products Division - Lawrenceburg, Tenn. Page 1 of 3 pages.

Page 8

Chem-Nuclear Services, Inc.

RADIOACTIVE SHIPMENT RECORD FORM

SOURCE: UNION CARBIDE CORPORATION - CARBON PRODUCTS DIVISION - LAURENSBURG, TENNShipper: TOOD RESEARCH & TECHNICAL DIVISION Date: 11-16-73 19 73UNION CARBIDE - CARBON PRODUCTS DIVISION - LAURENSBURG, TENN Page 2 of 3 pages.

INSTRUCTIONS

Please complete this form and distribute as follows:

- Mail original and 1 back copy to Chem-Nuclear Services Inc.
P.O. Box 8000, Columbia, S.C. 29206
- Hand Gold copy to truck driver.
- Retain Canary copy

Please enter each isotope known to be present in a container (up to three) on separate lines. For three or more isotopes or mixed fission products, enter MFP in the isotope column.

List the isotopes mentioned in 2 above on the shipping label.

Your Inspector or a Chem-Nuclear Services, Inc. employee must initial the last column after inspection in accordance with Title 10 CFR Part 20, as follows:

- Each package is marked with

CAUTION — RADIOACTIVE MATERIAL

see paragraph 20.203, (c) (1). Markers will be supplied by Chem-Nuclear Services, Inc., on request.

- Each package is marked to show the isotopes, microcurie quantities, and date of measurement, see paragraph 20.203 (c) (4).

- Each package has been monitored by radiation survey instruments at surface (3 in.) and one meter (39.4 in.) and smeared. Enter smear results in Column No. 4.

Disclaimer: Title to all materials, whether or not they were previously Government-owned, contained in waste furnished for disposal under this contract (except material which is required by Section 52 of the Atomic Energy Act of 1954, as amended, to be owned by the Government) shall be deemed to be vested in Chem-Nuclear Services, Inc. immediately upon acceptance of such material by Chem-Nuclear Services, Inc. from the shipper or from the common carrier. The Government or shipper shall have no right to the recovery of any materials contained in such waste nor any credit for their potential value.

Pkg. No.	Mr/hr		Smear Results	Isotopes	By products Millicurie	SNM Grams	Source Pounds	Cubic Feet	Gallons	Container Weight	Monitor
	Surface	One Meter									
44	1.55/1hr.5	1.55/1hr.1	21000/1hr.5 21000/1hr.1	21000/1hr.5 21000/1hr.1	N/A	2.5	N/A	18.0	N/A		X
46						2.5		27.0			X
49						2.5		4.0			X
50						2.5		4.5			X
54						2.5		12.0			X
55						2.5		10.0			X
57						2.5		8.0			X
58						2.5		8.0			X
63						2.5		64.0			X
56						2.5		7.5			X
D-1						2.5		7.35			X
D-2						2.5		7.35			X
D-3						2.5		7.35			X
D-4						2.5		7.35			X
D-7						2.5		7.35			X
D-10						2.5		7.35			X
D-11						2.5		7.35			X
D-12						2.5		7.35			X
D-20	Y	Y	Y	Y	Y	2.5	Y	7.35	Y		X

RADIOACTIVE SHIPMENT RECORD FORM

ORIGIN: UNION CARBIDE CORPORATION - CARBON PRODUCTS DIVISION - LAWRENCEVILLE, TENN

per FOOD RESEARCH & TECHNICAL DIVISION Date 11-16-73 19 73

UNION CARBIDE - CARBON PRODUCTS DIVISION - LAWRENCEVILLE, TENN Page 3 of 3 pages.

INSTRUCTIONS

Use complete this form and distribute as follows:
 Mail original and pink copy to Chem-Nuclear Services Inc.
 P.O. Box 6300, Columbia, S.C. 29206
 Send Gold copy to truck driver.
 Retain Green copy

Use enter each isotope known to be present in a container (up to three) on separate lines. For three or more isotopes or mixed fission products, enter MFP in the Isotope column.
 Enter the isotopes mentioned in 2 above on the shipping label.

Inspector or a Chem-Nuclear Services, Inc. employee must initial the last column after inspection in accordance with Title 10 CFR Part 20, as follows:
 Each package is marked with

CAUTION — RADIOACTIVE MATERIAL

see paragraph 20.203, (f) (1). Markers will be supplied by Chem-Nuclear Services, Inc., on request.

Each package is marked to show the isotopes, microcurie quantities, and date of measurement, see paragraph 20.203 (f) (4).

Each package has been monitored by radiation survey instruments at surface (2 in.) and one meter (30.4 in.) and smeared. Enter smear results in Column No. 4.

Warning: Title to all materials, whether or not they were previously Government-owned, contained in waste furnished for disposal under this contract (except material which is required by Section 52 of the Atomic Energy Act of 1954, as amended, to be owned by the Government) shall be deemed to be vested in Chem-Nuclear Services, Inc., immediately upon acceptance of such material by Chem-Nuclear Services, Inc. from the shipper or from the common carrier. The Government or shipper shall have no right to the recovery of any materials contained in such waste nor any credit for their potential value.

Pkg. No.	Mtr. Hr.		Smear Results	Isotopes	By products Millicurie	SNM Grams	Source Pounds	Cubic Feet	Gallons	Container Weight	Monitor
	Surface	One Meter									
36	less than .5	less than .1	< 1000 ¹⁰ ₄ 38	²³⁵ U ²³⁹ U	N/A	2.5	N/A	7.35	N/A		X
37						2.5					X
38						2.5					X
39						2.5					X
40						2.5					X
41						2.5					X
42						2.5					X
43						2.5					X
44						2.5					X
45						2.5					X
46						2.5					X
47						2.5					X
48						2.5					X
49						2.5					X
50						2.5					X
-						2.5		471			X
	Y	Y	Y	Y	Y		Y	Y			

Thane Shipper

Page 10
 Received by

RADIOACTIVE SHIPMENT/TRANSFER RECORD

[illegible]

REF: 644444

The above materials (listed by item on following transfer/shipment forms) are administratively accepted by IRT prior to loading for shipment to Chem-Nuclear Systems for burial &

APPROVALS TO SHIP	DATE	ADDITION CONTROL	OTHER	ADDITIONAL CONTROL	OTHER	PROJECT KIN	OTHER

1	ORIGINAL	SHIPMENT FILE 315
1	CARBON	GATE PASS
2	CARBON	MATERIAL CONTROL
ORGANIZATION _____ NAME _____ DATE 11-16-73 ACKNOWLEDGEMENT OF RECEIPT		

TODD SHIPYARDS CORPORATION
~~16 GALVESTON DIVISION~~
GALVESTON, TEXAS 77551

NUMBER	
DATE PREPARED	
TODD ORDER NUMBER	
TODD REQUISITION NO.	
CUSTOMER ORDER NO.	

TO BE SHIPPED FROM

SHIPPING INSTRUCTIONS (CHECK APPLICABLE BOX)						
EXP.	FRT.	P.P.	P.U.	O.T.	COLL.	P.P.D.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> \$
OTHER				F.O.B. POINT		TERMS
S.S. U.S.						

RETURN OF					SALE OF									
OVER SHIPMENT	<input type="checkbox"/>	DAMAGED MATERIAL	<input type="checkbox"/>	INCORRECT MATERIAL	<input type="checkbox"/>	CUSTOMER MATERIAL	<input type="checkbox"/>	SURPLUS INVENTORY	<input type="checkbox"/>	PLANT EQUIPMENT	<input type="checkbox"/>	SCRAP METAL	<input checked="" type="checkbox"/>	OTHER

SHIPPING CLERK TO COMPLETE THE FOLLOWING

SHIPMENT / SALE APP'D BY	DATE
--------------------------	------

COMPLETE ☒ PARTIAL ☐

NO. OF PACKAGES
OR CARTONS ~~20~~ 14

CARRIER

WEIGHT OF SHIPMENT $\approx 40,000$ lbs

SHIPMENT BY (SHIPPING CLERK)	DATE

CAR, WAYBILL
EXPRESS OR OTHER
NUMBER

MAT'L REC'D IN GOOD ORDER	DATE REC'D
BY: <i>[Signature]</i>	

TODD RESEARCH & TECHNICAL DIVISION

RADIOACTIVE SHIPMENT/TRANSFER RECORD

FROM: TODD RESEARCH & TECHNICAL DIV UNION CARBIDE CORP (CARBON PRODUCTS DIV)			TO: CH2M NUCLEAR SYSTEMS		
ADDRESS: HWY 43 SO			ADDRESS: HWY 64		
CITY: LAWRENCE	STATE: TENN	ZIP:	CITY: SNELLING	STATE: S.C.	ZIP:
LICENSE NO. AGENCY			LICENSE NO. AGENCY		
CONTAINER (7795): LSA-56		RADIATION LEVEL MREM/HR: 44.8	QUANT. MATERIAL: 1570.6		RADIATION LEVEL MREM/HR: 2.1
		AT (DISTANCE): C			AT (DISTANCE): R/A waste

TRANSPORT GROUP (S): 111	RADIONUCLIDE (S): 235 U	CURIE CONTENT: 102.4 g	CHECK LABEL (S) APPLIED: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input checked="" type="checkbox"/> IV
--------------------------	-------------------------	------------------------	--

REQUIRED SEALS IN PLACE ☒ YES ☐ NO IF NOT EXPLAIN UNDER REMARKS

USE SHIPMENT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	MAXIMUM SURFACE CONTAMINATION ON VEHICLE BED	
	BEFORE LOADING < 50 pCi/100 cm ²	AFTER UNLOADING pCi/100 cm ²

SURVEY RESULTS MREM / HR								INSTRUMENT USED E-120	
LOCATION	CONTACT	6'	15'	LOCATION	CONTACT	6'	15'	SER. NO.	2474
SP. 3	< .1	N/A	N/A	R. SIDE	2.1			CAL. DATE	11-15-73
VEHICLE		N/A	N/A	L. SIDE	< .1			VECH. IDENT	528
FRONT				OCCUPIED AREA MAX. SCAN	< .1			OWNER	TRI STATE
BACK				SURVEYED BY:	K			DATE	11-19-73

REMARKS:

LSA - NO LABELS REQ'D.

PLACARDS REQUIRED

APPROVALS TO SHIP	DATE	APPROVALS TO SHIP	DATE
RADIATION CONTROL: [Signature]	11-19-73	AUTHORIZED GATE PASS	
MATERIAL CONTROL		OTHER	
PROJECT REP. [Signature]	11-19-73	OTHER	

DISTRIBUTION:		ACKNOWLEDGEMENT OF RECEIPT	
SHIPMENT FILE 3.15	ORIGINAL 1	NAME: [Signature]	DATE: 11-17-73
GATE PASS	CARBON 1	ORGANIZATION: [Signature]	
MATERIAL CONTROL	CARBON 2		

Chem-Nuclear Services, Inc.

RADIOACTIVE SHIPMENT RECORD FORM

SOURCE: UNION CARBIDE CORPORATION - CARBON PRODUCTS DIVISION - LAWRENCEVILLE, TENNPrepared by TODD RESEARCH & TECHNICAL DIVISION Date 19 73Union Carbide - Carbon Products Division - Lawrenceville, Tenn Page 1 of 3 pages.

INSTRUCTIONS

Please complete this form and distribute as follows:

- Mail original and three copy to Chem-Nuclear Services Inc.
P.O. Box 900, Columbia, S.C. 29206
- Hand four copy to truck driver.
- Retain one copy.

Please enter each isotope known to be present in a container (up to three) on separate lines. For three or more isotopes or mixed fission products, enter MFP in the Isotope column.

List the isotopes mentioned in 2 above on the shipping label.

Your Inspector or a Chem-Nuclear Services, Inc. employee must initial the last column after inspection in accordance with Title 16 CFR Part 20, as follows:

- Each package is marked with

CAUTION - RADIOACTIVE MATERIAL

see paragraph 20.203, (2)(1). Markers will be supplied by Chem-Nuclear Services, Inc., on request.

- Each package is marked to show the isotopes, microcurie quantities, and date of measurement, see paragraph 20.203 (2)(4).

- Each package has been monitored by radiation survey instruments at surface (2 in.) and one meter (39.4 in.) and smeared. Enter smear results in Column No. 4.

Disclaimer: Title to all materials, whether or not they were previously Government-owned, contained in waste furnished for disposal under this contract (except material which is required by Section 82 of the Atomic Energy Act of 1954, as amended, to be owned by the Government) shall be deemed to be vested in Chem-Nuclear Services, Inc. immediately upon acceptance of such material by Chem-Nuclear Services, Inc. from the shipper or from the common carrier. The Government or shipper shall have no right to the recovery of any materials contained in such waste nor any credit for their potential value.

Pkg. No.	Mr hr		Smear Results	Isotopes	By products Millicurie	SNM Grams	Source Pounds	Cubic Feet	Gallons	Container Weight	Monitor
	Surface	One Meter									
-5	less than .5	less than .1	21000 n 438	U-235 U-238	N/A	2.35	N/A	7.35	N/A		X
-6											X
-7											X
-8											X
-13											X
-14											X
-15											X
-16											X
-17											X
-18											X
-19											X
-21											X
-22											X
-23											X
-24											X
-25											X
-26											X
-27											X
-28											X

Shipper

Received by

RADIOACTIVE SHIPMENT RECORD FORM

RCE: UNION CARBIDE CORPORATION - CARBON PRODUCTS DIVISION - LAWRENCEVILLE, TENNper TOOD RESEARCH & TECHNICAL DIVISION Date 19 73UNION CARBIDE - CARBON PRODUCTS DIVISION - LAWRENCEVILLE, TENN Page 2 of 3 pages

INSTRUCTIONS

Please complete this form and distribute as follows:

Mail original and 100% copy to Chem-Nuclear Services Inc.

P.O. Box 68-A, Columbia, S.C. 29306

Hand 50% copy to truck driver.

Retain Company copy

Please enter each isotope known to be present in a container (up to three) on separate lines. For three or more isotopes or mixed fission products, enter MFP in the isotope column. at the isotopes mentioned in 2 above on the shipping label.

For Inspector or a Chem-Nuclear Services, Inc. employee must initial the last column after inspection in accordance with Title 16 CFR Part 23, as follows:

Each package is marked with

CAUTION — RADIOACTIVE MATERIAL

see paragraph 23.203, (c)(1). Markers will be supplied by Chem-Nuclear Services, Inc., on request.

Each package is marked to show the isotopes, microcurie quantities, and date of measurement, see paragraph 23.203 (f)(2).

Each package has been monitored by radiation survey instruments at surface (2 in.) and one meter (39.4 in.) and smeared. Enter smear results in Column No. 4.

Disclaimer: Title to all materials, whether or not they were previously Government-owned, contained in waste furnished for disposal under this contract (except material which is acquired by Section 59 of the Atomic Energy Act of 1954, as amended, to be owned by the Government) shall be deemed to be vested in Chem-Nuclear Services, Inc. immediately upon acceptance of such material by Chem-Nuclear Services, Inc. from the shipper or from the common carrier. The Government or shipper shall have no right to the recovery of any materials contained in such waste nor any credit for their potential value.

Page No.	Surface	One Meter	Smear Results	Isotopes	By products Microcurie	SNM Grams	Source Pounds	Cubic Feet	Gallons	Container Weight	Monitor
29	100% 0.5	100% 0.1	2700 dpm x 38	235U	N/A	2.35	N/A	7.35	N/A		X
30											X
31											X
32											X
33											X
34											X
35											X
								397.0			X
8								40.5			X
10								20.0			X
11								31.5			X
12								12.0			X
13								8.5			X
15								21.0			X
17								58.5			X
18								15.0			X

Chem.-Nuclear Services, Inc.

RADIOACTIVE SHIPMENT RECORD FORM

SOURCE: UNION CARBIDE CORPORATION - CARBON PRODUCTS DIVISION - LAWRENCEVILLE, PLANTPrepared by TODD RESEARCH & TECHNICAL DIVISION Date 19 7.3.UNION CARBIDE - CARBON PRODUCTS DIVISION - LAWRENCEVILLE, Tenn Page 3 of 3 pages.

INSTRUCTIONS

Please complete this form and distribute as follows:

- 1. Mail original and 100% copy to Chem-Nuclear Services Inc., P.O. Box 2400, Columbia, S.C. 29206
- 2. Hand 100% copy to truck driver.
- 3. Retain 100% copy

Please enter each isotope known to be present in a container (up to three) on separate lines. For three or more isotopes or mixed fission products, enter MFP in the isotope column.

List the isotopes mentioned in 2 above on the shipping label.

Your Inspector or a Chem-Nuclear Services, Inc. employee must initial the last column after inspection in accordance with Title 10 CFR Part 20, as follows:

- a. Each package is marked with

CAUTION - RADIOACTIVE MATERIAL

see paragraph 20.203, (c) (1). Markers will be supplied by Chem-Nuclear Services, Inc., on request.

- b. Each package is marked to show the isotopes, microcurie quantities, and date of measurement, see paragraph 20.203 (c) (2).

- c. Each package has been monitored by radiation survey instruments at surface (2 in.) and one meter (30.4 in.) and smeared. Enter smear results in Column No. 4.

Disclaimer: Title to all materials, whether or not they were previously Government-owned, contained in waste furnished for disposal under this contract (except material which is required by Section 52 of the Atomic Energy Act of 1954, as amended, to be owned by the Government) shall be deemed to be vested in Chem-Nuclear Services, Inc. immediately upon acceptance of such material by Chem-Nuclear Services, Inc. from the shipper or from the common carrier. The Government or shipper shall have no right to the recovery of any materials contained in such waste nor any credit for their potential value.

Pkg. No.	Mr. hr	Surface	One Meter	Smear Results	Isotopes	By products	SNM	Source	Cubic	Gallons	Container	Monitor
						Microcurie	Grams	Pounds	Feet		Weight	
19	1000/1000.5	1000/1000.5	1	2.1000/1000.5	235U, 238U	N/A	2.35	N/A	5.0	N/A		X
27							2.35		9.0			X
							2.35					X
43							2.35		18.0			X
45							2.35		16.0			X
47							2.35		12.0			X
							2.35					X
52							2.35		75.0			X
53							2.35		11.5			X
57							2.35		47.0			X
							2.35					X
61							2.35		128.0			X
64							2.35		72.5			X

TODD RESEARCH & TECHNICAL DIVISION

RADIOACTIVE SHIPMENT/TRANSFER RECORD

UNITED CARBIDE CORPORATION			TO: Todd Research & Technical Div. @ United Carbide & Chemical Products Co.		
Hwy 43 S			ADDRESS Hwy 43 S		
STATE	ZIP	CITY	STATE	ZIP	CITY
LAURENSBURG	TENN	LAURENSBURG	Tenn		
AGENCY			LICENSE NO.		
			8-871		
AGENCY			Tenn		
CONTAINER (TYPE)	RADIATION LEVEL MREM/HR	AT (DISTANCE)	QUANT. MATERIAL	RADIATION LEVEL MREM/HR	AT (DISTANCE)
SA-6	all < 1	C	110.35 cu ft		
			Radioactive Waste		

TRANSPORT GROUP (S)	RADIOISOTOPE (S)	CURIE CONTENT	CHECK LABEL (S) APPLIED
III	U-235	14.1 grams	<input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III
EQUIPPED SEALS IN PLACE <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF NOT EXPLAIN UNDER REMARKS			
MAXIMUM SURFACE CONTAMINATION ON VEHICLE BED			
BEFORE LOADING		AFTER UNLOADING	
pCi/100 cm ²		pCi/100 cm ²	
SURVEY RESULTS MREM / HR			
LOCATION	CONTACT	6'	15'
TOP OF TRUCK	N/A	N/A	N/A
LOCATION	CONTACT	6'	15'
R. SIDE	N/A		
LOCATION	CONTACT	6'	15'
L. SIDE			
OCCUPIED AREA		INSTRUMENT USED	
MAX. SEEN			
SURVEYED BY:		DATE	

REMARKS:

The above materials (listed by item on following transfer/shipment forms) are administratively accepted by TRT prior to loading for shipment to Chem-Nuclear Systems for burial &

APPROVALS TO SHIP	DATE	APPROVALS TO SHIP	DATE
ADDITIONAL CONTROL		AUTHORIZED GATE PASS	
INTERNAL CONTROL		OTHER	
EXCESS WIA		OTHER	

ACKNOWLEDGEMENT OF RECEIPT	
SHIPMENT FILE NO. _____ ORIGINAL 1	NAME <i>J. K. [Signature]</i>
GATE PASS _____ CARBON 1	DATE 12-30
INTERNAL CONTROL _____ CARBON 2	11-17-73

TODD SHIPYARDS CORPORATION
(GALVESTON DIVISION)
GALVESTON, TEXAS 77551

NUMBER

DATE PREPARED

TODD ORDER NUMBER

TODD REQUISITION NO.

CUSTOMER ORDER NO.

SOLD TO

TO BE SHIPPED FROM

SHIP TO

SHIPPING INSTRUCTIONS (CHECK APPLICABLE BOX)

EXP.	FRT.	P.P.	P.U.	O.T.	COLL.	P.P.D.
------	------	------	------	------	-------	--------

☐ ☐ ☐ ☐ ☒ ☐ ☐ S

OTHER

F.O.B. POINT

TERMS

TYPE OF TRANSACTION

RETURN OF

SALE OF

OVER SHIPMENT	<input type="checkbox"/>	DAMAGED MATERIAL	<input type="checkbox"/>	INCORRECT MATERIAL	<input type="checkbox"/>	CUSTOMER MATERIAL	<input type="checkbox"/>
---------------	--------------------------	------------------	--------------------------	--------------------	--------------------------	-------------------	--------------------------

SURPLUS
INVENTORY

PLANT EQUIPMENT ☐

SCRAP
METAL

OTHER

QUANTITY

UNIT

DESCRIPTION AND MATERIAL CODE

UNIT PRICE

AMOUNT

6

USA Column 2 of 2/4

Waste

Arundo Donax

SHIPPING CLERK TO COMPLETE THE FOLLOWING

SHIPMENT/SALE APP'D BY

DATE _____

COMPLETE ☒

PARTIAL ☐

NO. OF PACKAGES
OR CARTONS

6

CARRIER

WEIGHT OF
SHIPMENT

۲۰۰

SHIPMENT BY (SHIPPING CLERK) DATE

CAR, WAYBILL
EXPRESS OR OTHER
NUMBER

MAT'L REC'D IN GOOD ORDER
BY

DATE REC'D

By

RAD. ACTIVE SHIPMENT/TRANSFER RECORD

FROM: <u>Tenn Research & Technical Div</u> <u>At Union Carbide - Carbon Products Div</u>			TO: <u>Cham - Nuclear Systems Inc.</u>		
CITY: <u>Hwy 43 - S</u>			ADDRESS: <u>Hwy 64 So</u>		
CITY: <u>Lawrenceburg</u>	STATE: <u>Tenn</u>	ZIP: <u></u>	CITY: <u>Smelling</u>	STATE: <u>SC</u>	ZIP: <u></u>
LICENSE NO. <u></u> AGENCY <u></u>			LICENSE NO. <u></u> AGENCY <u></u>		
CONTAINER (TYPE): <u>2SA-6</u>	RADIATION LEVEL MREM/HR: <u>2.1</u>	AT (DISTANCE): <u>C</u>	QUANT. MATERIAL: <u>110.85 CoFe.</u>	RADIATION LEVEL MREM/HR: <u></u>	AT (DISTANCE): <u></u>
			Radioactive Waste		

TRANSPORT GROUP (S): <u>III</u>	RADIONUCLIDE (S): <u>M.F.P.</u>	DATE CONTENT: <u>14.1 g</u>	CHECK LABEL (S) APPLIED: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III
---------------------------------	---------------------------------	-----------------------------	--

REQUIRED SEALS IN PLACE <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF NOT EXPLAIN UNDER REMARKS								
USE "SHIPMENT" <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO MAXIMUM SURFACE CONTAMINATION ON VEHICLE BED BEFORE LOADING <u>2.50</u> pCi/100 cm ² AFTER UNLOADING <u>50</u> pCi/100 cm ²								
SURVEY RESULTS MREM / HR								
LOCATION	CONTACT	6'	15'	LOCATION	CONTACT	6'	15'	INSTRUMENT USED <u>E-120</u>
TOP OF ENGINE	<u>2.1</u>	N/A	N/A	R. SIDE	<u>2.1</u>			SER. NO. <u>2474</u>
BOTTOM OF ENGINE	<u>1</u>	N/A	N/A	L. SIDE	<u>2.1</u>			CAL. DATE <u>11-5-73</u>
FRONT	<u>1</u>			OCCUPIED AREA MAX. SCAN	<u>2.1</u>			VECH. IDENT <u>D-HAUL</u>
BACK	<u>1</u>			SURVEYED BY: <u>TKERNE</u>				OWNER <u>"</u>
								DATE <u>11-17-73</u>

REMARKS:

RADIOACTIVE 2SA - No Labels REQ'D

PLACARDS REQ'D

APPROVALS TO SHIP	DATE	APPROVALS TO SHIP	DATE
RADIATION CONTROL <u>[Signature]</u>	<u>11-17-73</u>	AUTHORIZED GATE PASS	
MATERIAL CONTROL <u>[Signature]</u>		OTHER	
PROJECT REP. <u>[Signature]</u>	<u>11-17-73</u>	OTHER	

DISTRIBUTION:		ACKNOWLEDGEMENT OF RECEIPT	
SHIPMENT FILE 3.15 _____ ORIGINAL 1		NAME <u>[Signature]</u>	DATE <u>11/17/73</u>
GATE PASS _____ CARBON 1		ORGANIZATION <u>Cham Nuclear Systems</u>	Page 19
MATERIAL CONTROL _____ CARBON 2			

RADIOACTIVE SHIPMENT RECORD FORM

RCR: UNION CARBIDE CORPORATION - CARBON PRODUCTS DIVISION - LAWRENCEBURG, TENN

per FOOD RESEARCH & TECHNICAL DIVISION Date 11 - 17 19 73

UNION CARBIDE - CARBON PRODUCTS DIVISION - LAWRENCEBURG, TENN Page 1 of 1 pages.

INSTRUCTIONS

Use complete this form and distribute as follows:
 Mail original and 10th copy to Chem-Nuclear Services Inc.
 P.O. Box 6806, Columbia, S.C. 29206
 Send 6th copy to truck driver.
 Retain 5th copy.

Use enter each isotope known to be present in a container (up to three) on separate lines. For three or more isotopes or mixed fission products, enter MFP in the isotope column.
 at the isotopes mentioned in 2 above on the shipping label.

or Inspector or a Chem-Nuclear Services, Inc. employee must initial the last column after inspection in accordance with Title 10 CFR Part 20, as follows:
 Each package is marked with

CAUTION - RADIOACTIVE MATERIAL

see paragraph 20.203, (2)(1). Markers will be supplied by Chem-Nuclear Services, Inc., on request.

Each package is marked to show the isotopes, microcurie quantities, and date of measurement, see paragraph 20.203 (2)(4).

Each package has been monitored by radiation survey instruments at surface (2 in.) and one meter (39.4 in.) and smeared. Enter smear results in Column No. 4.

Disclaimer: Title to all materials, whether or not they were previously Government-owned, contained in waste furnished for disposal under this contract (except material which is required by Section 52 of the Atomic Energy Act of 1954, as amended, to be owned by the Government) shall be deemed to be vested in Chem-Nuclear Services, Inc. immediately upon acceptance of such material by Chem-Nuclear Services, Inc. from the shipper or from the common carrier. The Government or shipper shall have no right to the recovery of any materials contained in such waste nor any credit for their potential value.

Pkg. No.	Mr. hr		Smear Results	Isotopes	By products Millicurie	SNM Grams	Source Pounds	Cubic Feet	Gallons	Container Weight	Monitor
	Surface	One Meter									
	less than .5	less than .1	21000/1 X 5-38	U-235 U-238	N/A		N/A		N/A		<
7						2.55		36.0			X
5						2.35		27.5			X
2						2.35		9.0			X
5						2.35		9.0			X
10						2.35		12.0			X
25						2.35		7.35			X
						14.1		110.85		500	

FINAL SURVEYS

INDEX

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Although each survey form has space for instrument type, the following may be considered to be a part of each survey to account for any missing information:

I. Alpha Surveys - All alpha surveys were conducted with either

A. Eberline Model PAC-ISA Portable Alpha Counter which is coupled with a Model AC-3 Alpha Scintillation Detector.

B. Ludlum Model 12 or 16 Count Rate Meter coupled with their Model 43-4 Air Proportional Detector.

Both instrument types were used direct on the surface for fixed activity and in conjunction with a swipe for loose activity.

II. Beta-Gamma Surveys

A. Fixed activity surveys were conducted direct on the surface with an Eberline Model E-120 Meter coupled with their Model HP-177B side shield Beta-Gamma Probe.

B. Loose activity surveys were conducted by swiping the surface and counting the swipes on

1. Nuclear Chicago Model 8775 Scaler-Timer coupled with an Eberline Model HP-210 Detector.

2. Eberline Model E-120 Meter coupled with an Eberline Model HP-210 Detector.

III. Recording - Data derived in the surveys of the Nuclear Fuels Building are recorded as follows:

Alpha Loose - dpm/100cm²

Alpha Fixed - dpm/100cm²

Beta-Gamma Loose - dpm/100cm²

Beta-Gamma Fixed - mrad/hr

IV. Results - The following survey sheets show the building to be within the specifications set forth in "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for By-Product Source or Special Nuclear Material", USAEC May 3, 1973.

pe Survey: Swipe in pCi/10 cm ² <input type="checkbox"/>		Date: 11-27-73	Time:
Dose Rate in mRem/hr <input type="checkbox"/>		Location: INCINERATOR PAD	
ken by: PRUETT	Ser. No.:	Scaler:	Bgr: c/m
st. Type:	Cal. Date:	Eff. %	Eff. Date:

α Fixed High — 5000 d/m
 Fixed Average — 2000 d/m
 Loose — < 100 d/m

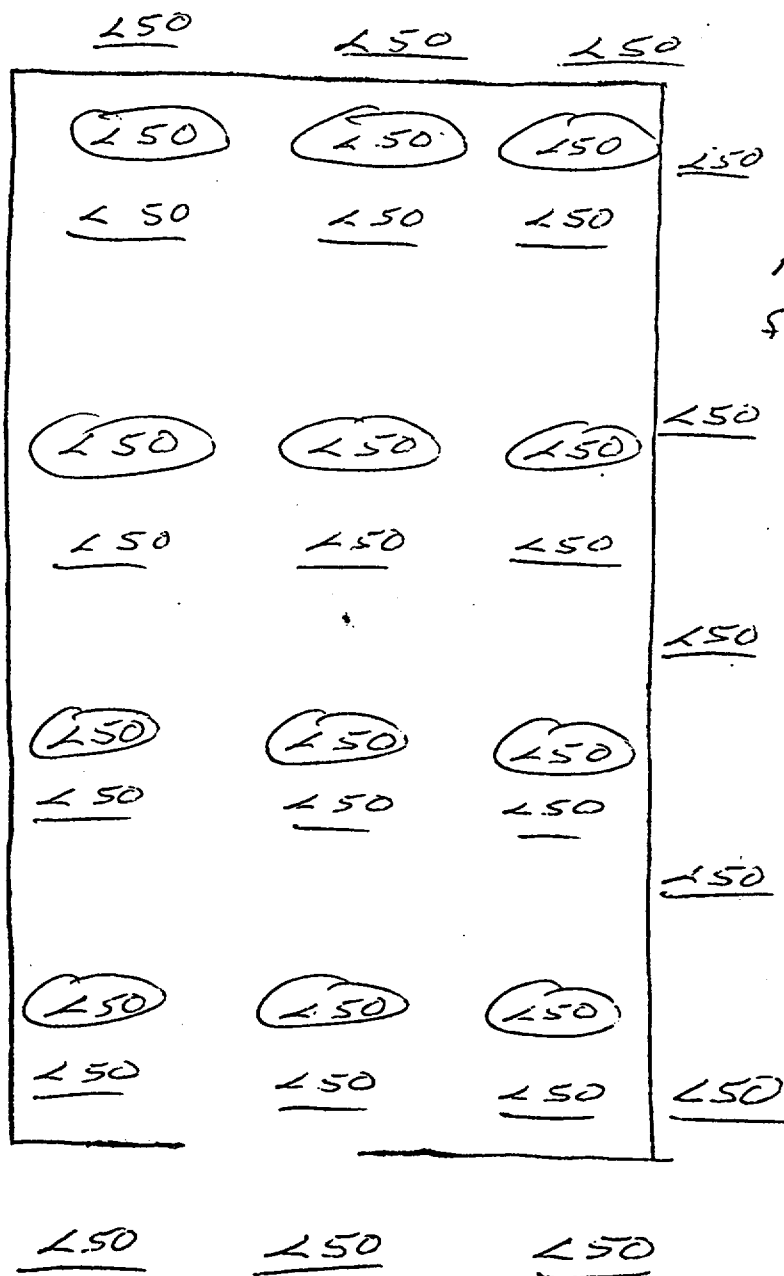
B-γ MAX FIXED < .1 mrad/hr
 Loose < 50 d/m

ROOF - INSIDE — < 100 d/m
 OUTSIDE — < 100 d/m

SUPPORT BEAMS — < 100 d/m

RADIATION - RADIOLOGICAL SURVEY FORM

Type Survey: <input type="checkbox"/> Swipe in pCi/100cm ² <input type="checkbox"/> Dose Rate in mrem/hr		Date: 11-27-73	Time:
Taken by: <u>Keane</u>		Location: <u>STORAGE AREA</u>	
Inst. Type: <u>LUDLUM 16</u>	Ser. No.:	Scaler:	Bgr: <u>c/m</u>
Probe: <u>43-4</u>	Cal. Date:	Eff.: %	Eff. Date:



○ α loose d/m/100cm²
 — α fixed d/m/100cm²

B-γ
 loose 100 d/m/100cm²
 fixed 1 mrad/hr

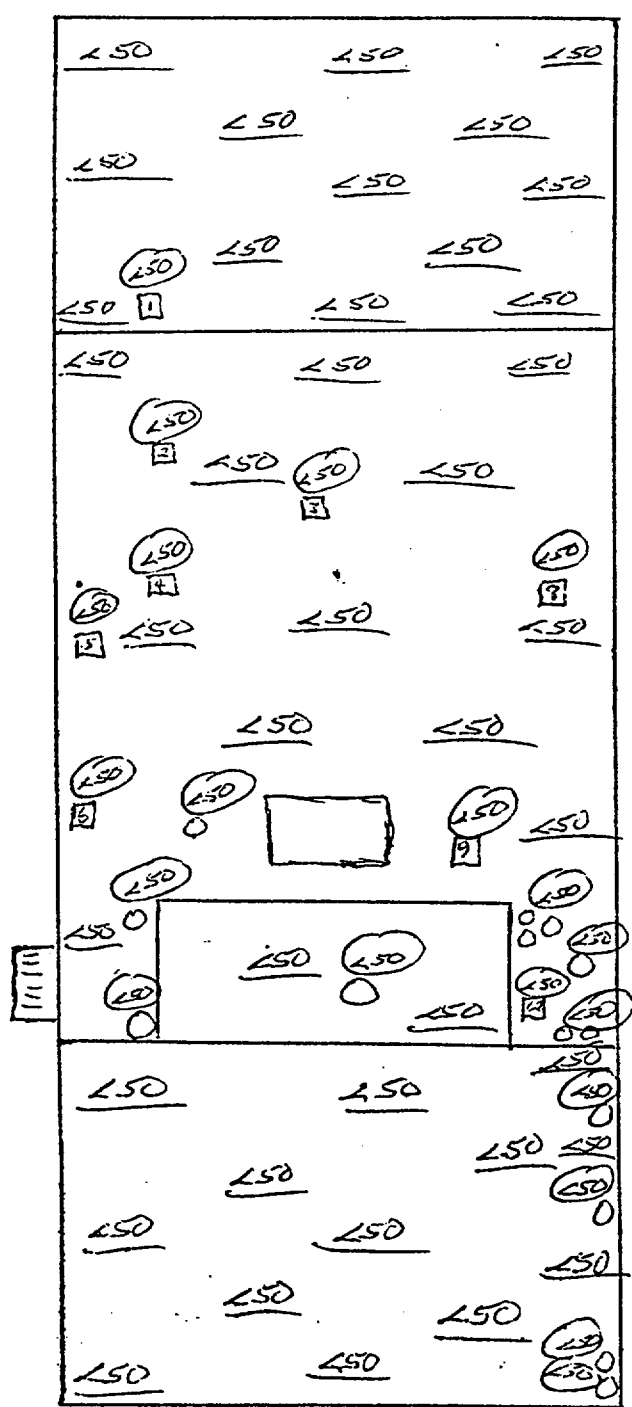
Type Survey: Swipe in pCi/100cm ² Dose Rate in mrem/hr		Date: 11-27-73	Time:
Taken by: PRUETT / KENNE		Location: OUTSIDE DOORS	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff: %	Eff. Date:

ENTRANCE

MAIN ————— 250 DPM
 BATCHING ————— 250 DPM
 FORMING SINGLE ————— 250 DPM
 FORMING DOUBLE ————— 100 DPM
 MAINTENANCE ————— 250 DPM (SEE SURVEY FOR DRIVEWAY)
 MACHINING ————— 250 DPM
 ASHING ————— 300 DPM
 INSPECTION ————— 250
 LAB ————— 250
 COATING - N ————— 250
 COATING - S ————— 250

pe Survey: Swipe in pCi/ Jcm ² <input type="checkbox"/> Dose, Rate in mRem/hr <input type="checkbox"/>		Date: 11-27-73	Time:
ken by: <i>Reone</i>		Location: <i>Roof of Facilities</i>	
st. Type: <i>London 16</i>	Ser. No.:	Scaler:	Bgr: c/m
obe: <i>43-4</i>	Cal. Date:	Eff: %	Eff. Date:

- ☒ 1 NUMBERED ROOF VENTS
- ☐ 2 UNNUMBERED ROOF VENTS

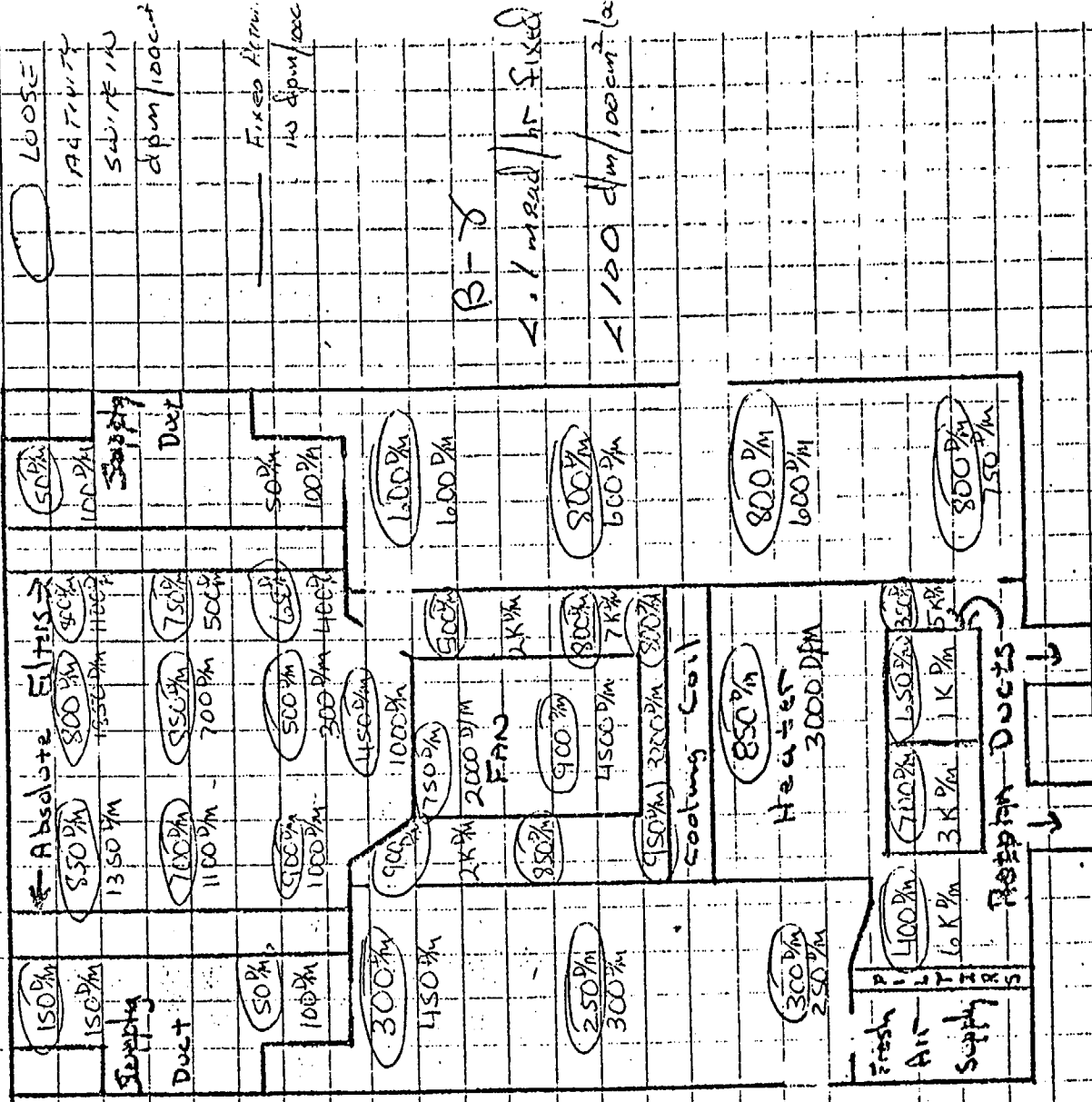


Fixed Activity DPM/100cm

Loose Activity DPM/100cm

by: Armstrong Location: RENTHOUSE

I. Type:	Ser. No.:	Scaler:		Bgr:	c/m
		Eff:	%		
do:	Cal. Date:	Eff. Date:			



pe Survey: Swipe in pCi/100cm² ☐
 Dose Rate in m. m/hr ☐

Date:

11-25-73

Time:

ken by: Armstrong

Location:

WEST CLEAN AREA - PENTHOUSE

st. Type:

Ser. No.:

Scaler:

Bgr:

c/m

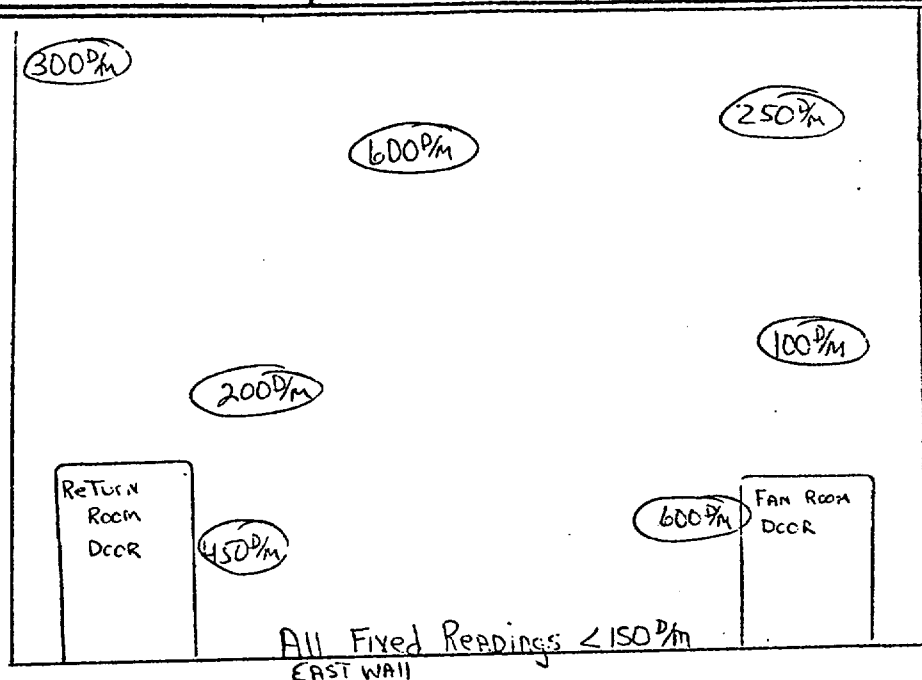
abe:

Cal. Date:

Eff.:

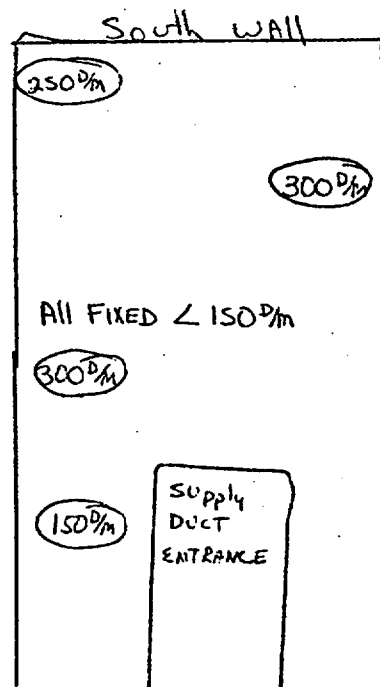
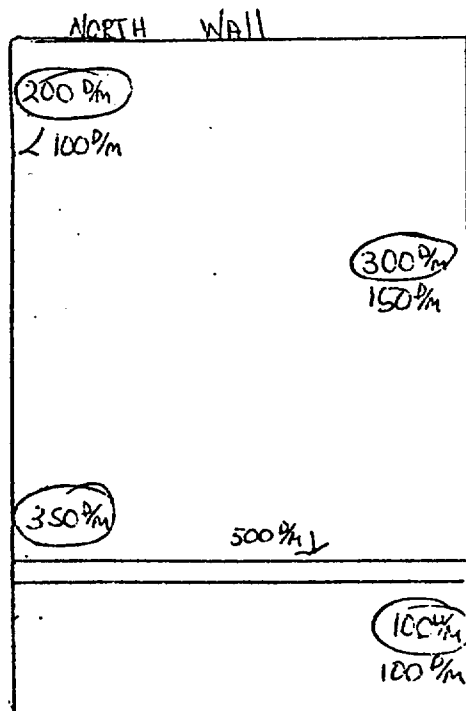
%

Eff. Date:



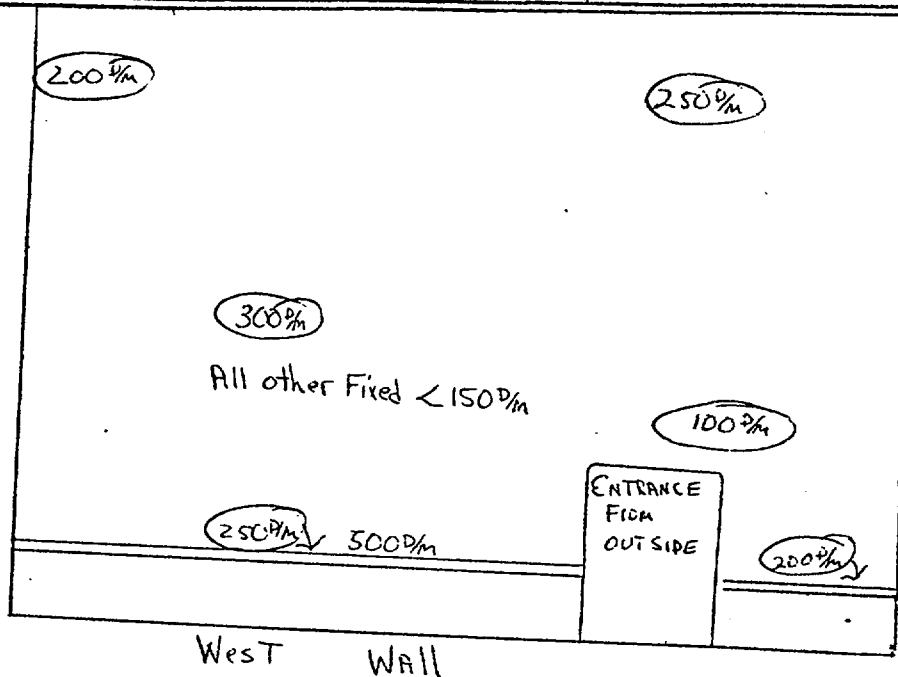
○ Loose Activity
 Swipe in DPM/100cm²

Fixed Activity
 IN DPM/100cm²



TODD NUCLEAR DIVISION - RADIOLOGICAL SURVEY FORM

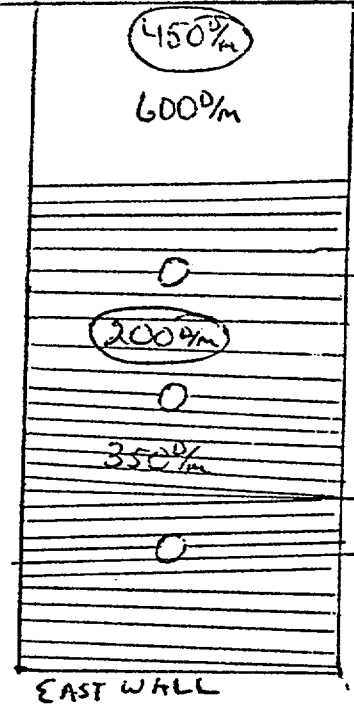
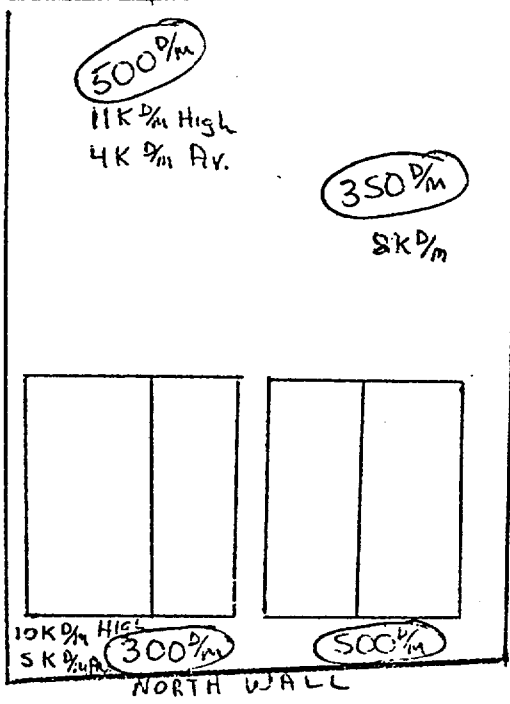
pe Survey: Swipe in $\mu\text{Ci}/100\text{cm}^2$ <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 11-25-73	Time:
ken by: Armstrong		Location:	
st. Type:	Ser. No.:	Scaler:	Bgr: c/m
be:	Cal. Date:	Eff: %	Eff. Date:



Loose Activity
Swipe in $\text{DPM}/100\text{cm}^2$

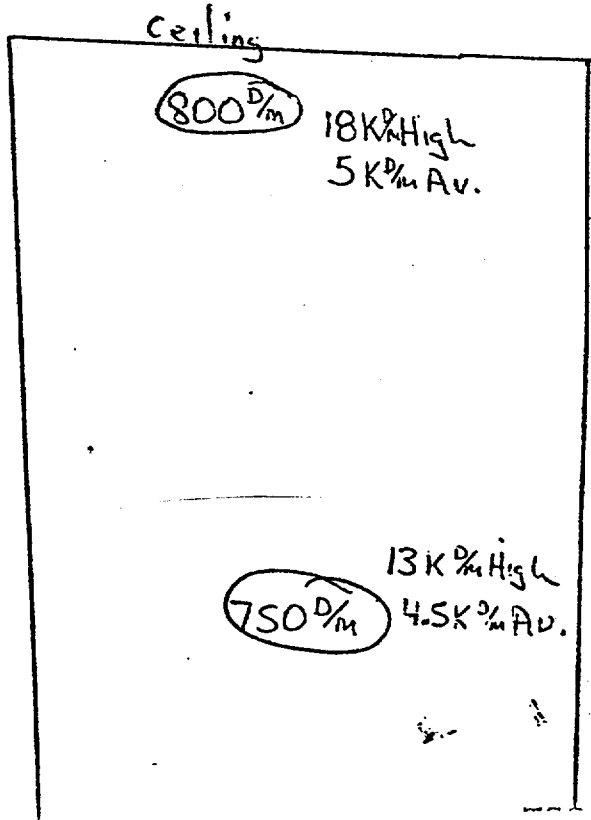
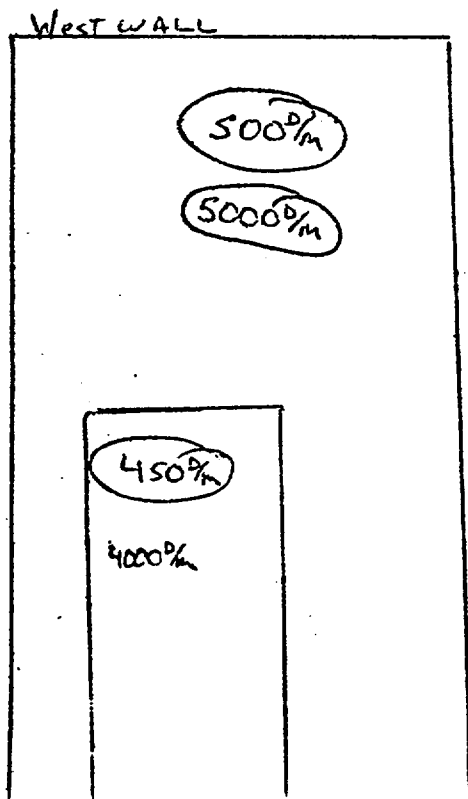
Fixed Activity
in $\text{DPM}/100\text{cm}^2$

pe Survey: Swipe in pCi/ 10cm ² <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 11-25-73	Time:
ken by: Armstrong		Location: Heaters & Cooling coil Room	
st. Type:	Ser. No.:	Scaler:	Bgr: c/m
bbe:	Cal. Date:	Eff: %	Eff. Date:

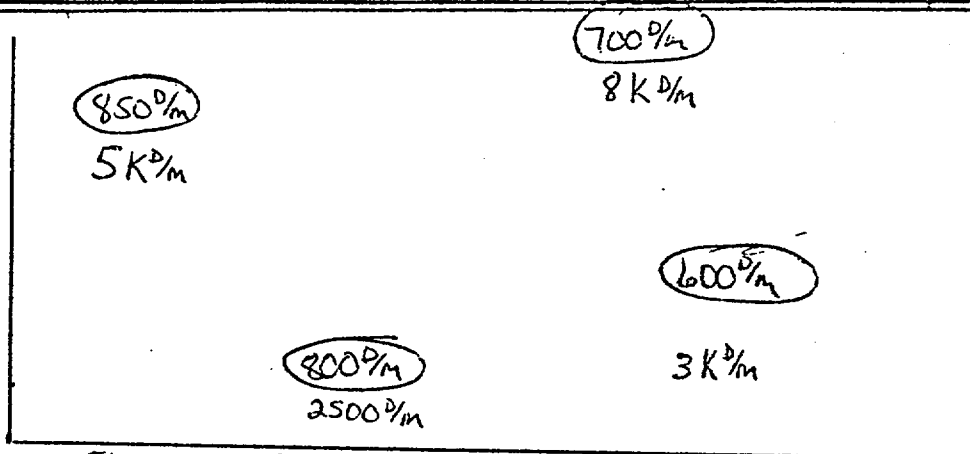


○ Loose Activity
Swipe in DPM/100cm²

Fixed Activity
in Dpm/100cm²



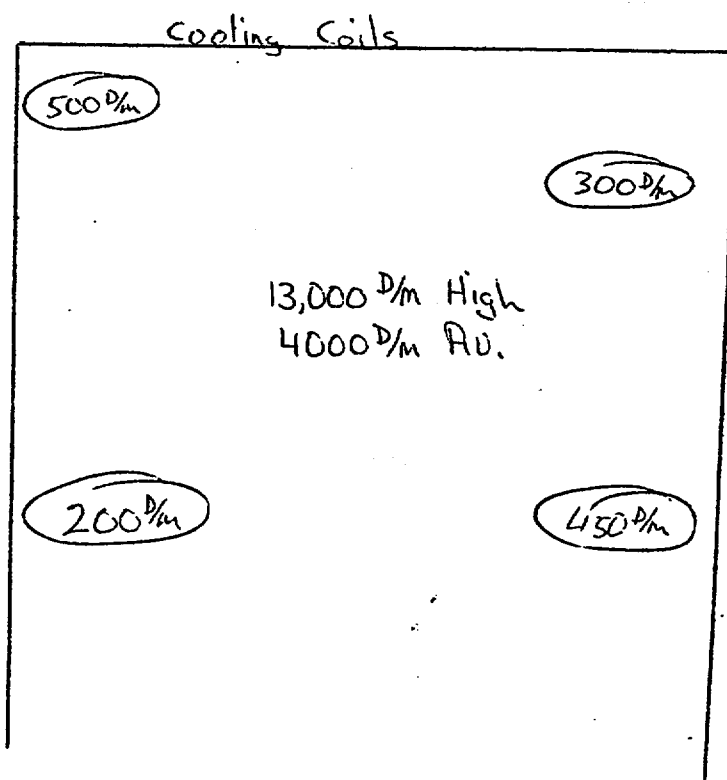
Type Survey: Swipe in pCi/100cm ² Dose Rate in mrem/hr		Date: 11-25-73	Time:
Taken by: Armstrong		Location:	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff: %	Eff. Date:



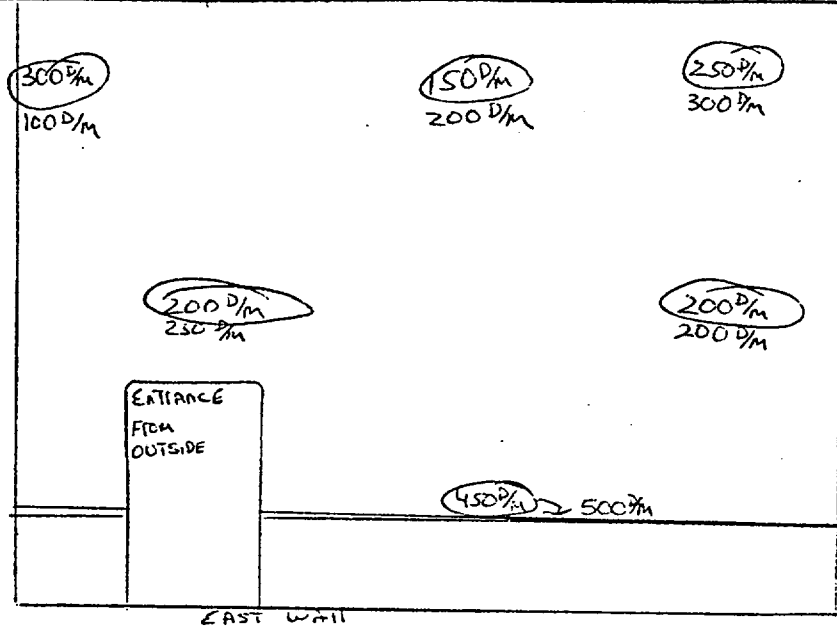
Floor in Front of Cooling Coils

Activity Loc:
Swipe in DPM/100

Fixed Activity
IN DPM/100cm²

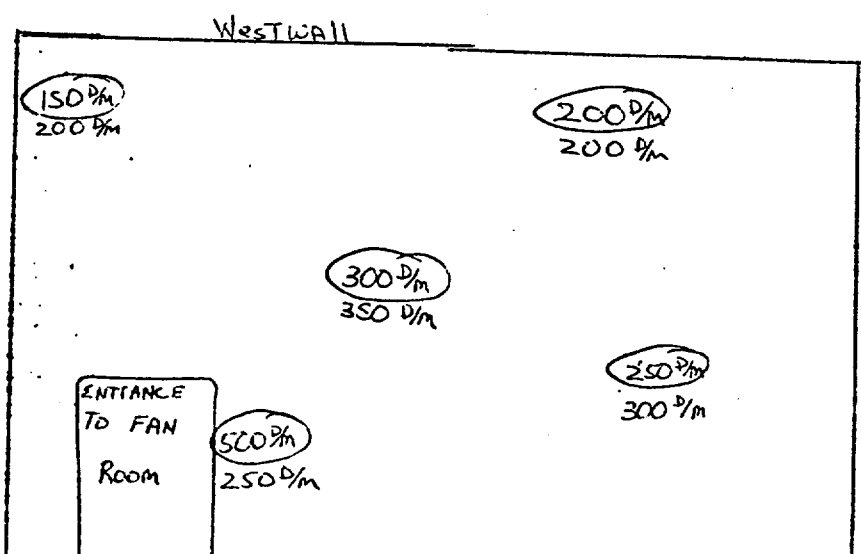


pe Survey: Swipe in pCi/100cm ² Dose Rate in mrem/hr		Date: 11-25-73		Time:	
Taken by: Armstrong		Location: EAST CLEAN AREA - Anthracite			
Instrument Type:	Ser. No.:	Scaler:		Bgr: c/m	
Probe:	Cal. Date:	Eff: %		Eff. Date:	

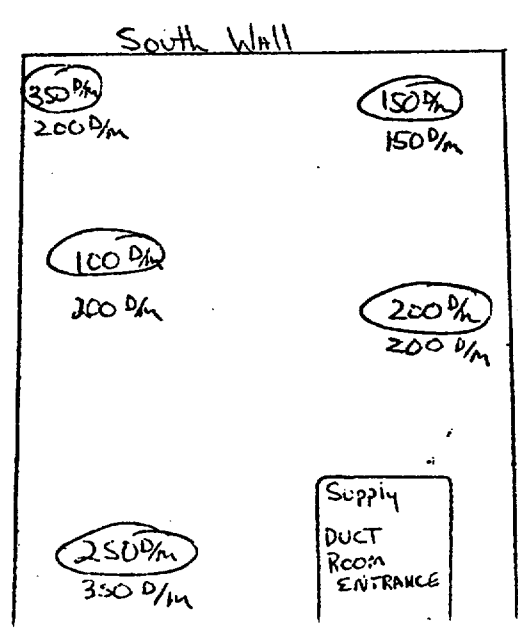
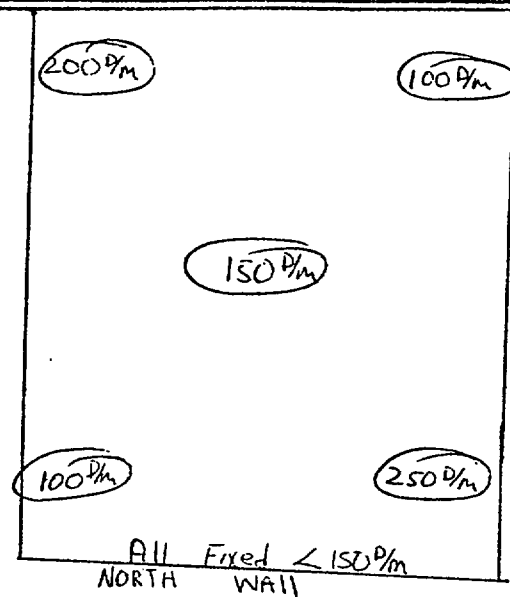


○ Loose Activity
Swipe in DPM/100cm²

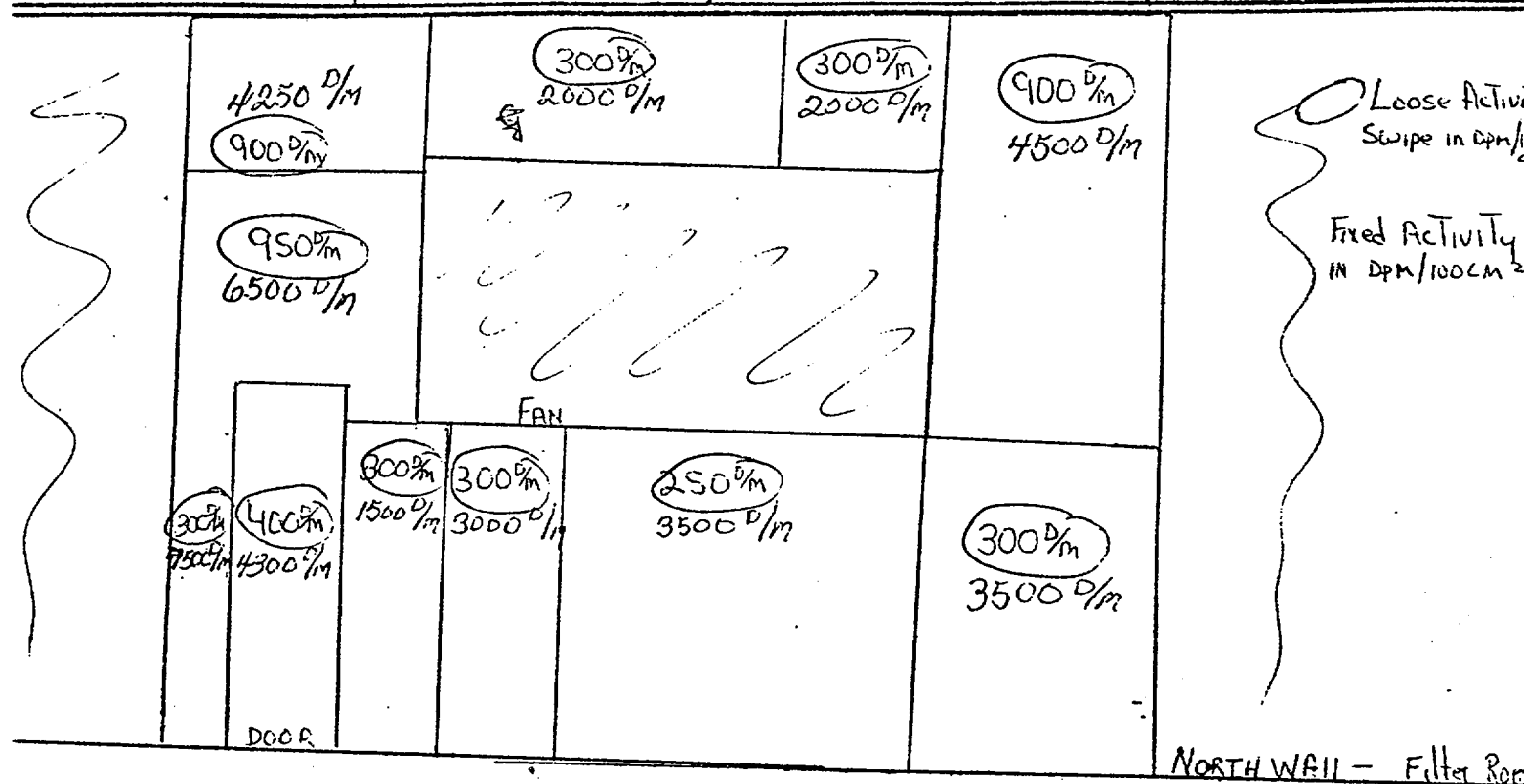
Fixed Activity
IN DPM/100cm²



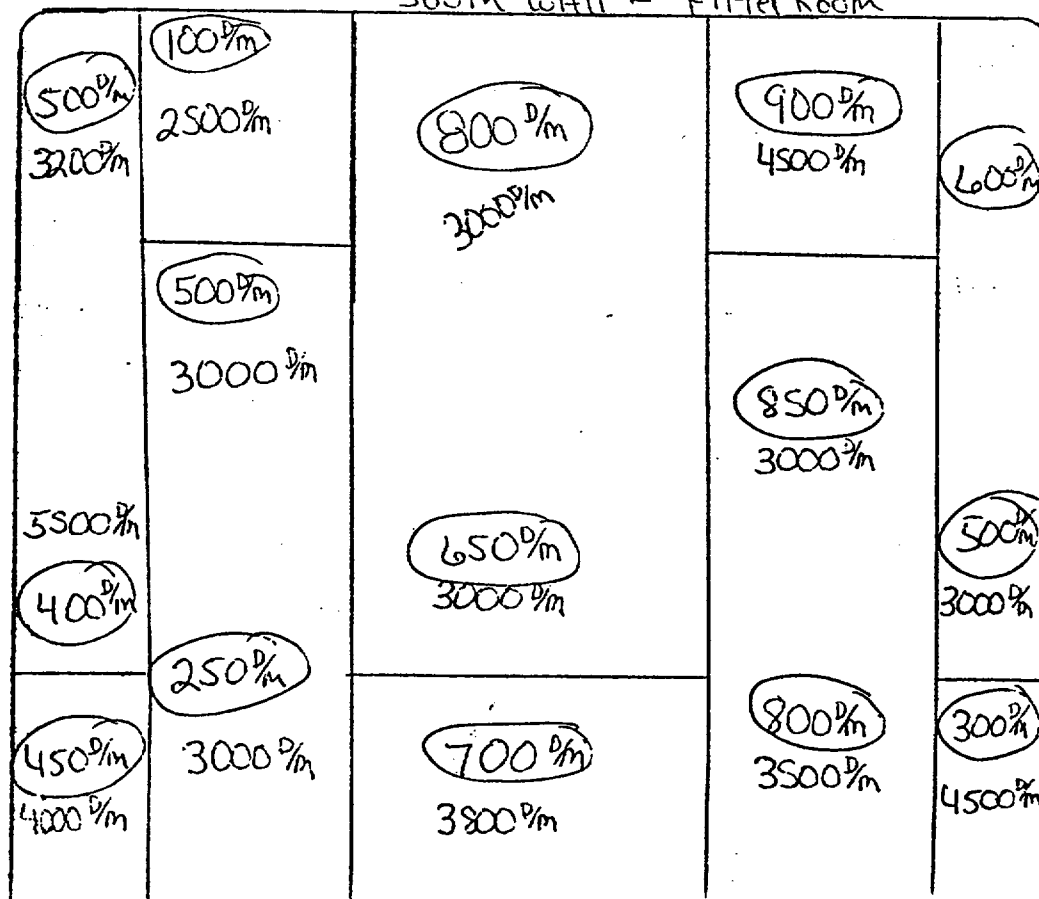
pe Survey: Swipe in pCi/l cm ² <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 11-25-73	Time:
ken by: Armstrong		Location:	
st. Type:	Ser. No.:	Scaler:	Bgr: c/m
ode:	Cal. Date:	Eff: %	Eff. Date:



e Survey: Swipe in pCi/l cm ² <input type="checkbox"/>		Date: 11-28-73	Time:
en by: Armstrong		Location: Filter Room	
Type:	Ser. No.:	Scaler:	Bgr: c/m
be:	Cal. Date:	Eff. %	Eff. Date:



South wall - Filter Room



Type Survey: <input checked="" type="checkbox"/> Swipe in pCi/l cm ² <input checked="" type="checkbox"/> Dose, Rate in mRem/hr		Date: 11-25-73	Time:
Taken by: Armstrong		Location:	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff: %	Eff. Date:

100 ^{d/m} 300 ^{d/m}	100 ^{d/m} 350 ^{d/m}	250 ^{d/m} 250 ^{d/m}	100 ^{d/m} 100 ^{d/m}	100 ^{d/m} 200 ^{d/m}	200 ^{d/m} 150 ^{d/m}
250 ^{d/m} 250 ^{d/m}	300 ^{d/m} 450 ^{d/m}	300 ^{d/m} 350 ^{d/m}	200 ^{d/m} 300 ^{d/m}	300 ^{d/m} 300 ^{d/m}	50 ^{d/m} 250 ^{d/m}
100 ^{d/m} 50 ^{d/m}	50 ^{d/m} 100 ^{d/m}	250 ^{d/m} 100 ^{d/m}	450 ^{d/m} 500 ^{d/m}	250 ^{d/m} 300 ^{d/m}	200 ^{d/m} 350 ^{d/m}
150 ^{d/m} 600 ^{d/m}	100 ^{d/m} 150 ^{d/m}	100 ^{d/m} 300 ^{d/m}	850 ^{d/m} 700 ^{d/m}	700 ^{d/m} 700 ^{d/m}	250 ^{d/m} 250 ^{d/m}
300 ^{d/m} 350 ^{d/m}	150 ^{d/m} 300 ^{d/m}	200 ^{d/m} 300 ^{d/m}	250 ^{d/m} 300 ^{d/m}	150 ^{d/m} 300 ^{d/m}	150 ^{d/m} 350 ^{d/m}
250 ^{d/m} 300 ^{d/m}	200 ^{d/m} 400 ^{d/m}	150 ^{d/m} 300 ^{d/m}	250 ^{d/m} 300 ^{d/m}	150 ^{d/m} 350 ^{d/m}	150 ^{d/m} 300 ^{d/m}
400 ^{d/m} 400 ^{d/m}	350 ^{d/m} 250 ^{d/m}	150 ^{d/m} 300 ^{d/m}	100 ^{d/m} 300 ^{d/m}	100 ^{d/m} 300 ^{d/m}	100 ^{d/m} 350 ^{d/m}

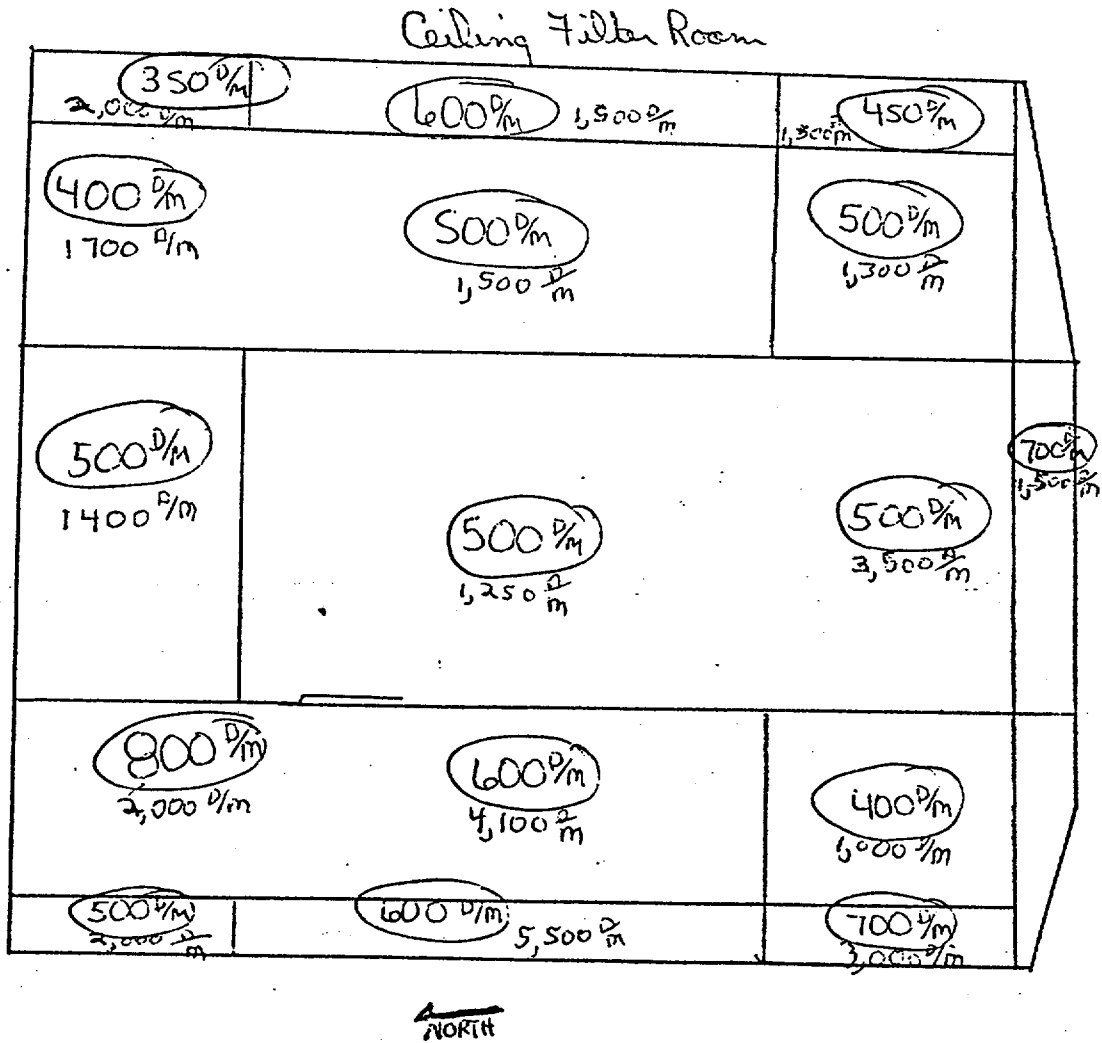
Filter Bank West Wall

Type Survey: Swipe in pCi/l 1cm ² <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 11-25-73	Time:
Taken by: Armstrong		Location:	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:

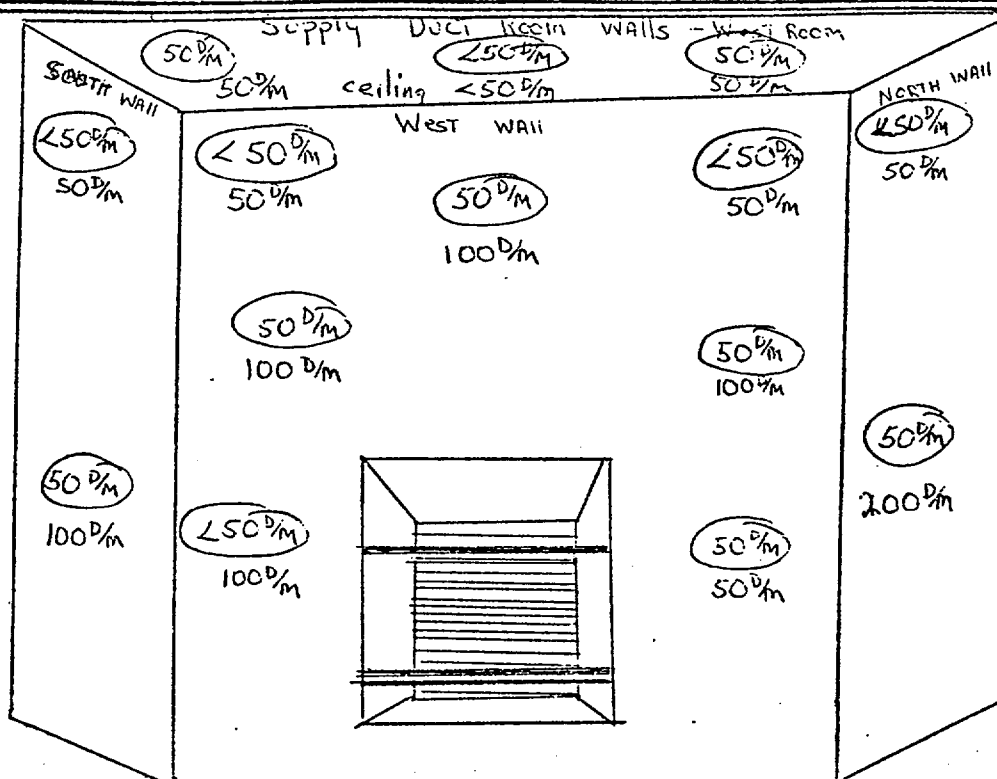
(150 μ m) 300 μ m	(100 μ m) 250 μ m	(200 μ m) 250 μ m	(350 μ m) 300 μ m	(100 μ m) 100 μ m	(200 μ m) 100 μ m
(150 μ m) 200 μ m	(100 μ m) 200 μ m	(500 μ m) 600 μ m	(200 μ m) 100 μ m	(150 μ m) 50 μ m	(400 μ m) 300 μ m
(250 μ m) 100 μ m	(100 μ m) 150 μ m	(50 μ m) 50 μ m	(200 μ m) 250 μ m	(200 μ m) 200 μ m	(200 μ m) 250 μ m
(600 μ m) 600 μ m	(250 μ m) 300 μ m	(250 μ m) 250 μ m	(150 μ m) 275 μm	(100 μ m) 100 μ m	(150 μ m) 100 μ m
(250 μ m) 75 μ m	(150 μ m) 50 μ m	(100 μ m) 100 μ m	(250 μ m) 300 μ m	(700 μ m) 550 μ m	(150 μ m) 50 μ m
(150 μ m) 100 μ m	(170 μ m) 150 μ m	(100 μ m) 150 μ m	(100 μ m) 50 μ m	(100 μ m) 150 μ m	(150 μ m) 100 μ m
(250 μ m) 150 μ m	(300 μ m) 400 μ m	(300 μ m) 300 μ m	(250 μ m) 250 μ m	(150 μ m) 100 μ m	(100 μ m) 100 μ m

Filter Back EAST WALL

Type Survey: <input type="checkbox"/> Swipe in pCi/l, cm ² <input type="checkbox"/> Dose, Rate in mRem/hr		Date:	Time:
Taken by: <u>Armstrong</u>		Location:	
Instrument Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff: %	Eff. Date:



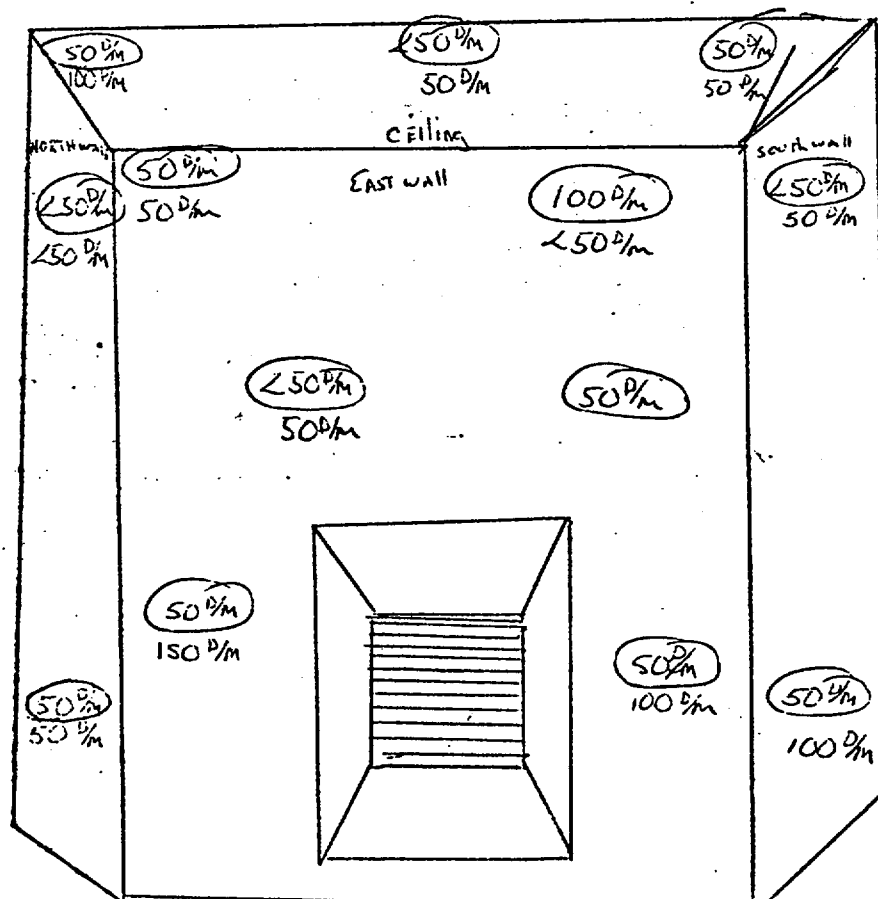
Type Survey: Swipe in pCi/l: 1cm ² <input type="checkbox"/>		Date: 11-25-73	Time:
Dose Rate in mRem/hr <input type="checkbox"/>		Location: Supply Duct Room	
Taken by: Armstrong	Inst. Type:	Ser. No.:	Scaler: Bgr: c/m
Probe:	Cal. Date:	Eff.:	% Eff. Date:



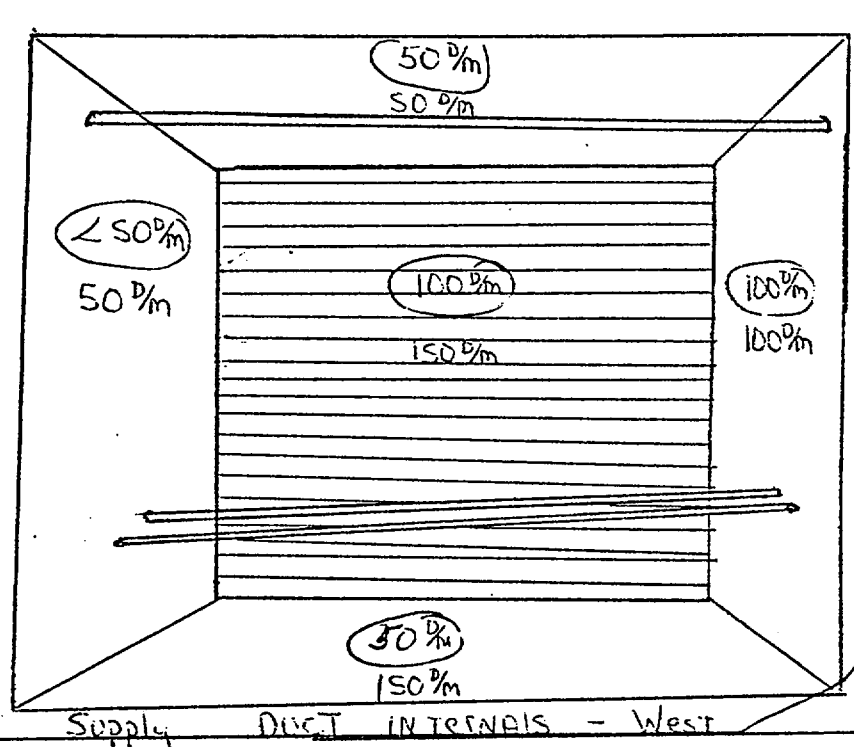
○ Loose Activity
Swipe in DPM/100cm²

- Fixed Activity
IN DPM/100cm²

EAST Supply Duct Room

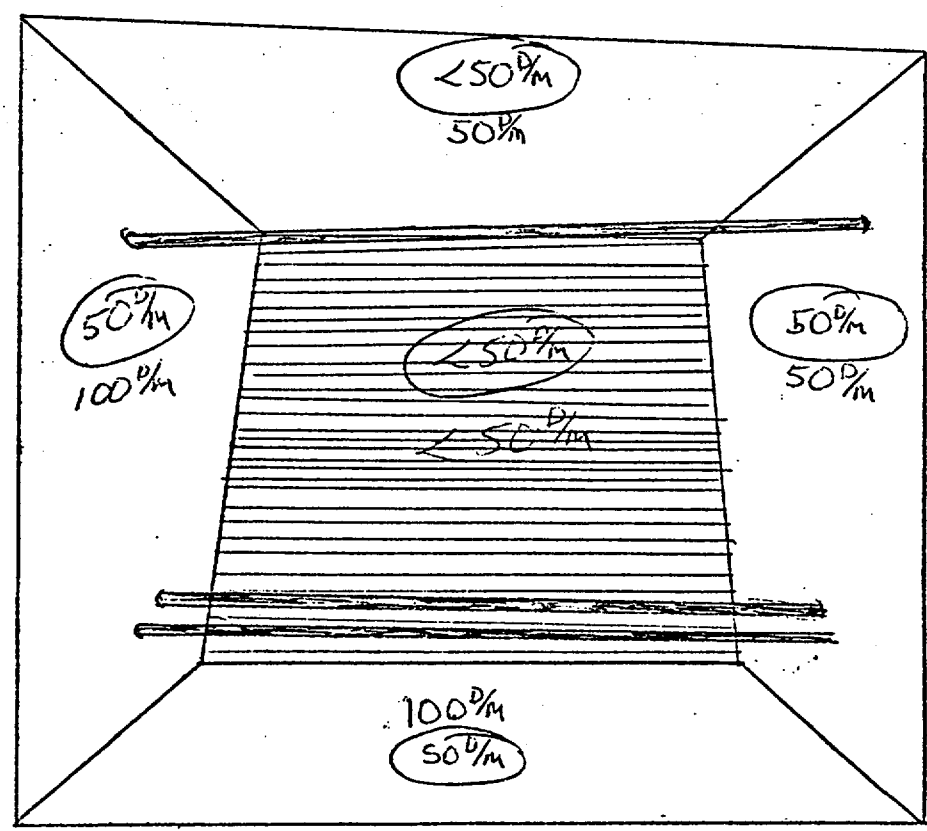


Type Survey: <input type="checkbox"/> Swipe in pCi/100cm ² <input type="checkbox"/> Dose, Rate in mRem/hr		Date: 11-25-73	Time:
Taken by: Armstrong		Location:	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:



○ Loose Activity
Swipe in dpm/cm²

Fixed Activity
IN dpm/100cm²



Supply DUCT - EAST

pe Survey: Swipe in pCi/100cm ² <input type="checkbox"/> Dose Rate in mrem/hr <input type="checkbox"/>		Date: 12-1-73	Time:
ken by: KEANE		Location: Supply Ducts	
st. Type:	Ser. No.:	Scaler:	Bgr: c/m
Mode:	Cal. Date:	Eff: %	Eff. Date:

SUPPLY DUCTS

High Beta- γ Loose < 100 DPM/100cm²

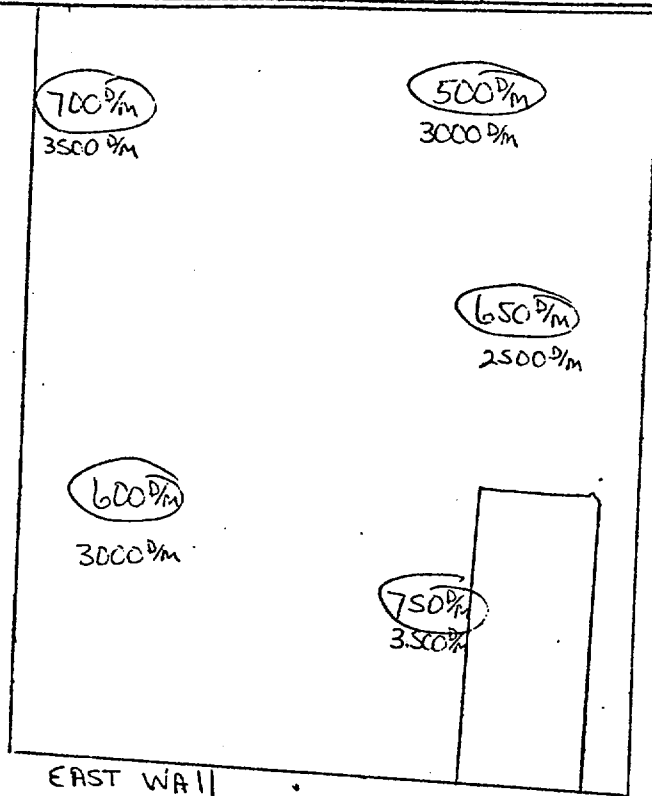
High Beta- γ Fixed $< .1$ mRAD/hr

High α Loose < 100 DPM/100cm²

High α Fixed < 100 DPM/100cm²

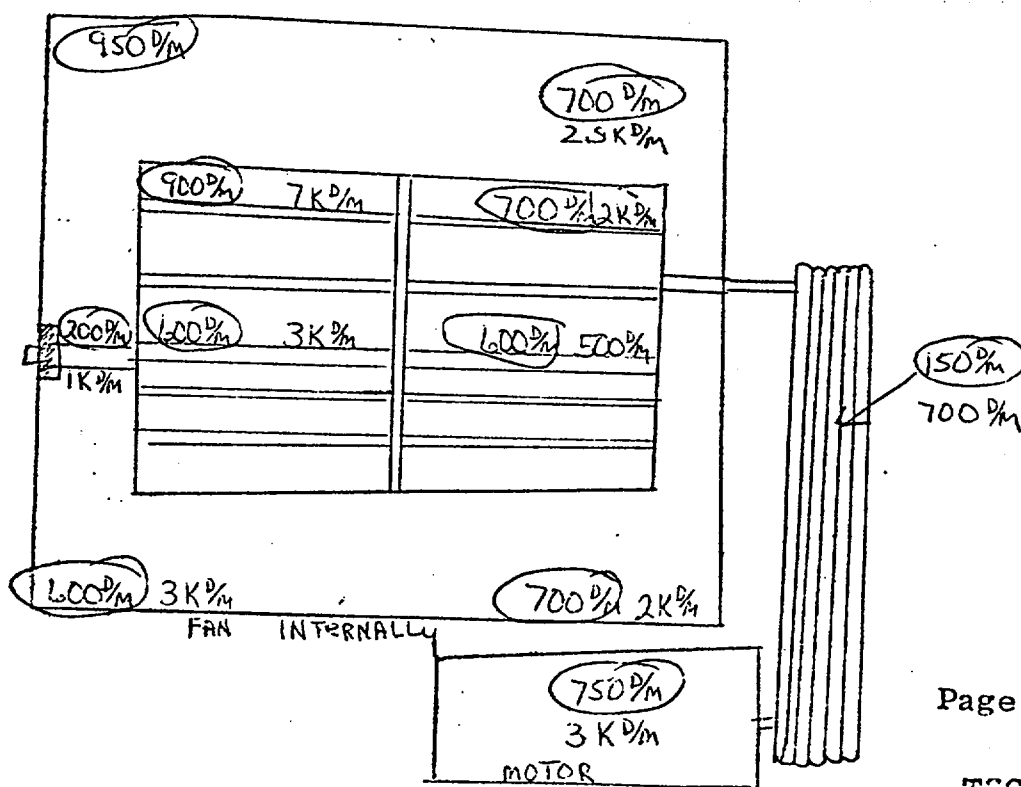
The supply ducts were checked at each opening, i.e. supply points & access doors, the above contamination levels were the highest found.

Type Survey: Swipe in pCi/ 3cm ² <input type="checkbox"/> Dose Rate in mrem/hr <input type="checkbox"/>		Date: 11-25-73	Time:
Taken by: Armstrong		Location: FAN ROOM	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff: %	Eff. Date:

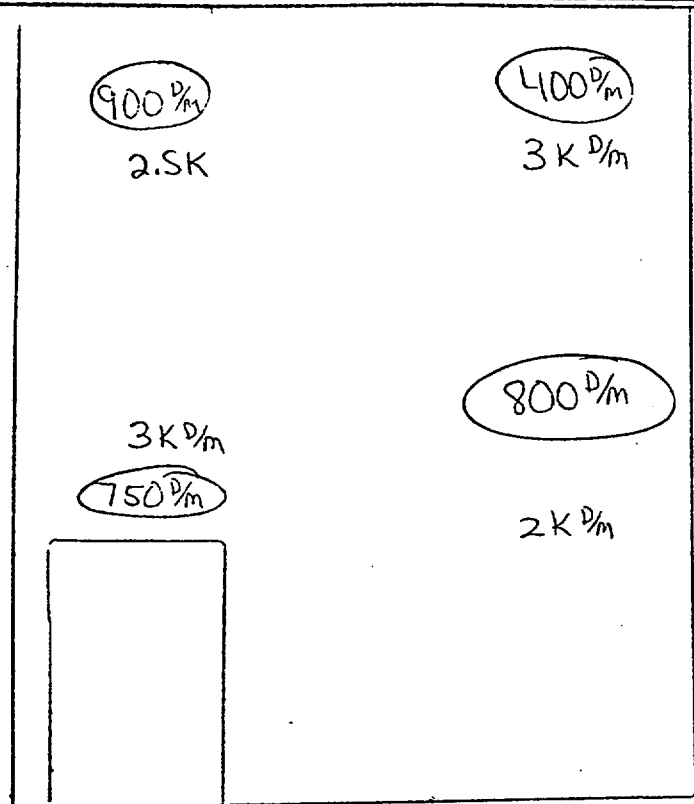


○ Loose Activity
Swipe in DPM/100cm²

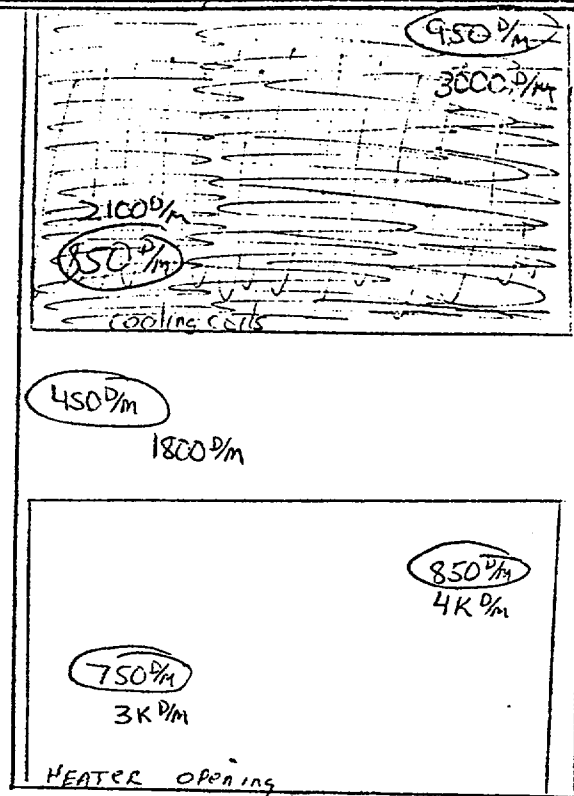
— Fixed Activity
IN DPM/100cm²



pe Survey: Swipe in pCi/100cm ² <input type="checkbox"/> Dose Rate in mrem/hr <input type="checkbox"/>		Date: 11-25-73	Time:
ken by: Armstrong		Location: FAN ROOM	
st. Type:	Ser. No.:	Scaler:	Bgr: c/m
obs:	Cal. Date:	Eff: %	Eff. Date:

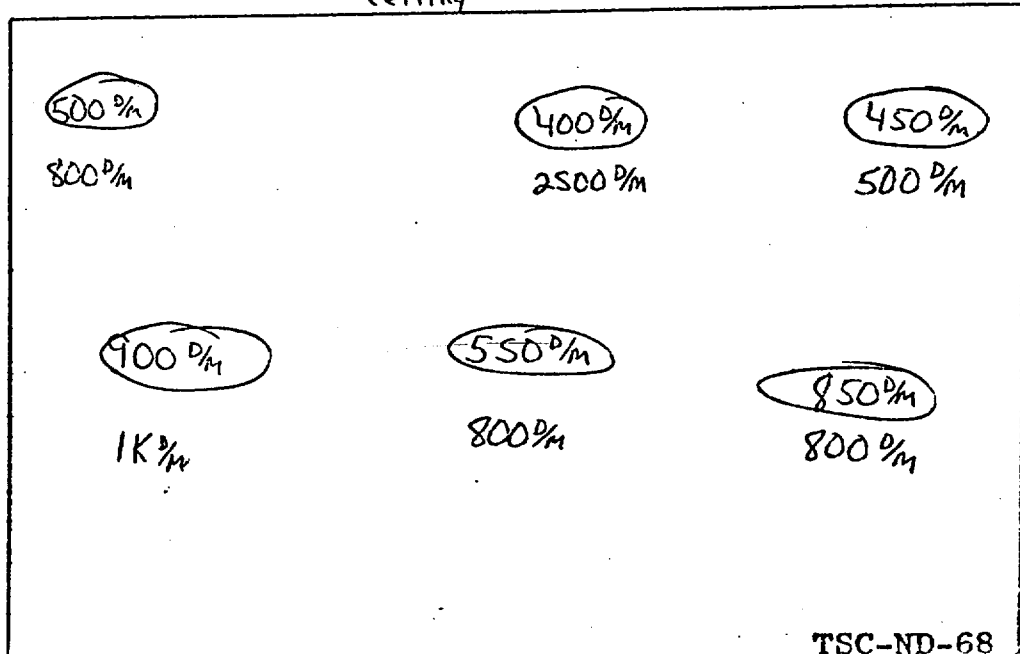


WEST WALL



HEATER OPENING

ceiling



Type Survey: <input type="checkbox"/> Swipe in pCi/100cm ² <input type="checkbox"/> Dose, Rate in mrem/hr		Date: 12-1-73		Time:	
Taken by: Hunter		Location: RETURN AIR DUCTS			
St. Type:		Ser. No.:		Scaler:	
Obs:		Cal. Date:		Eff. Date:	
Bgr:		c/m			

EAST SIDE				WEST SIDE			
MAXIMUM α LOOSE	MAXIMUM α FIXED	MAXIMUM B-γ LOOSE	MAXIMUM B-γ FIXED	MAXIMUM α LOOSE	MAXIMUM α FIXED	MAXIMUM B-γ LOOSE	MAXIMUM B-γ FIXED
2100	200	100 dpm/100cm ²	1 mrad/hr	2100	200	100 dpm/100cm ²	1 mrad/hr
500	300			2100	100		
200	100			100	100		
200	100			250	200		
2100	100			100	100		
2100	150			2100	100		
2100	150			150	150		
2100	200			2100	200		
150	150			2100	200		
250	250			2100	100		
100	500	LESS THAN	LESS THAN	100	100	ALL LESS THAN	ALL LESS THAN
2100	150			100	100		
2100	150			2100	150		
2100	250			2100	150		
2100	250			2100	100		
200	1000			250	300		
400	750			200	300		
2100	700			2100	150		
2100	250			2100	300		
2100	100			2100	300		
2100	1000	ALL	ALL	2100	700	ALL	ALL
2100	900			150	900		
2100	900			250	900		
200	750			2100	750		
2100	900			2100	1000		
250	1000			2100	1000		
100	1500			2100	2000		
2100	1500			2100	1000		
250	2000			150	3000		

Type Survey: Swipe in pCi/l cm^2 <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 12-1-73	Time:
Taken by:		Location:	
Cal. Type:	Ser. No.:	Scaler:	Bgr: c/m
Cal. Date:	Cal. Date:	Eff. %	Eff. Data:

CONTINUING									
10	11	12	13	14	15	16	17	18	19
CONTINUING									
12	13	14	15	16	17	18			
CONTINUING									
CONTINUING									

Type Survey: Dosa Rate in m. m/hr ☐

Date: 12-1-73

Time:

Taken by:

Location:

St. Type:

Ser. No.:

Scalar:

Bgr:

c/m

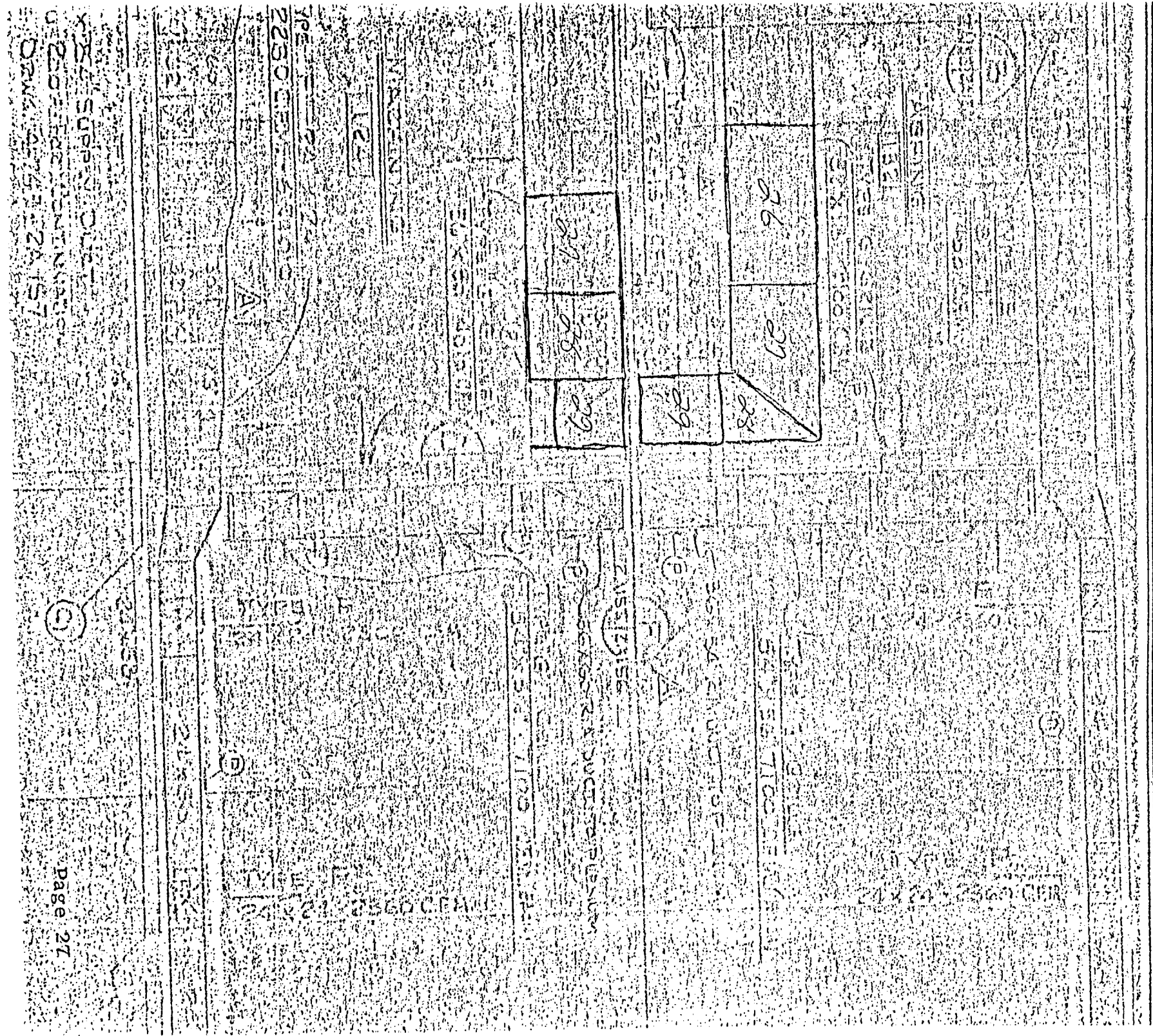
003:

Col. Date:

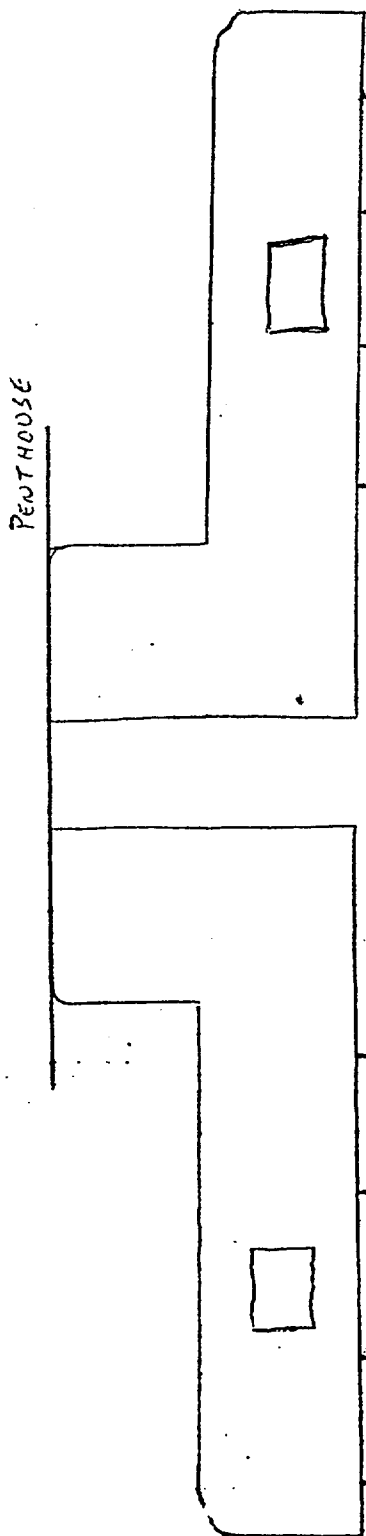
Eff:

%

Eff. Day:



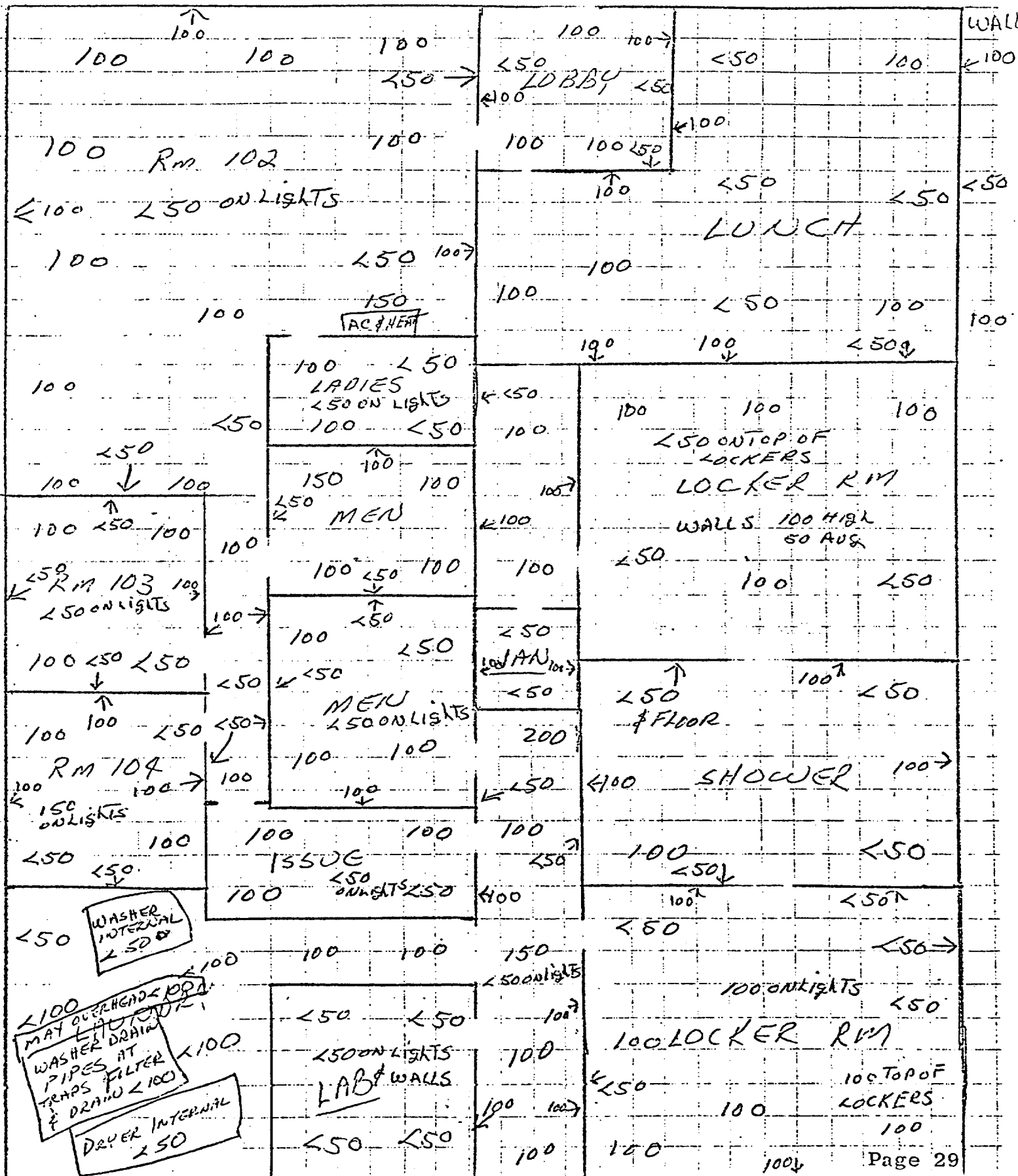
pe Survey: Swipe in pCi/100cm ² <input type="checkbox"/>		Date: 12-1-73	Time:
Dose Rate in mRem/hr <input type="checkbox"/>			
ken by: PROETT		Location: HIGH BAY RETURN DOGS	
st. Type:	Ser. No.:	Scaler:	Bgr: c/m
obs:	Cal. Date:	Eff. %	Eff. Date:



$d_m / 100 \text{ cm}^2$			$d_m / 100 \text{ cm}^2$		
LOCATION	HIGH FIXED	LOOSE	LOCATION	HIGH FIXED	LOOSE
BOTTOM	800	500	BOTTOM	1100	< 100
END	800	< 100	END	2500	< 100
WALLS	1500	< 100	WALLS	800	< 100
TOP	600	< 100	TOP	700	< 100
RISER	5000	< 100	RISER	2000	< 100

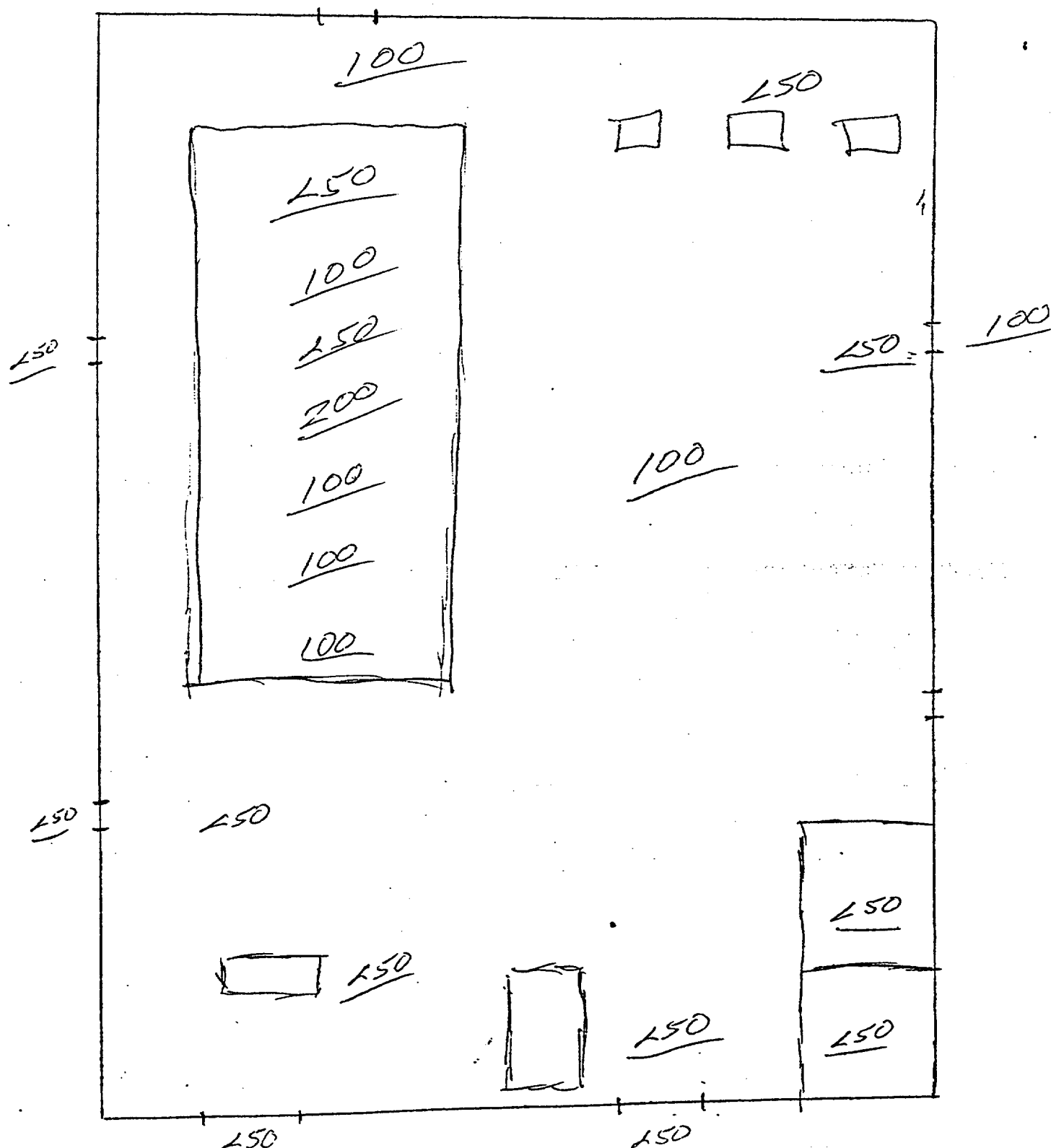
B-2 10052 < 100 d/m/100cm²
 B-2 fixed < 1 mrad/hr

Taken by: <u>VRUETT</u>		Location: <u>OFFICE SPACES</u>	
31. Type: <u>PIC-1</u>	Ser. No.: <u>148</u>	Scalar:	Bgr: <u>c/m</u>
32a:	Cal. Date:	Eff: <u>%</u>	Eff. Date:



TODD NUCLEAR DIVISION - RADIOLOGICAL SURVEY FORM

Type Survey: Swipe in pCi/100cm ² <input type="checkbox"/>		Date: 11-26-73	Time:
Dose Rate in mRem/hr <input type="checkbox"/>		Location: HIGH BAY AREA	
Taken by: D. Dettl / K. Kene		Scaler:	Bgr: c/m
Inst. Type:	Ser. No.:	Eff. %	Eff. Date:
Probe:	Cal. Date:		



12-3-72

Taken by: <u>HUNTER</u>		Location: <u>Hellway</u>	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:

BATCHING
RM 120

(250)
~~450~~
(250)
~~450~~
(250)
~~450~~

RM

127

S & R

RM
121

400 (250)
350 (200)
400 (350)

VAULT

500 (450)

600 (500)

RM
122

FORMING

500 (200)

550 (750)

450 (300)

400 (600)

500 (450)

350 (300)

400 (600)

500 (450)

RM

128

COATING

JAN

129

12-3-77

Taken by: <u>HOOPER</u>		Location:	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Code:	Cal. Date:	Eff. %	Eff. Date:

MAINTENANCE

RM 123

450 (900)

500 (200)

400 (450)

600 (350)

500 (250)

(100)

200

200 (150)

MACHINING

RM 124

600 (300)

200 (100)

600

500

300

(400)

500

300 1000

(100)

200 200

(100)

200 200

LAB

RM 130

INSP

RM

131

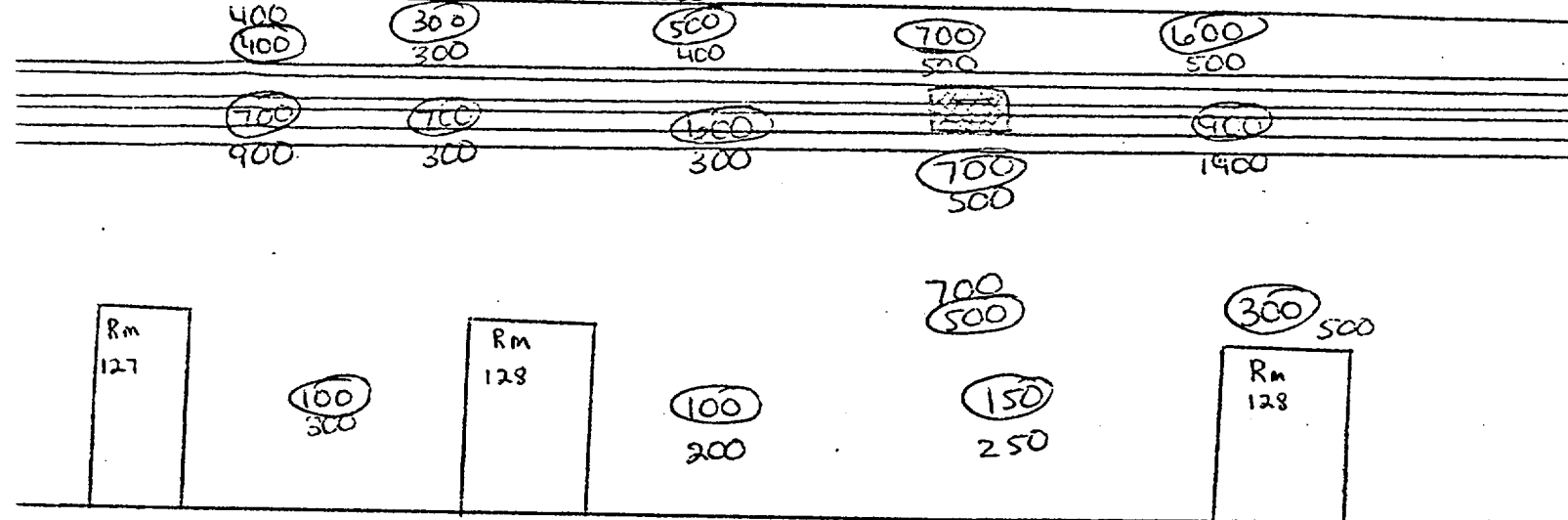
ASHING

RM 132

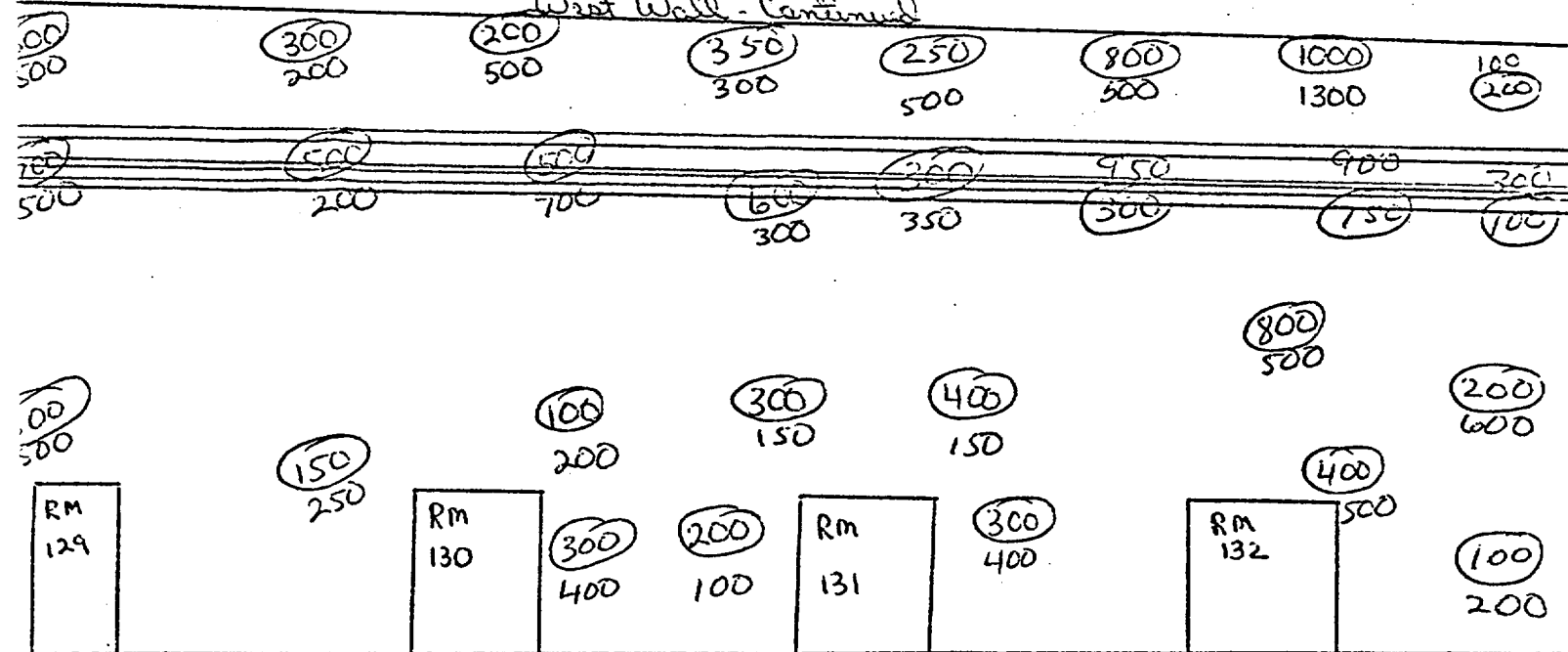
TODD NUCLEAR DIVISION - RADIOLOGICAL SURVEY FORM

Type Survey: <input checked="" type="checkbox"/> Swipe in pCi/l cm ² <input type="checkbox"/> Dose, Rate in mRem/hr		Date: 12-3-73	Time:
Taken by: PROETT		Location:	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:

West Wall



West Wall - Continued



Location:

Ser. No.:

Scaler:

Bgr: c/m

Cal. Date:

Eff. :

%

Eff. Date:

LOOSE ACTIVITY
Swipe in dpm/100cm²

— Fixed Activity in $\text{dpm}/100\text{cm}^2$

EAST Wall

33

EAST WALL CONTINUED

0

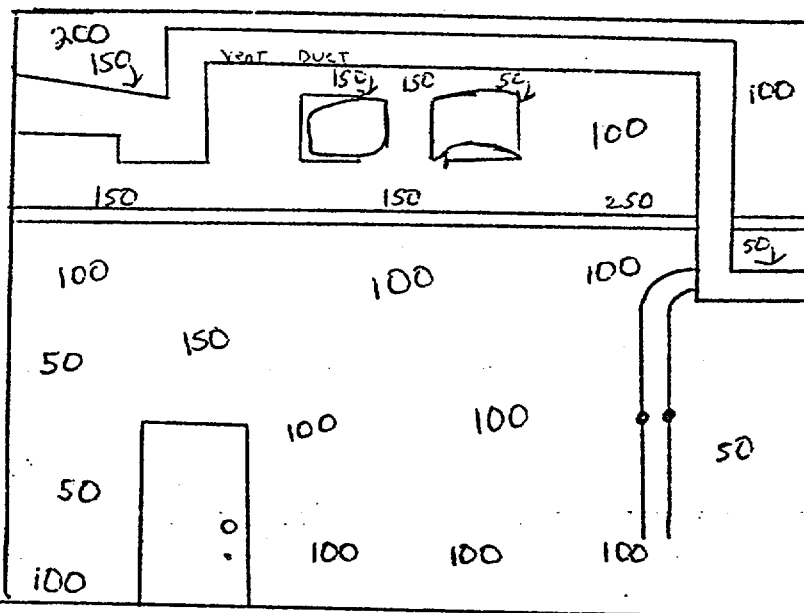
Type Survey: <u>Swipe in</u> $\frac{\text{cpm}}{\text{cm}^2}$ <input checked="" type="checkbox"/> <u>Area</u> $\frac{\text{cpm}}{\text{cm}^2}$ <input checked="" type="checkbox"/> <u>Fixed in</u> $\frac{\text{cpm}}{100\text{cm}^2}$ <input type="checkbox"/>		Date: <u>11-25-73</u>	Time: <u> </u>
Taken by: <u>Keame</u>		Location: <u>BATCHING & VALLEY RM 120 RM 121</u>	
Inst. Type: <u> </u>	Ser. No.: <u> </u>	Scaler: <u> </u>	Bgr: <u> </u> c/m
Probe: <u> </u>	Cal. Date: <u> </u>	Eff: <u> </u> %	Eff. Date: <u> </u>

<u>100</u> <u>350</u>	<u>200</u> <u>500</u>	<u>350</u> <u>800</u>	<u>100</u> <u>750</u>
<u>400</u> <u>1100</u>	<u>350</u> <u>400</u>	<u>300</u> <u>800</u>	<u>850</u> <u>1000</u>
<u>300</u> <u>250</u>	<u>200</u> <u>500</u>	<u>500</u> <u>1000</u>	<u>100</u> <u>500</u>
<u>4100</u> <u>150</u>	<u>4100</u> <u>100</u>	<u>2100</u> <u>100</u>	<u>2100</u> <u>300</u>
<u>2100</u> <u>250</u>	<u>2100</u> <u>500</u>	<u>4100</u> <u>150</u>	<u>2100</u> <u>50</u>
<u>2100</u> <u>250</u>	<u>2100</u> <u>50</u>	<u>4100</u> <u>250</u>	<u>2100</u> <u>100</u>
<u>2100</u> <u>50</u>	<u>2100</u> <u>50</u>	<u>2100</u> <u>150</u>	<u>450</u> <u>600</u>

Type Survey: Swipe in pCi/l 1m^2 Dose Rate in mRem/hr		Date: 11-25-73	Time: 0800
Taken by: <i>A. Armstrong</i>		Location: Union Carbide, Lawrenceburg, Tennessee Room 120 Batching Room	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:

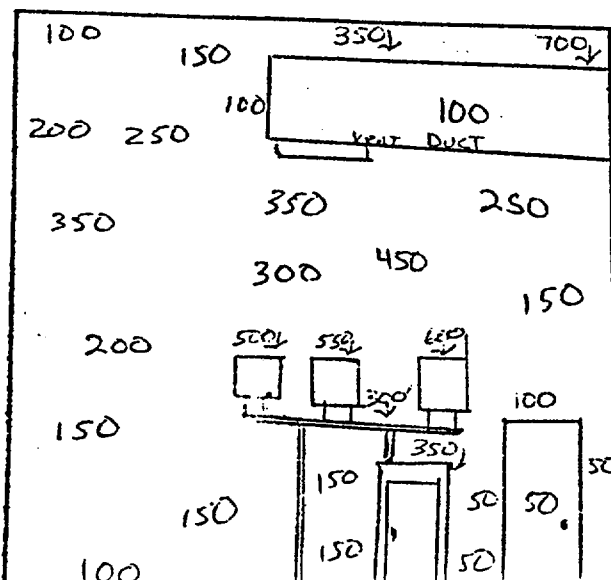
Highest Loose activity 250 pCi
all readings fixed

EAST WALL



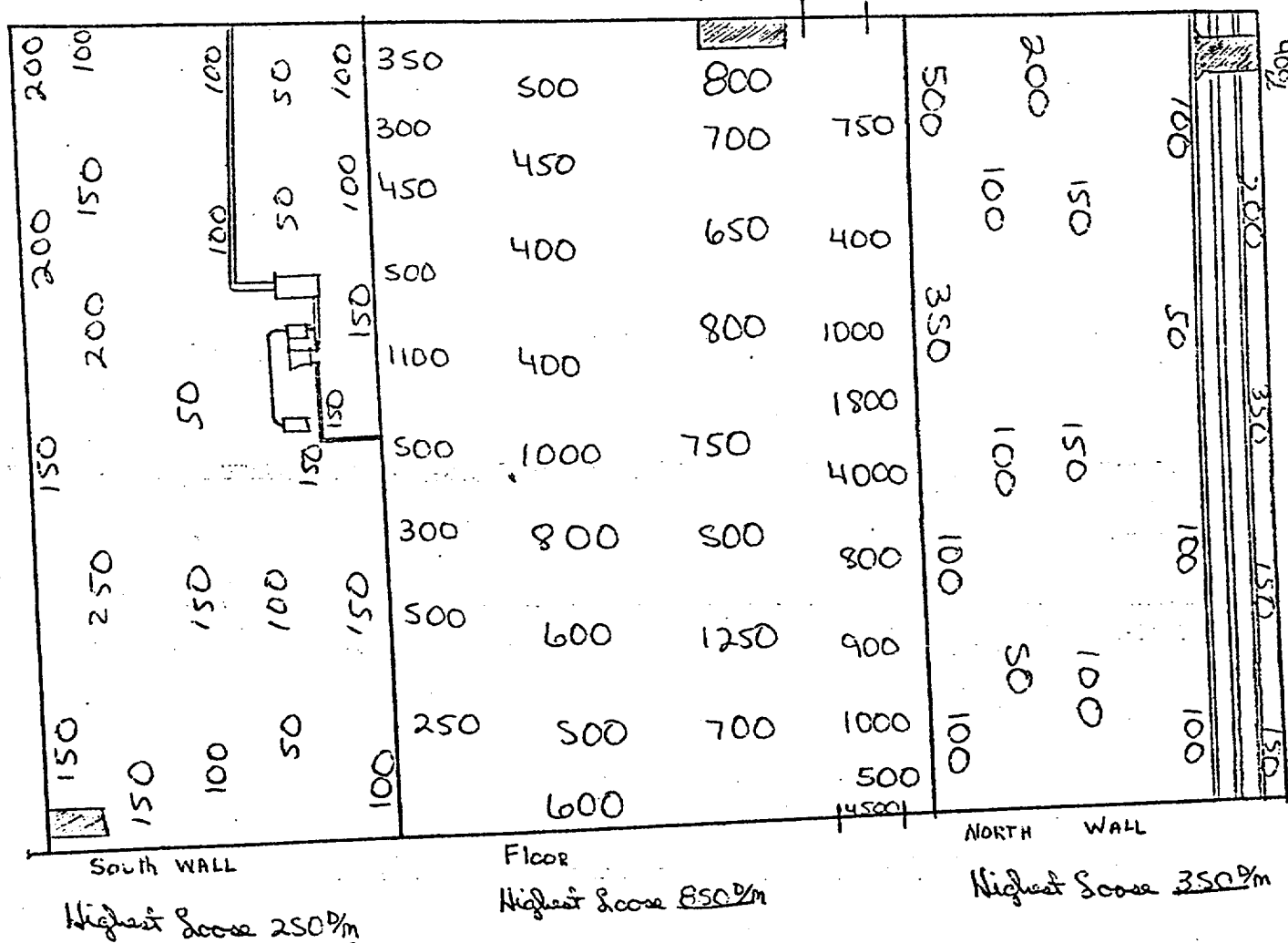
Highest Loose activity 650 pCi
all readings fixed

WEST WALL



Type Survey: Swipe in pCi/l μcm^2 <input type="checkbox"/> Dose, Rate in mRem/hr <input type="checkbox"/>		Date: 11-25-73	Time:
Taken by: <i>[Signature]</i>		Location: Rm 120 - Briefing Room	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:

All readings μm fixed

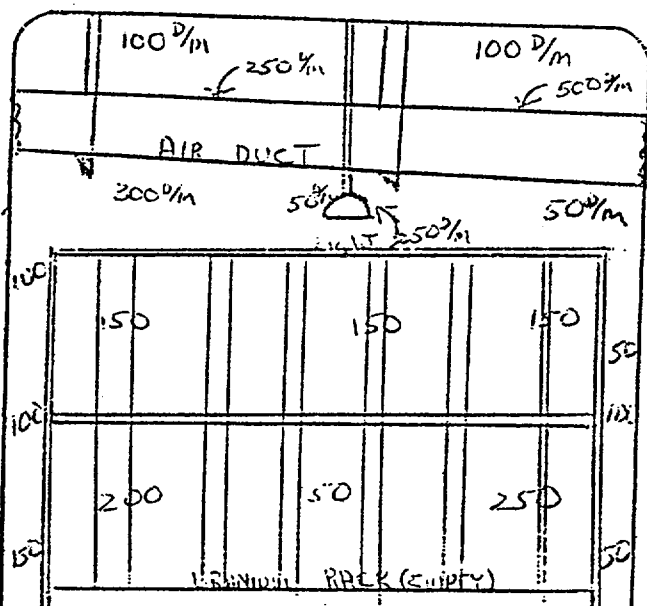


Analyzed by: <u>Armstrong</u>		Location: <u>Room 120 - Batch #</u>	
Type: <u>1</u>	Ser. No.:	Scalar:	Bgr: <u>c/m</u>
g:	Cal. Date:	Eff. %	Eff. Date:

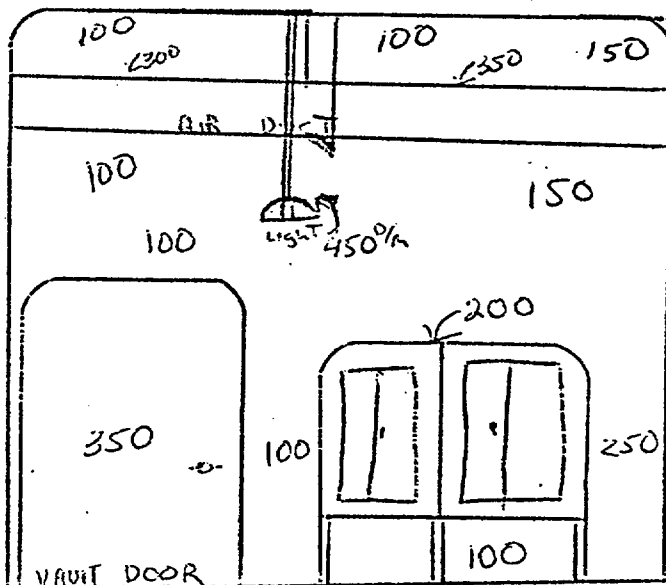
The above listed items are unconditionally released per the specifications set forth in, "Guidelines for Decontamination of Equipment and Facilities Prior to Release for Unrestricted Use or Termination of Licenses for Source, By-Product or Special Nuclear Material", - USAEC April 22, 1970.

Type Survey: Swipe in pCi/l cm^2 <input type="checkbox"/> Dose Rate in mRm/hr <input type="checkbox"/>		Date: 11-25-73	Time:
Taken by: <i>Chambers</i>		Location: Rm 121 Vaslet, Union Carbide, Savannah, Ga.	
Inst. Type: PAC-1SA	Ser. No.:	Scaler:	Bgr: 0 c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:

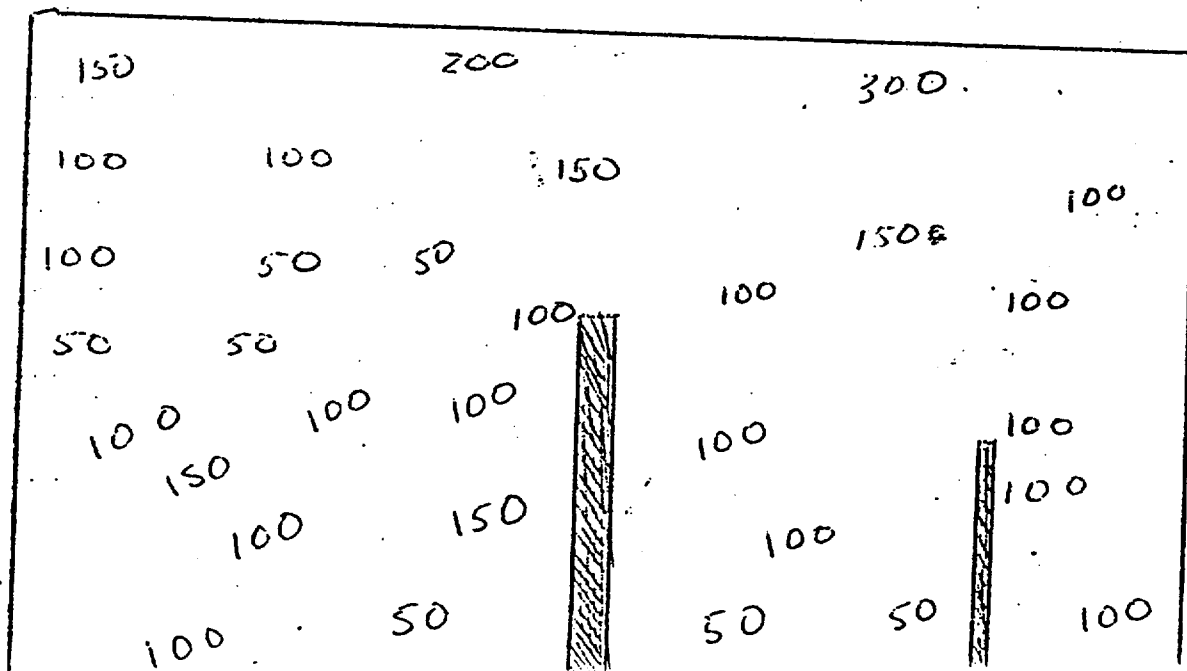
EAST WALL
Highest Swipe 200 p/m



West Wall
Highest Swipe 250 p/m All other readings p/m fixed



South Wall
Highest Swipe 250 p/m all other readings p/m fixed



Type Survey: Swipe in pCi/100cm ² <input type="checkbox"/> Dose Rate in mrem/hr <input type="checkbox"/>		Date: 11-25-73	Time:
Taken by: <i>Am. Trans.</i>		Location: West, Union Carbide, Supermarket, Tenn.	
Inst. Type: Pac. ISA	Ser. No.:	Scaler: —	Bgr: — c/m
Probe:	Cal. Date:	Eff.: — %	Eff. Date: —

Northwall

Highest swipe 150% All other readings % fixed

100	150	100	50	100
100	200	100	100	100
250	150	150	150	150
200	200	250	100	150
150	150	50	100	100

1

Room - 121 - Vault

Bgr: c/m

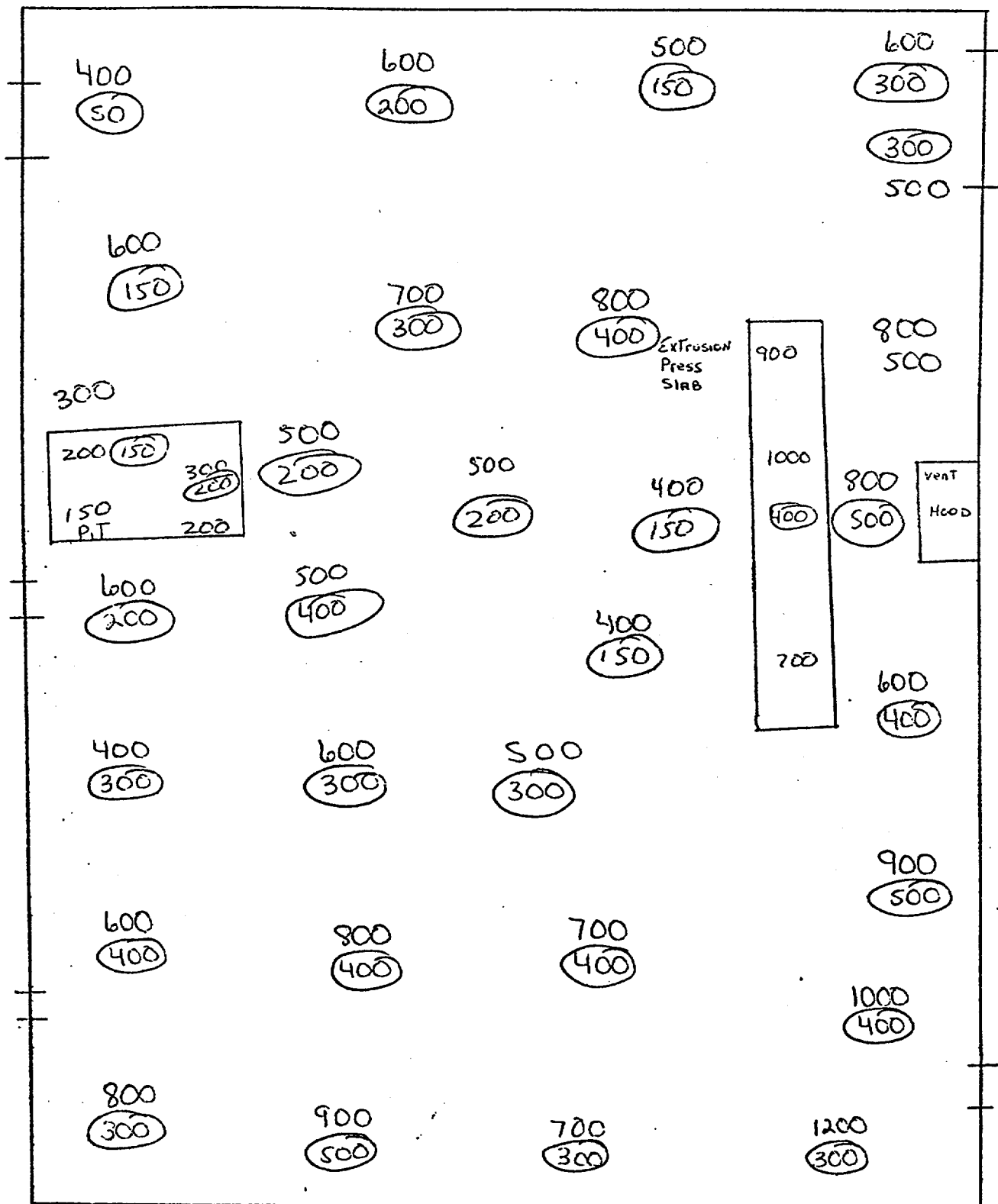
Eff. Date:

The above listed items are unconditionally released per the specifications set forth "Guidelines for Decontamination of Equipment and Facilities Prior to Release for Unrestricted Use or Termination of Licenses for Source By-Product or Special Nuclear Material", - USA April 22, 1970. Page 41

Type Survey: <input checked="" type="checkbox"/> Swipe in pCi/ 3cm ² <input checked="" type="checkbox"/> Dose Rate in mR/hr		Date: 11-21-73	Time:
Taken by: Hunter		Location: Room 122 - Forming	
Inst. Type:	Ser. No.:	Scaler:	Bgr: 0 c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:

Loose Smear
Activity in D/m/
m²

Fixed Activity
100 cm²



Less Than .1 mR/hr Beta-Gamma

Survey: Swipe in pCi/100cm² ☐
 Dose Rate in mrem/hr ☐

Date:

Time:

11-26-73

Surveyed by: Hunter E.E.

Location:

RM 122 Forming

Inst. Type: Pac-7 SA

Ser. No.:

Scalar:

Bgr:

c/m

Units:

Cal. Date:

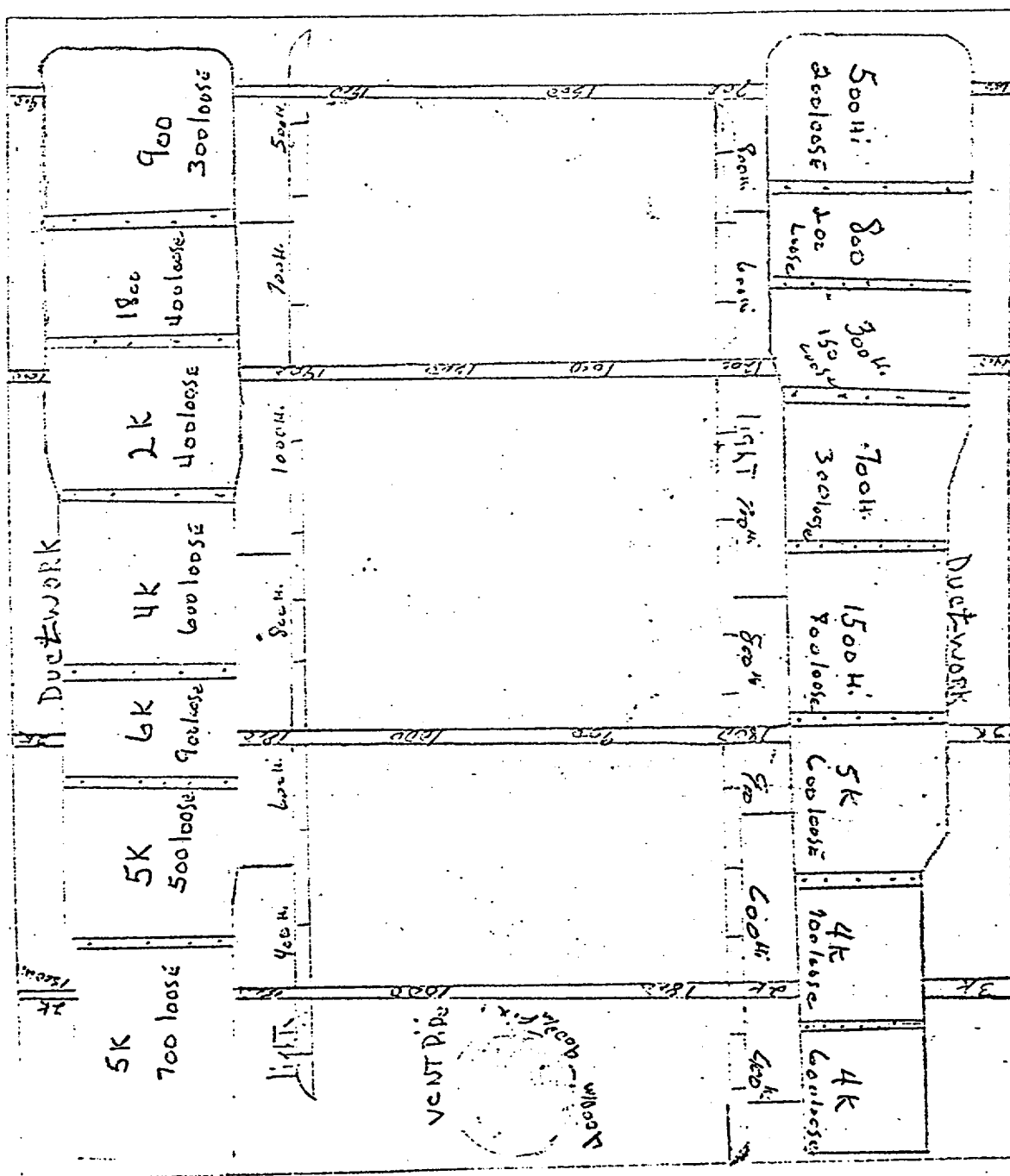
Eff:

%

Eff. Dots:

7 LOOSE
 1000 SWIPE
 1000/1000cm²

FIXED
 1000 IN
 1000/1000cm²



TODD NUCLEAR DIVISION - RADIOLOGICAL SURVEY FORM

Type Survey: <input type="checkbox"/> Swipe in $\mu\text{Ci}/100\text{cm}^2$ <input type="checkbox"/> Dose Rate in mRem/hr		Date: 11-27-73	Time:
Taken by: HUNTER E.E.		Location: RM 122 Farming	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Obs:	Cal. Date:	Eff. %	Eff. Date:

900	700	800	500
800	700	500	400
600	500	400	300
400	300	600	500
200	300	500	400

NORTH WALL

600	800	500	500
300	500	700	600
400	200	600	400
200	400	400	300
300	200	300	200

SOUTH WALL

700	800	500	700
500	600	400	300
300	400	700	500
400	500	400	300
200	300	200	300

WEST WALL

500	900	700	1000
600	500	800	900
200	700	600	700
150	500	700	500
200	300	500	400

EAST WALL

Above readings fixed & contaminants loose ALL less than 500 $\mu\text{m}/100\text{cm}^2$

11-21-14

Location: Room - 122 - Forming

in by: _____

Type: _____ Ser. No.: _____

Scalar: _____ Bgr: _____ c/m

3: _____ Cal. Date: _____ Eff: _____ % Eff. Date: _____

ITEM	LOOSE ACTIVITY	FIXED ACTIVITY		ITEM	LOOSE ACTIVITY	FIXED ACTIVITY	
		HIGH	AVERAGE			HIGH	AVERAGE
less Steel Blenders	250	250	N/A	STAINLESS STEEL SHAFT - 2	200	1000	150
To Blender	250	250	N/A	PLASTIC TUBING	250	50	N/A
m Pump	100	200	N/A	FUSE CARTRIDGE (9)	250	50	N/A
ess, Hydraulic	250	200	N/A	Filter	250	50	N/A
CANS (13)	250	100	N/A	Glass Funnel's (31)	250	50	N/A
X SODIUM BORATE	250	100	N/A	Power STARTER	250	50	N/A
ner Wrench	100	300	N/A	MISCL. PARTS (1 BOX)	250	100	N/A
ICRS, HOSE TO PIPE (8)	250	300	N/A	Filter Paper (1 Box)	100	400	N/A
Relay Control	250	250	N/A	Stainless Steel Funnel's	250	250	N/A
TEST STAND	250	50	N/A	API meter, D.C., Volts	250	100	N/A
m Pump	250	50	N/A	Hanger Straps, Rubber (1 Box)	250	250	N/A
sci APPARATUS	250	50	N/A	Glove Box Sleeves, RUBBER (3)	250	50	N/A
R & Pedestal	250	250	N/A	Light FIXTURES (10)	250	500	N/A
RACK	100	50	N/A	Access Doors To FURNACE Control	250	500	N/A
IC MOTOR w/CHAIN	50	200	N/A	CHART Paper (10)	100	350	N/A
INT, 2 CANS	250	250	N/A	CHART Recorder	250	250	N/A
pipe coupling	250	250	N/A	Small Silver oven	150	50	N/A
"Fire Brks (7)	250	1000	500	Filter	250	250	N/A
ier Box	250	50	N/A	Heating Elements (25)	250	200	N/A
ly Switch	250	250	N/A	Copper Tubing 1/4", 1 roll	250	350	N/A
BOARD, STA. 76	50	150	N/A	Lg. STEEL COVER	250	250	N/A
MISCL. PARTS	250	100	N/A	Wood Pannels (4)	250	250	N/A
e SPOUTS, 3	250	250	N/A	Wood Doors (2)	250	250	N/A
ment BOARD	50	150	N/A	Wood Frame	250	250	N/A
Galvanized, 5	250	50	N/A	<p>The above listed items are unconditionally released per the specifications set forth in "Guidelines for Decontamination of Equipment and Facilities Prior to Release for Unrestricted Use or Termination of License for Source By-Product or Special Nuclear Material", - USAE April 22, 1970.</p>			Page 45
	250	100	N/A				
Sealer	250	100	N/A				
Switch	250	250	N/A				

taken by:		Location: 11-27-3 Room - 122 Farming	
Obj. Type:	Ser. No.:	Scalar:	Bgr: c/m
Obj:	Cal. Date:	Eff: %	Eff. Date:

ITEM	LOOSE ACTIVITY	FIXED ACTIVITY		ITEM	LOOSE ACTIVITY	FIXED ACTIVITY	
		HIGH	AVERAGE			HIGH	AVERAGE
tal Strip	<50	<50	N/A	Ultra Air Filter	<50	<50	N/A
x 1 1/2' Cover	<50	<50	N/A	PARTIAL DRUM of Acetate	200	200	N/A
nt PLATES	<50	<50	N/A	Glass WARE, 1 Box	100	100	N/A
Duct, SRA/wood, (3)	<50	<50	N/A	Electric Timer	50	<50	N/A
und Straps (3)	<50	<50	N/A	Brown Instrument	450	450	N/A
BASKETS (4)	<50	<50	N/A	Stone Cylinder	200	200	N/A
" X 4 1/2" Pipe	<50	<50	N/A	125# Scale DIAL	100	100	N/A
aring Collar	<50	<50	N/A	Electric motor w/wooden wheel	400	400	N/A
BLE w/rollers	<50	<50	N/A	16oz Poly Bottles (1 Bag)	50	50	N/A
IRDBOARD File CABINET	100	100	N/A	Polishing TABLE	150	150	N/A
ss Steel POT	50	100	N/A	Bottle Stoppers, (2 Box)	<50	<50	N/A
ing units, Copper, 2	<50	<50	N/A	Ground Detector	<50	<50	N/A
less Steel pipe HALVES	<50	<50	N/A	Asbestos Blocks	<50	350	N/A
per BAR/ 2 pins	<50	<50	N/A	Filter	50	400	N/A
BLE Trough	<50	<50	N/A	Ultra Air Filter (7)	<50	350	N/A
TRUDING TABLE	800	800	N/A	ABSOLUTE Filter	<50	<50	N/A
RECORD Records Box	100	100	N/A	Filter Elements (3)	<50	50	N/A
ly JARS, 1 Bag	<50	<50	N/A	Asbestos Filters (3)	<50	<50	N/A
USTIAL ABRASIVE UNIT	100	100	N/A	FIRE ALARM	<50	<50	N/A
SPACE on wheels	150	150	N/A	Dri Right (3 JARS)	<50	50	N/A
CHAIR, LAB	500	500	N/A	AIR DRIER BEADS (5 Boxes)	<50	100	N/A
ATCH CARDS 1 Box	800	800	N/A	Sieves, VARIOUS SIZES (10)	<50	50	N/A
gh Temp BATH	100	100	N/A	Fluted Pins	<50	200	N/A
IR Pump	200	200	N/A	Screen Cloths, 5 Boxes	<50	<50	N/A
Gram Scale I	<50	<50	N/A	<p>The above listed items are unconditionally released per the specifications set forth in "Guidelines for Decontamination of Equipment and Facilities Prior to Release for Unrestricted Use or Termination of Licenses for Source By-Product or Special Nuclear Material", - USIAE April 22, 1970.</p>			
Gram Scale II	<50	<50	N/A				
VACUUM Pump	150	150	N/A				
ectrical Relay	<50	<50	N/A				

Location:

பெயர்: சிவசுந்தரம் - தாய் பெயர்: சிவசுந்தரம்

Ser. No.:

Scalar:

Bgr:

c/m

• ୫୬୩ :

Cal. Date:

File:

9/8

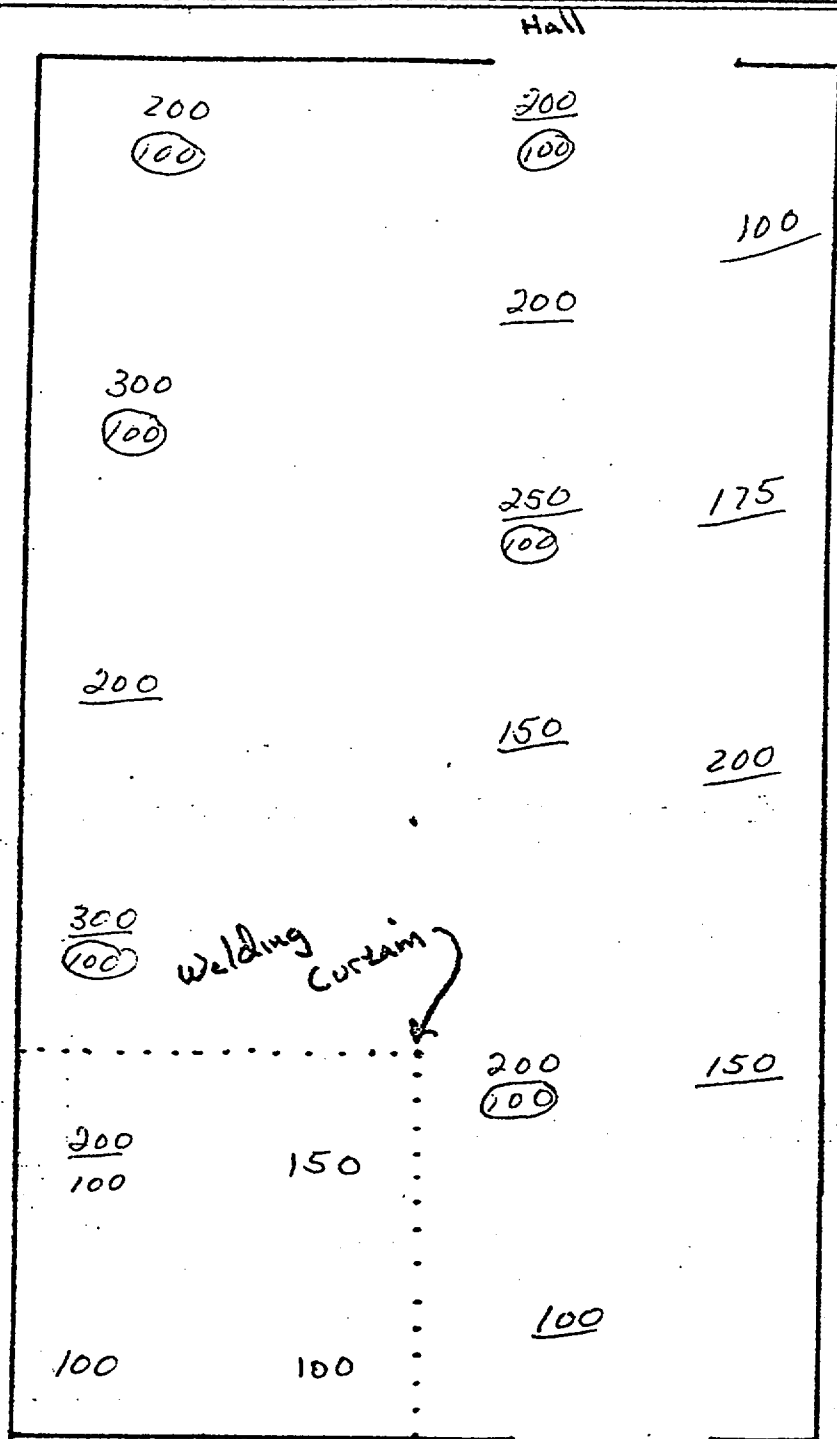
Eff. Date:

The above listed items are unconditionally released per the specifications set forth in "Guidelines for Decontamination of Equipment and Facilities Prior to Release for Unrestricted Use or Termination of Licenses for Source By-Product or Special Nuclear Material", - USA April 22, 1970.

Taken by:		Location: ^{JOHN} INSIDE LAWRENCEBURG, TENN	
Type:	Ser. No.:	Scaler:	Bgr: c/m
Model:	Cal. Date:	Eff. %	Eff. Date:

ITEM	LOOSE ACTIVITY	FIXED ACTIVITY		ITEM	LOOSE ACTIVITY	FIXED ACTIVITY	
		HIGH	AVERAGE			HIGH	AVERAGE
" ID HOSE	250	250	N/A	ABSOLUTE Filter	500	500	N/A
CHARCOAL BALLS	250	250	N/A	ULTRA AIR Filter	50	50	N/A
ASS FRAME Screen	250	100	N/A	Pipe, 2" - 25'	100	100	N/A
D Tygon, 30'	250	50	N/A	CARBONACEOUS CEMENT ^{5gal CAN}	50	50	N/A
Greens (5)	250	400	N/A	LAB GLASS	200	200	N/A
ly Bottles, 1Box	250	100	N/A	DECANTOR JAR (2)	100	100	N/A
re Filters (3)	250	100	N/A	WORK TABLE	200	200	N/A
ABSOLUTE Filter	250	200	N/A	Hydraulic Press PARTS	250	250	N/A
CHARCOAL Filter	250	250	N/A	URANIUM BOTTLE (NEW)	50	50	N/A
1 BOTTLE GAS	250	50	N/A	Glas-col APPARATUS	50	50	N/A
1 CHLORODIFLUOROMETHANE	250	50	N/A	Ceramic Funnel	100	100	N/A
1 CAN, 3gal (1)	100	100	N/A	locker PARTS	250	250	N/A
PART PAPER (100 rolls)	250	50	N/A	Emergency Blanket	250	250	N/A
1 BOX CARBON Blocks (75)	100	175	N/A	AIR DUCT	400	400	N/A
1 BOX STED Pipe Nipples	250	100	N/A	Screen	250	250	N/A
2 CARBON Pipe (50)	2500	200	N/A	8"x8" PLATE	250	250	N/A
AND Cylinders (11)	250	50	N/A	ABSOLUTE Filter	250	100	N/A
TER GAUGES & FRAME	100	100	N/A	S/S DISC 18"	300	300	N/A
ole Switch (2)	250	50	N/A	Room HEATER	250	250	N/A
RBON Felt (5)	250	100	N/A	Mill HEATER	250	250	N/A
S Section Glove Box	500	150	N/A	CARBON BALLS (13)	250	250	N/A
S Pipe 3'	700	700	N/A	Misc PARTS 1Box	400	400	N/A
Pass FOR Glove Box	100	100	N/A	Wooden Box	100	100	N/A
lter Housing	50	50	N/A				
OSE	50	50	N/A				
URNACE INTERNALS	200	200	N/A	DRAIN BASKET	100	150	N/A
lack BOARD (2)	300	300	N/A	The above listed items are unconditionally released per the specifications set forth in "Guidelines for Decontamination of Equipment and Facilities Prior to Release for Unrestricted Use or Termination of Licenses for Security Production of Special Nuclear Material", - USA April 22, 1970.			
reen Scale	500	500	N/A				
lastic Pipe	50	50	N/A				

Survey: Swipe in $\mu\text{Ci}/100\text{cm}^2$ <input type="checkbox"/> Dose Rate in m/hr <input type="checkbox"/>		Date: 11-28-73	Time:
Taken by: Pruett		Location: MAINTENANCE RM 123	
St. Type: LUDLUM 16	Ser. No.:	Scaler:	Bgr: c/m
Job: 43-4	Cal. Date:	Eff. %	Eff. Date:



○ LOOSE ACTIVITY
in $\text{dpm}/100\text{cm}^2$

— FIXED ACTIVITY
in $\text{dpm}/100\text{cm}^2$

MAXIMUM Beta-Gamma
 $< 1 \text{ mrad/hr}$
 $< 100 \text{ dpm}/100\text{cm}^2$

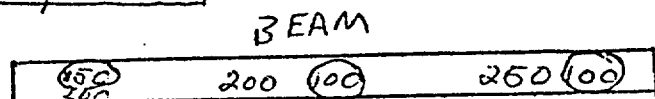
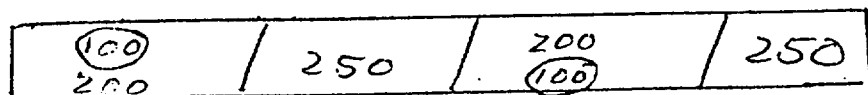
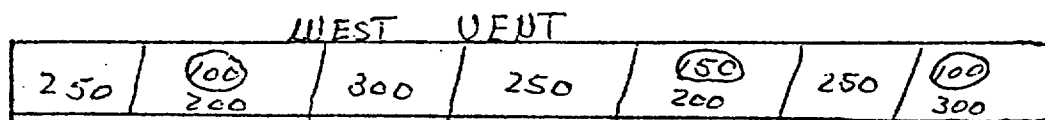
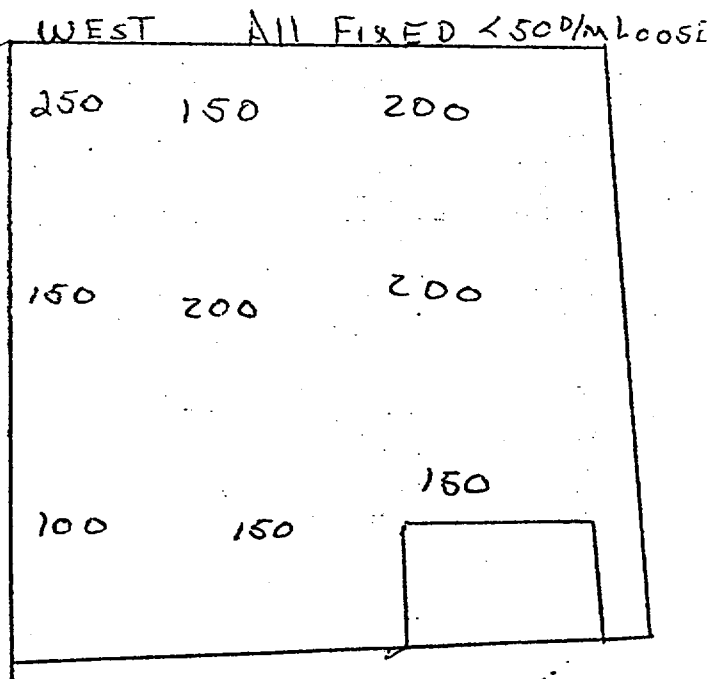
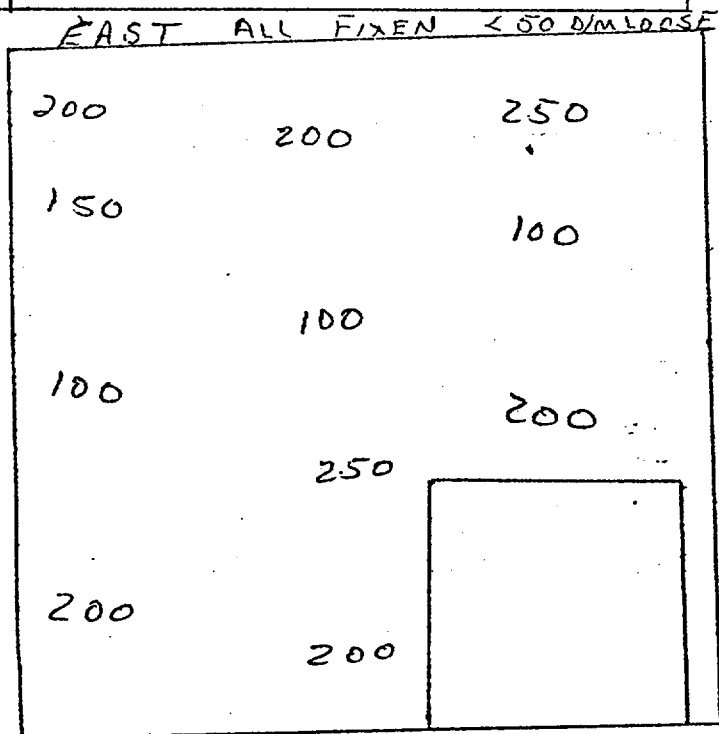
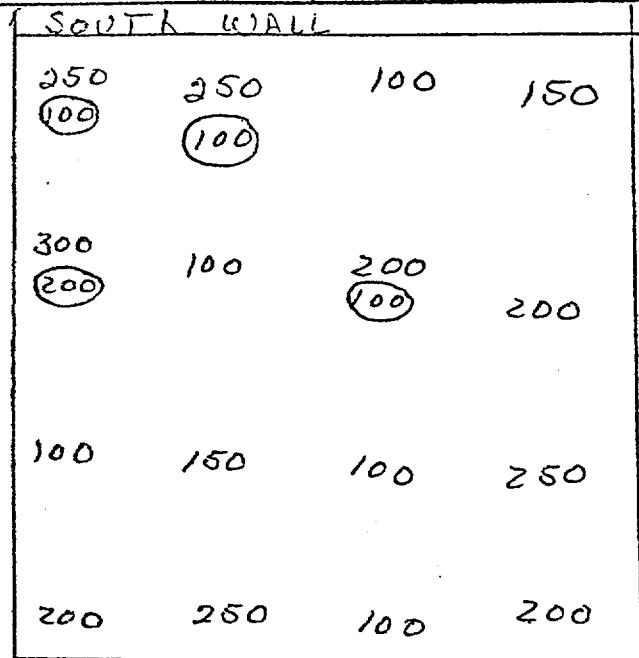
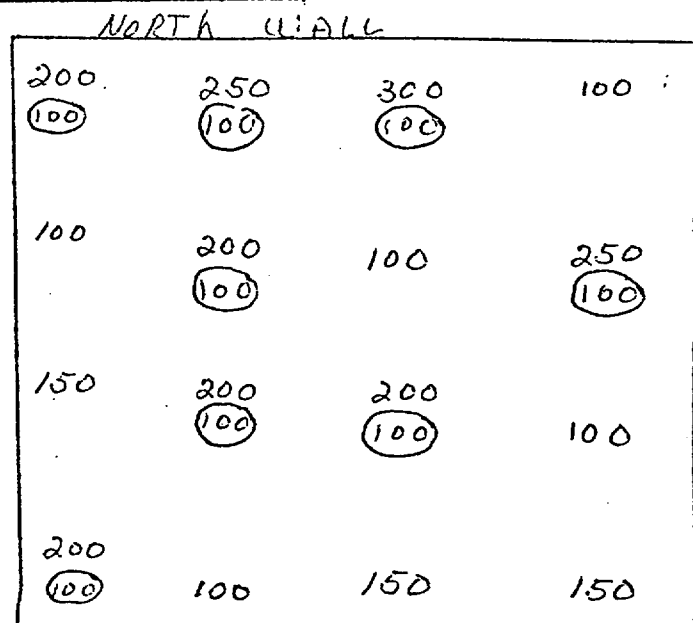
DRIVEWAY

Activity levels in the driveway:

- Top left: < 100
- Top right: < 100
- Bottom left: < 100
- Bottom right: < 100

TODD NUCLEAR DIVISION - RADIOLOGICAL SURVEY FORM

Type Survey: Swipe in pCi/l cm² <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 11-28-73	Time:
Taken by: PRIEST		Location: MOUNT. RM 123	
Inst. Type: PAC	Ser. No.: 112	Scaler:	Bgr: c/m
Probe:	Cal. Date: 11-1-73	Eff: %	Eff. Date:



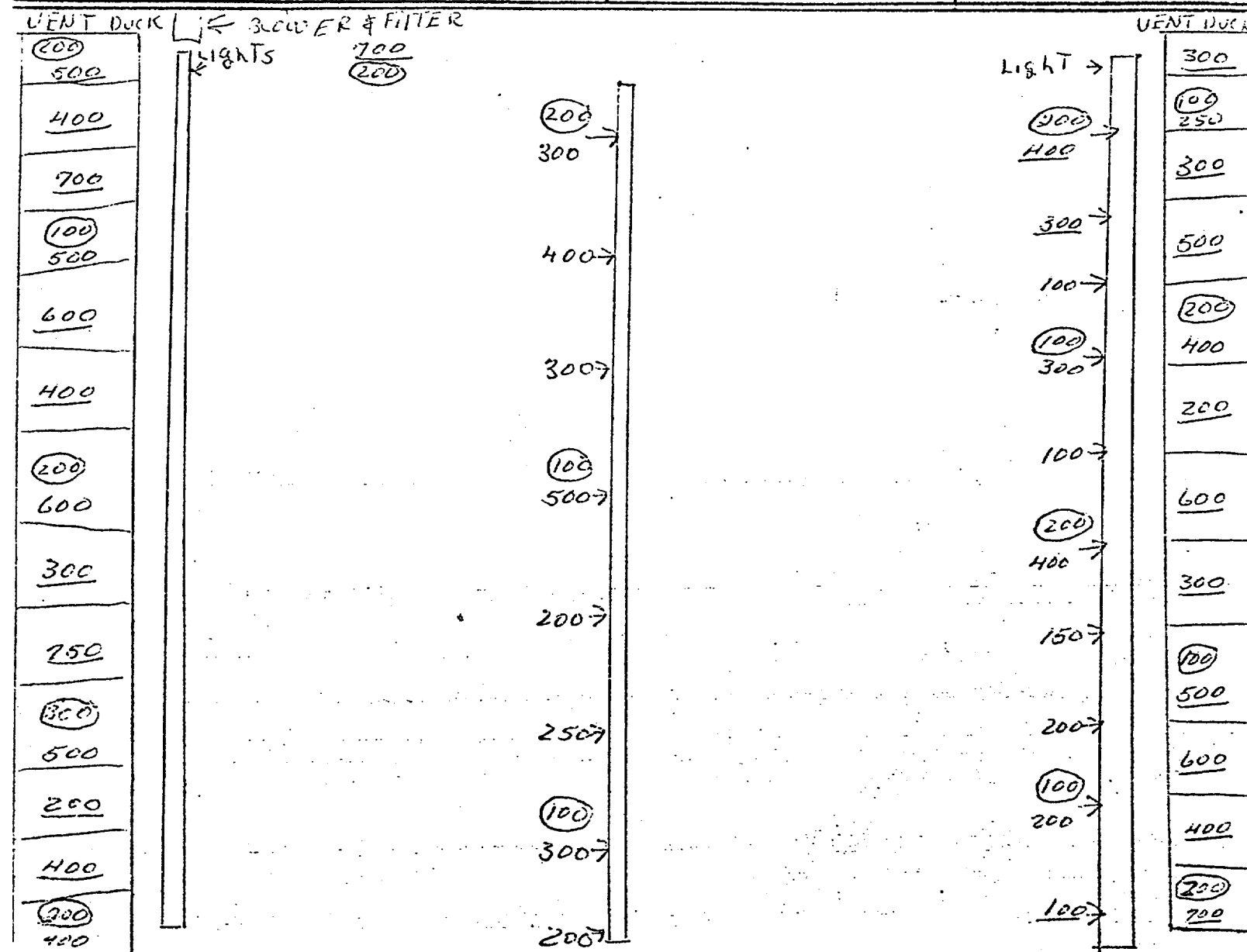
De Survey: LOOSE (SINE) AND FIXED (COUNT) ACTIVITY
 Date: 11-28-73
 Time: 11:28-11:30

Run by: [Blank]
 Ser. No.: [Blank]
 Col. Date: [Blank]
 Eff: [Blank]
 %: [Blank]
 Eff. Date: [Blank]
 Bgr: [Blank]
 c/m: [Blank]
 Location: ROOM - 123 - MAINTENANCE
 Date: 11-28-73

ITEM	LOOSE	FIXED	ACTIVITY	HIGH	AVERAGE
ROAD BOARD STRIP	750	750	N/A	50	N/A
1/2 BAST SIZES-8'	750	750	N/A	750	N/A
IRON DOOR 3'x8'	200	200	N/A	200	N/A
DR 5'x12	200	200	N/A	300	N/A
CO INSTRUMENT #3	750	750	N/A	500	N/A
ASS Windows 3'x5'	750	750	N/A	100	N/A
Pan	150	150	N/A		
TRIC Meter	300	300	N/A		
P Valve (2)	750	750	N/A		
AP-Switch	100	100	N/A		
Control Box	350	350	N/A		
Iron Instrument	400	400	N/A		
TRIC Motor #P2425T	750	750	N/A		
E 3'x5.5'	900	900	N/A		
I Collector	600	600	N/A		
T CANS (4)	750	750	N/A		
T (1st)	750	750	N/A		
IRANT Pump	800	800	N/A		
Under Type GPOB	400	400	N/A		
E Box (2)	50	50	N/A		
DR 7 Bags	200	200	N/A		
Pump oiler	400	400	N/A		
CONDITIONER Housing	1100	1100	N/A		
ION DOOR 4'x5' (2)	50	50	N/A		
FREQUENCY Motor	750	750	N/A		
UTIL Box	750	750	N/A		
Large File	50	50	N/A		
Re Bar	750	750	N/A		

The above listed items are unconditionally released per the specifications set forth in "Guidelines for Decommissioning of Equipment and Facilities Prior to Release for Unrestricted Use or Termination of License for Source By-Product or Special Nuclear Material" - USAF April 22 1970.

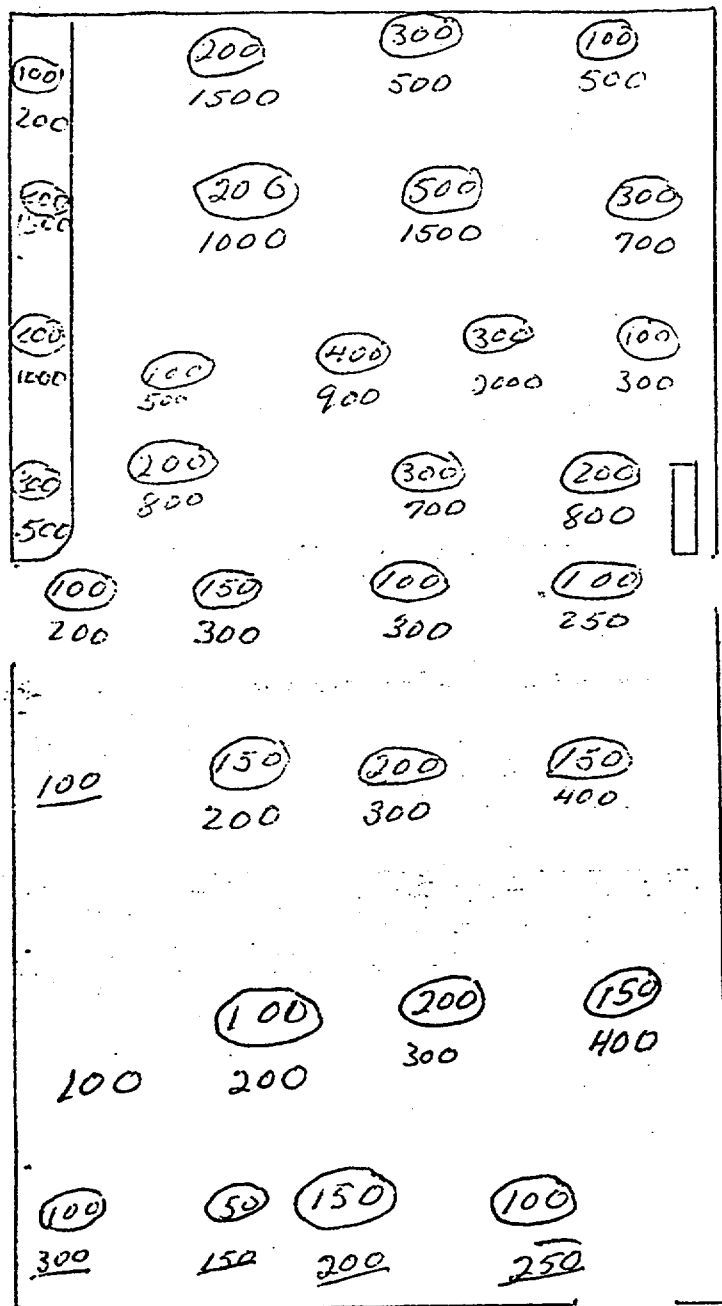
Type Survey: <u>Swipe in pCi/l cm²</u> <input type="checkbox"/>		Date: <u>11-27-73</u>	Time: <u> </u>
Taken by: <u>Proett</u>		Location: <u> </u>	
Inst. Type: <u> </u>	Ser. No.: <u> </u>	Scaler: <u> </u>	Bgr: <u> </u> c/m
Probe: <u> </u>	Cal. Date: <u> </u>	Eff.: <u> </u> %	Eff. Date: <u> </u>



○ LOOSE ACTIVITY
SWIPE IN DPM/100CM²

— FIXED ACTIVITY
IN DPM/100CM²

Type Survey: <input checked="" type="checkbox"/> Swipe in pCi/lc m ² <input type="checkbox"/> Dose, Rate in mRem/hr		Date: 11-27-73	Time:
Taken by: Proett		Location: MACHINING Rm 124	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff: %	Eff. Date:



○ LOOSE ACTIVITY
SWIPE in dpm/100cm

— FIXED ACTIVITY
in dpm/100cm²

← LINDBERG
FURNACE

Maximum B-8
2100 dpm/100cm²
2.1 mrad/hr

Type Survey: <input checked="" type="checkbox"/> Swipe in pCi/ 3cm ² <input checked="" type="checkbox"/> Dose Rate in mRem/hr		Date: 11-27-73	Time:
Taken by: Pruett		Location: Machine Rm 124	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:

ALL READINGS ARE FIXED

	150	250	200	100
100				
	200	300	100	
100				300
	200	200	100	
200				200
	200			
200	100	100	200	
200	100		100	400

SOUTH

0-LOOSE ALL READINGS FIXED

200	300	200	400	
				200
200	250	150	200	
				200
	300	100	100	
100				300
	100	200	200	
				100
300	200	200	100	
				200
200	200	200	100	100

WEST

OPENING TO VENT DUCKS
↓

300	200	200	200	200	100
	200		200		
200		200	150	100	200
	100				
200	200	400	100	250	200
			200		
200	200	200		300	300
100					
	200	100	200	250	200
100					

NORTH

DOOR TO HIGH BAY

BEHIND RACKS
↓

100	100	200	100	250
50	300	300	200	200
200	200		200	300
		200		
100	200	200	100	250
	200		100	
100		100		200
	200			
100			100	100

EAST DOORS

NO LOOSE

TODD NUCLEAR DIVISION -- RADIOLOGICAL SURVEY FORM

Type Survey: <input checked="" type="checkbox"/> Wipe in pCi/100cm ² <input checked="" type="checkbox"/> Dose Rate in mRem/hr		Date: 11-30-73	Time:
Taken by: ARMSTRONG		Location: COATING ROOM #123	
Inst. Type: PAC-15A	Ser. No.: 684	Scaler:	Bgr: c/m
Probe: 1	Cal. Date: 11-9-73	Eff: %	Eff. Date:

LOOSE ACTIVITY
SWIPE IN dpm/100cm²

FIXED ACTIVITY
IN dpm/100cm²

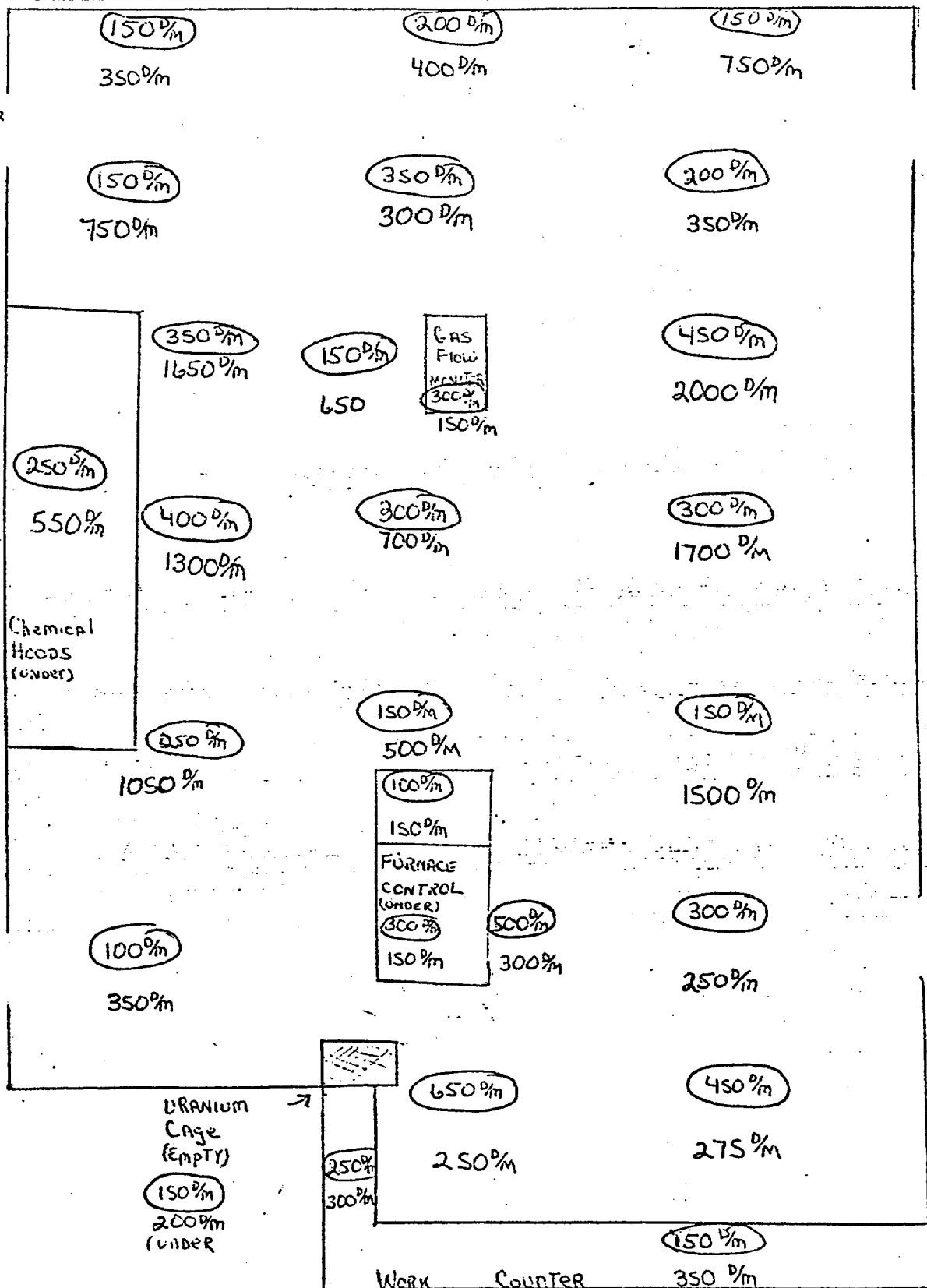
Maximum B-Y

Drawn from 7-ft

furman

.15 mrad/hr B-Y

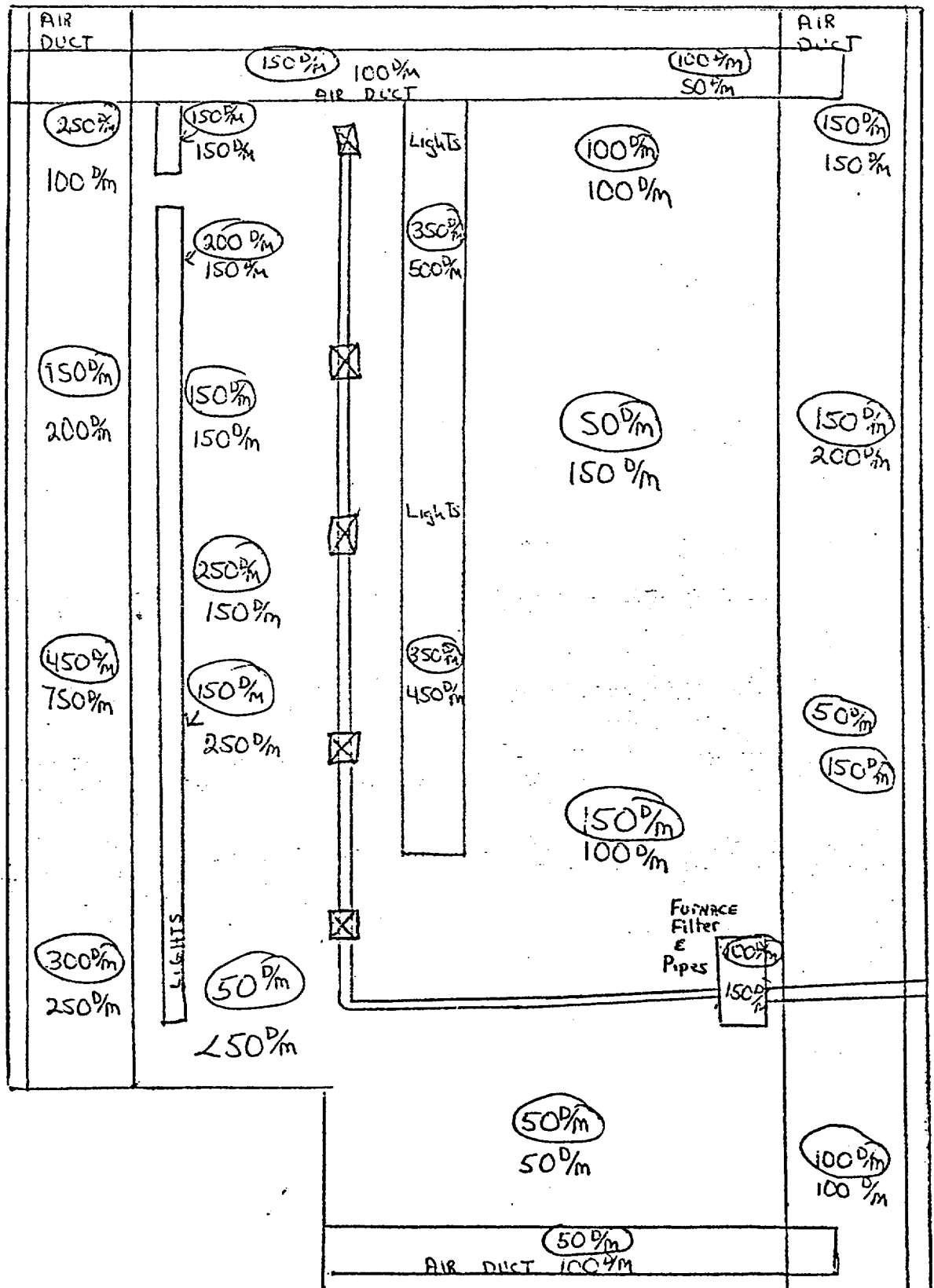
< 100 dpm/100cm²



Survey: Swipe in pCi/100cm ² <input type="checkbox"/> Dose Rate in mrem/hr <input type="checkbox"/>		Date: 11-30-73	Time:
by: <i>Amstrong</i>		Location: <i>Coating Room #128</i>	
Type: <i>PAC-ISA</i>	Ser. No.: <i>684</i>	Scaler:	Bgr: <i>c/m</i>
9:	Cal. Date: <i>11-9-73</i>	Eff.: %	Eff. Date:

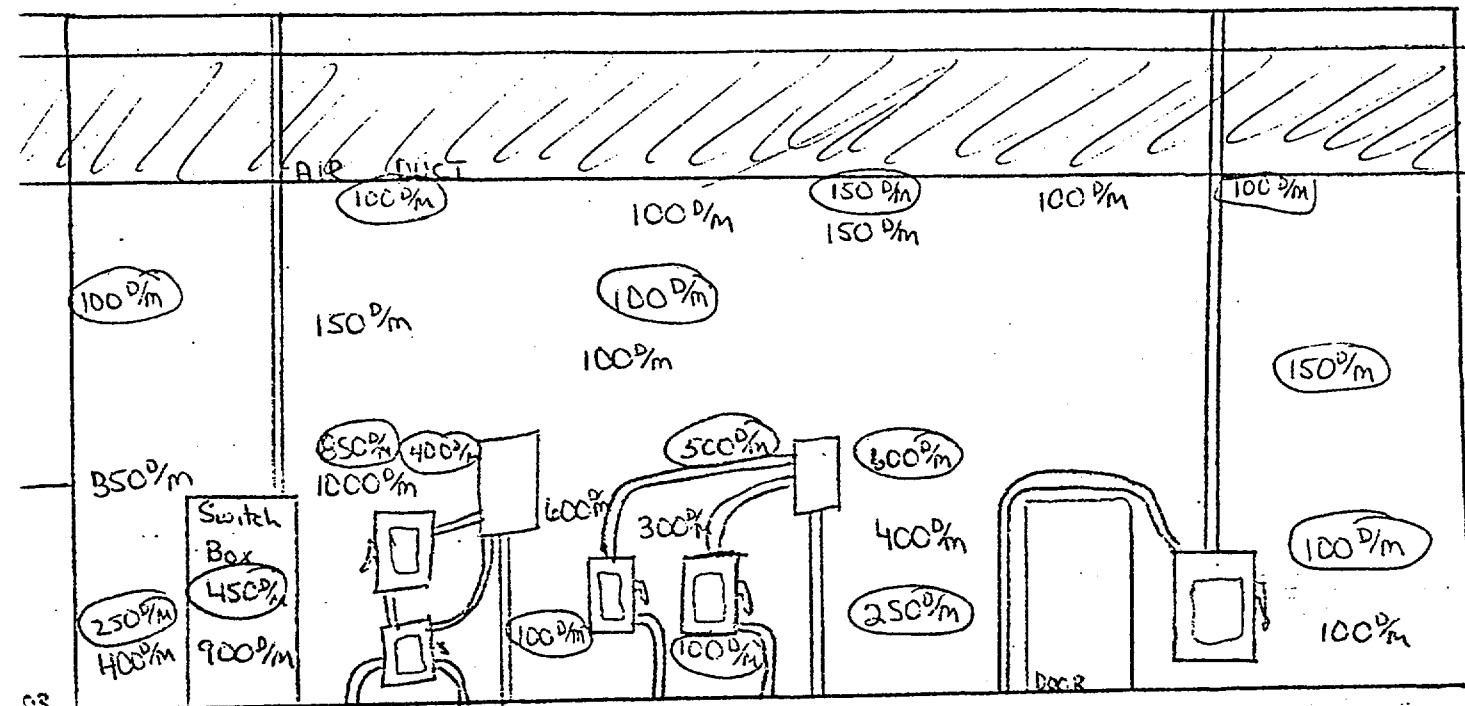
COSE Activity
DPM/100CM²

FIXED Activity
DPM/100CM²



Ceiling

Type Survey: Swipe in pCi/ 3cm ² <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 11-30-73	Time:
Taken by: Amathang		Location: Coating Room #128	
Inst. Type: PACISA	Ser. No.: 684	Scaler:	Bgr: c/m
Probe: -	Cal. Date: 11-9-73	Eff: %	Eff. Date:



○ Loose Activity
Swipe in DPM/100cm²

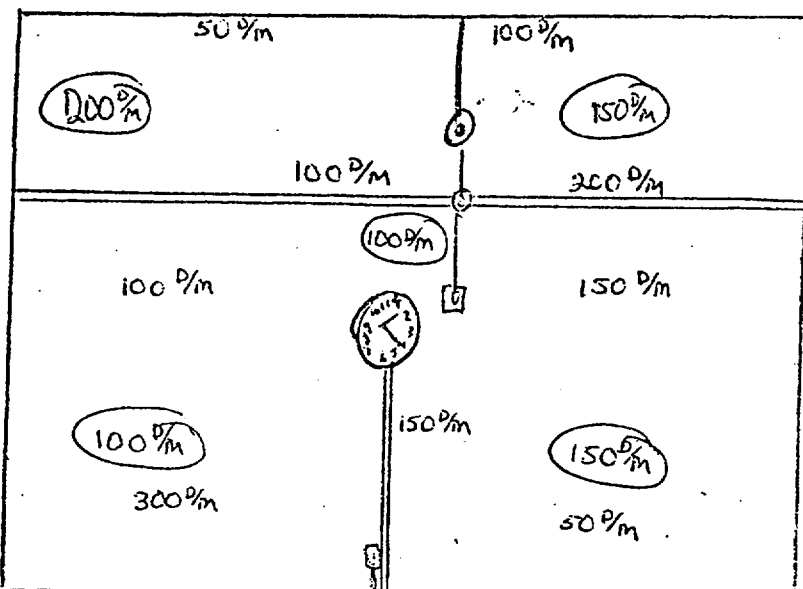
Fixed Activity
IN dpm/100cm²

TODD NUCLEAR DIVISION - RADIOLOGICAL SURVEY FORM

Type Survey: Swipe in $\mu\text{Ci}/\text{in}^2$ <input type="checkbox"/>		Date: 11-30-73	Time:
Dose Rate in mRem/hr <input type="checkbox"/>		Location: Coating Room #128	
Taken by: <i>Amstrong</i>	Inst. Type: PAC-15A	Ser. No.: 684	Scaler: Bgr: c/m
Probe: —	Cal. Date: 11-9-73	Eff: %	Eff. Date:

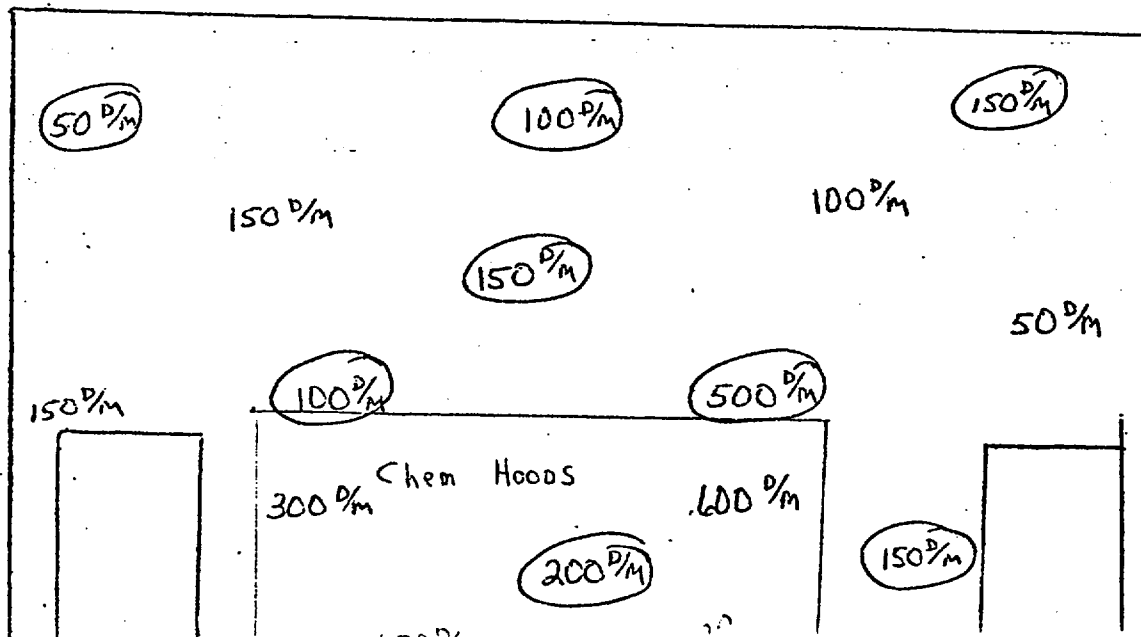
SOUTH WALL

○ Loose Activity
Swipe in $\text{DPM}/100\text{cm}^2$



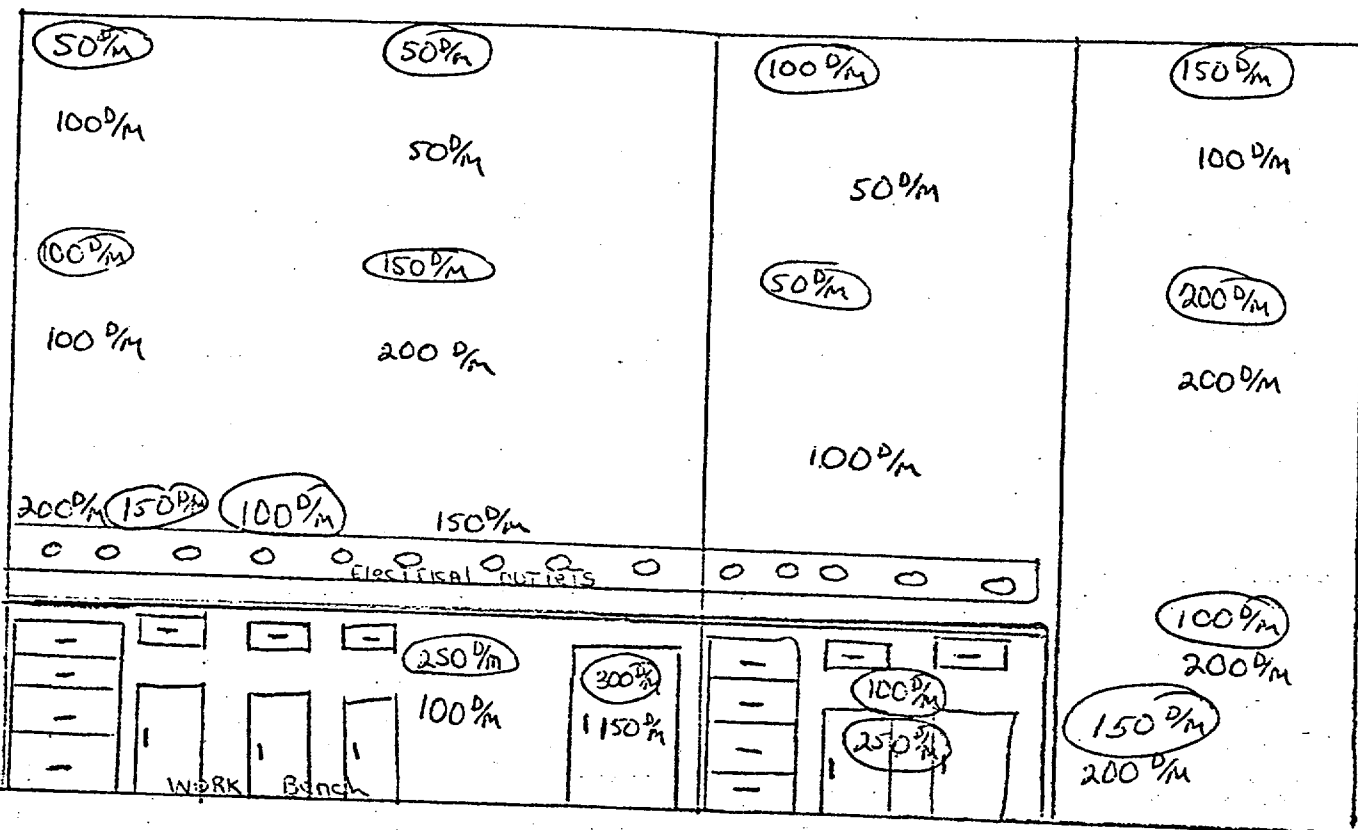
FIXED ACTIVITY
IN $\text{DPM}/100\text{cm}^2$

EAST WALL



Type Survey: Swipe in pCi/ 3cm ² <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 11-30-73	Time:
Taken by: <i>Amstrong</i>		Location: <i>Coating Room #128</i>	
Inst. Type: <i>PAC-ISA</i>	Ser. No.: <i>684</i>	Scaler:	Bgr: c/m
Probe:	Cal. Date: <i>11-9-73</i>	Eff: %	Eff. Date:

NORTH WALL
(w/o 90° Angles)



Type Survey: $\text{Swipe in } \mu\text{Ci}/100\text{cm}^2$ <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 11-30-73	Time:
Taken by: <i>A. Martinez</i>		Location: <i>Coating Room #12A</i>	
Inst. Type: <i>PAC-ISA</i>	Ser. No.: <i>604</i>	Scaler: <i>0</i>	Bgr: <i>c/m</i>
Probe:	Cal. Date: <i>11-9-73</i>	Eff: <i>%</i>	Eff. Date:

BACK (200 DPM)
 100 DPM

BACK (300 DPM)
 100 DPM

BACK (250 DPM)
 300 DPM

TOP (350 DPM)
 300 DPM

TOP (200 DPM)
 350 DPM

TOP (400 DPM)
 500 DPM

<p>(200 DPM) 200 DPM</p> <p>(350 DPM) 500 DPM</p>	<p>(200 DPM) 150 DPM</p> <p>(200 DPM) 500 DPM</p>	<p>(250 DPM) 300 DPM</p> <p>(250 DPM) 950 DPM</p>
<p>(350 DPM) 100 DPM</p>	<p>(300 DPM) 150 DPM</p>	<p>(150 DPM) 200 DPM</p> <p>(175 DPM) 250 DPM</p>

\bigcirc LOOSE Activity
Swipe in $\text{DPM}/100\text{cm}^2$

Fixed ~~Act~~ Activity
in $\text{DPM}/100\text{cm}^2$

Chemical hoods

Time:

□ □

Time:

Time:

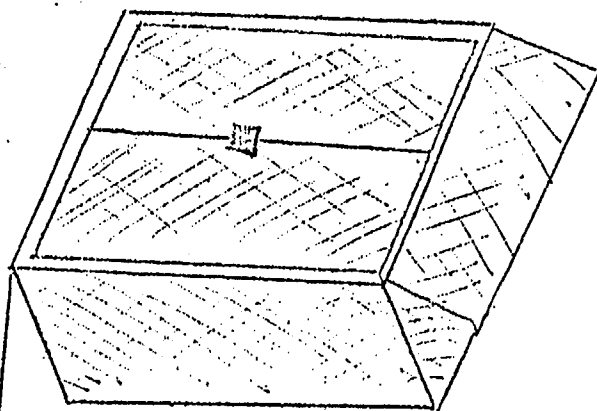
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Safety Cage Mounted on Wall

DE SURVEY: FIXED (CONTINUED) ACTIVITY 100 DPM / 100 cm ²		Date: 11-30-13	Time:
Item by:		Location: 5500 CARBIDE - LAWRENCEVILLE, GA Room - 12B	
1. Type:	Ser. No.:	Scaler:	Bgr: c/m
2.3:	Cal. Date:	Eff: %	Eff. Date:

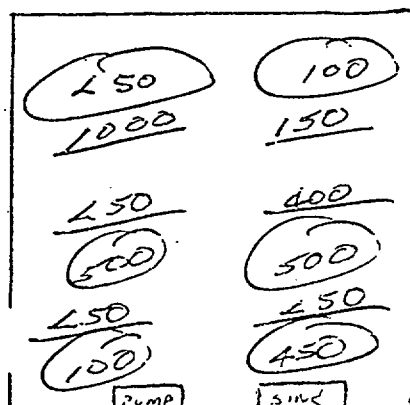
ITEM	LOOSE ACTIVITY	FIXED ACTIVITY		ITEM	LOOSE ACTIVITY	FIXED ACTIVITY	
		HIGH	AVERAGE			HIGH	AVERAGE
ALL Filter Housing	250	150	N/A	Copper Vessel	250	150	N/A
ART ON Wheels	250	950	N/A	Venturi Fan	250	250	N/A
re CARTS (6)	500	10,000	3000	Muffin Fan Filter	250	250	N/A
" VALVE	250	300	N/A	Duct Seal (7lbs)	250	350	N/A
White (2)	250	200	N/A	Flow Glasses (2)	250	250	N/A
Top BRUSH	250	250	N/A	CARBON Molds (3)	250	250	N/A
Telephone JACK	250	150	N/A	Box of ASST. 'O' Rings	250	150	N/A
COARSE GUN	250	200	N/A	Chart Paper (1 Roll)	250	250	N/A
1 Beam light	250	250	N/A	Chart Recorder Spares (1 Box)	250	250	N/A
By PRINT-1 CAN	100	100	N/A	ALUMINUM CAN	250	250	N/A
Flip BEARD	250	250	N/A	ALUMINUM Flanges (2)	250	200	N/A
TABLE	100	350	N/A	Copper Tubing (20')	250	250	N/A
ol CLUB	250	750	N/A	CAN lids (1 Box)	250	250	N/A
S TABLE	100	5000	1000	Oxygen Gauge	250	250	N/A
reen Scales, BRASS (14)	250	150	N/A	Steel Locker	500	550	N/A
ASS COILERS (4)	250	250	N/A	Duct WORK Filters (2)	300	500	N/A
reen Scales, S/S (7)	250	150	N/A	Filter Housing (2)	350	500	N/A
FeTy Belts (2)	250	250	N/A	Tin CANS (34)	250	250	N/A
VUM CLEANER ADAPT.	250	250	N/A	12" DUCT	700	300	N/A
ing Fittings (MISC)	250	250	N/A	Hood Vent (2)	200	400	N/A
FeTy Goggles	250	100	N/A	Duct 6"	300	750	N/A
BER Cement (1 can)	250	250	N/A	VARIOUS lengths of 1/4 pipe	100	150	N/A
MONOMETER	250	150	N/A	2 RUBBER HOSES	250	150	N/A
N BOTTLES (2)	250	150	N/A	S/S TABLE	150	500	N/A
VUM Bottles (2)	250	100	N/A	<p>The above listed items are unconditionally released per the specifications set forth in "Guidelines for Decontamination of Equipment and Facilities Prior to Release for Unrestricted Use or Termination of Licenses for Source By-Product or Special Nuclear Material", - USAE April 22, 1970.</p>			
SS COLLAR	250	250	N/A				
MARKER INK	100 P/M	100	N/A				
AMATIC Lens (3)	250	250	N/A				

Type Survey: Swipe in pCi/100cm ² <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 12-1-73	Time:
Taken by: Amishany		Location: JANITORIAL & LPS RM 123 F. 130.	
Inst. Type: PAC ISA	Ser. No.: 684	Scaler:	Bgr: c/m
Probe:	Cal. Date: 11-9-73	Eff: %	Eff. Data:

○ LOOSE ACTIVITY
SWIPE IN dpm/100cm²

— FIXED ACTIVITY
IN dpm/100cm²

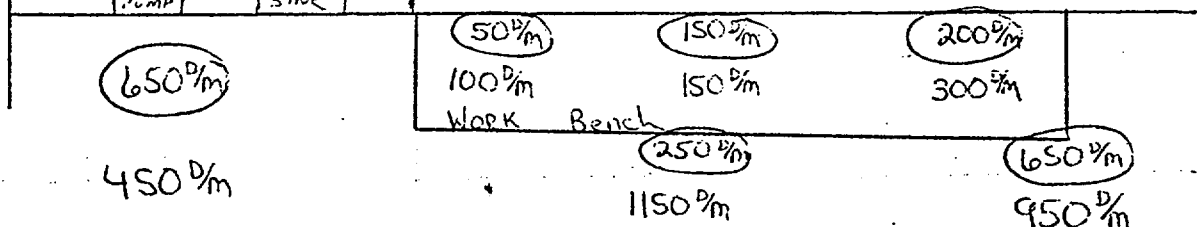
Work Bench, Chem Hood, & Sink readings
are on floor underneath.



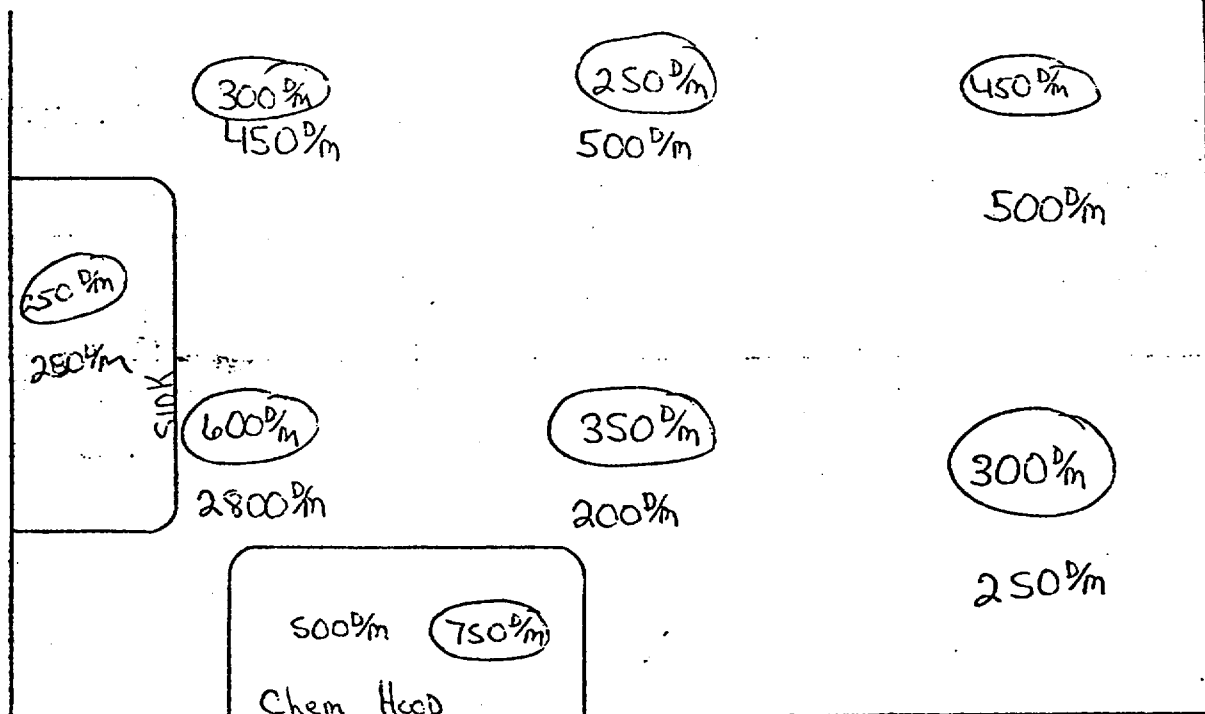
PUMP

SINK

MAX B-8
2.1 mrad/hr
2100 dpm/100cm²



Work Bench

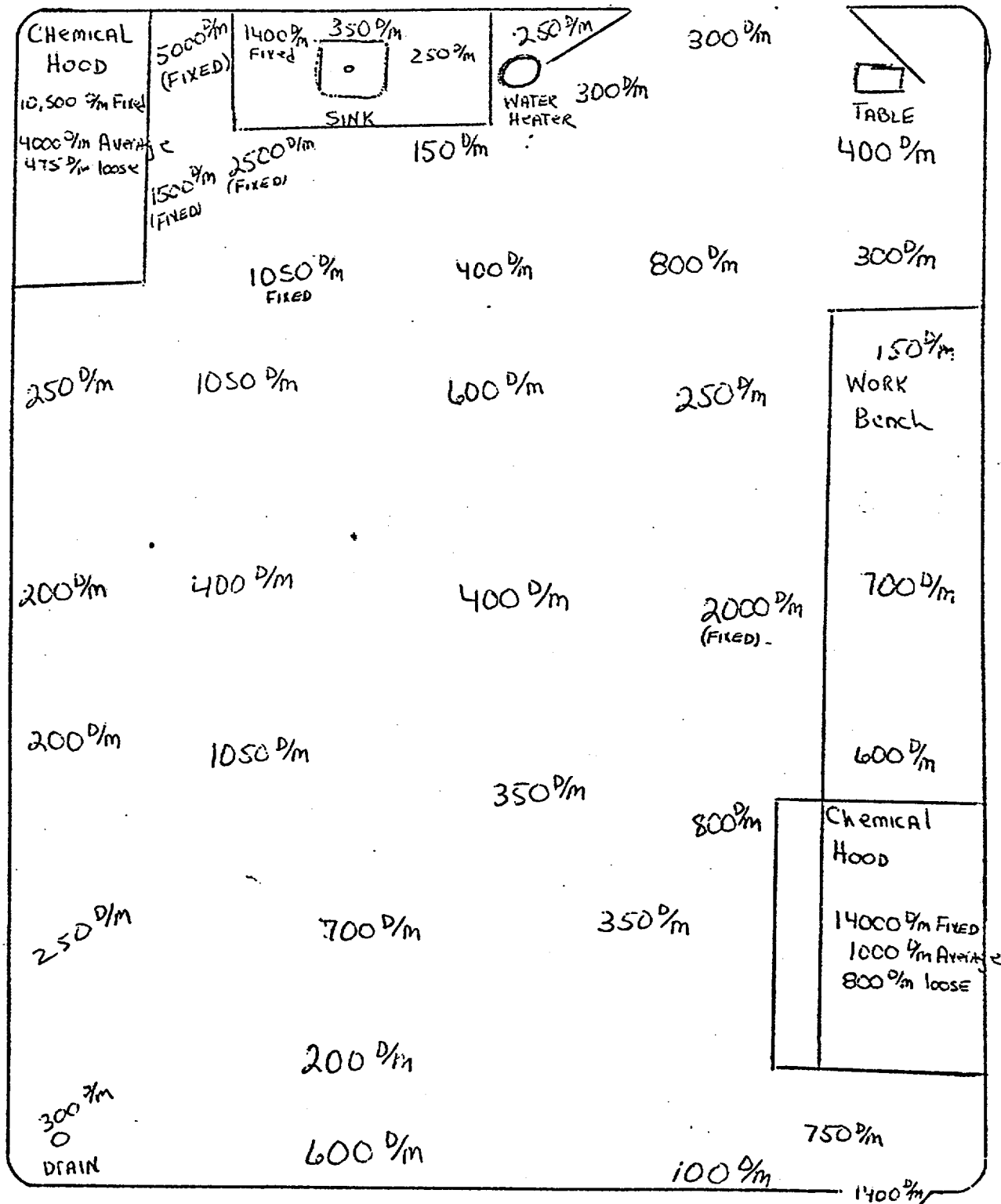


Chem Hood

Type Survey: <input type="checkbox"/> <input checked="" type="checkbox"/>		Date: 12-1-73	Time: 0900
Taken by: <i>Amateur</i>		Location: Chem Lab	
Inst. Type: Pac-ISA	Ser. No.: 1084	Scaler: —	Bgr: — c/m
Probe: Attached	Cal. Date: 10-18-73	Eff.: — %	Eff. Date: —

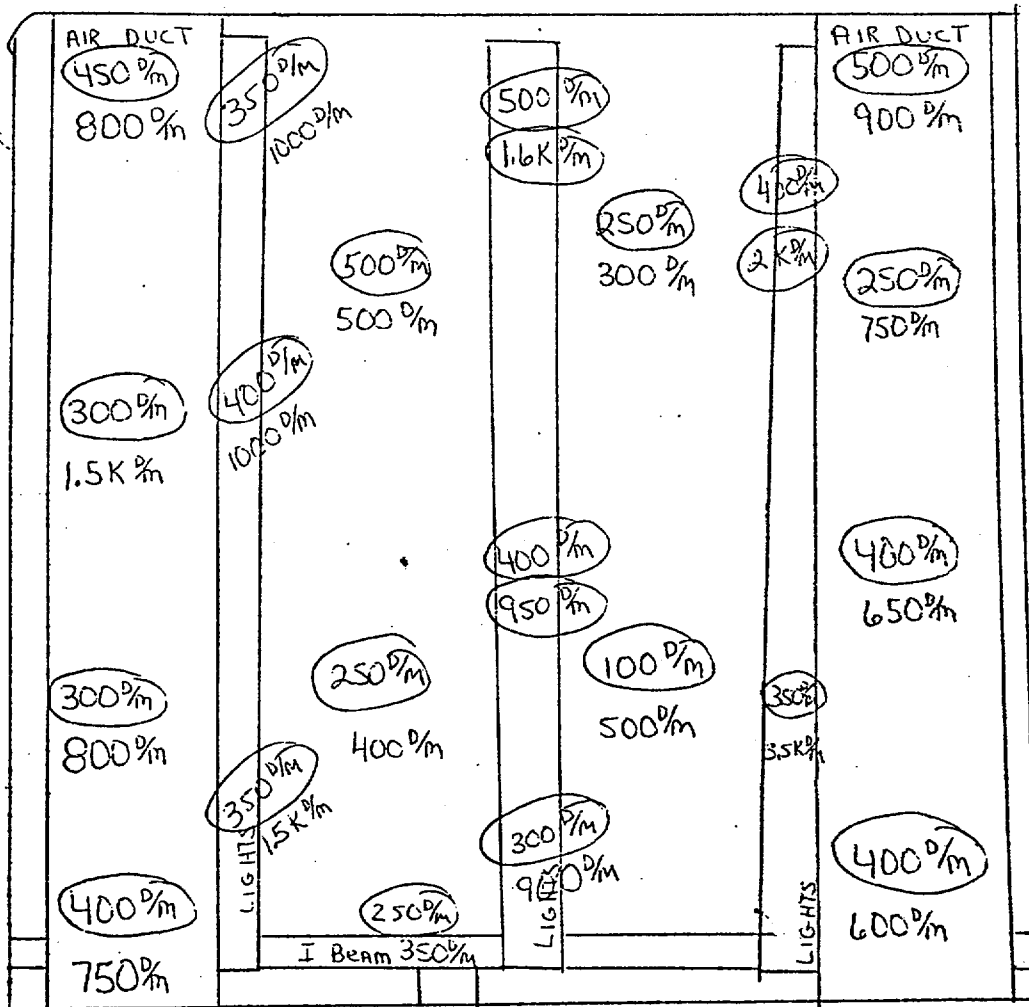
MAXIMUM LOOSE ON FLOOR 300 D/m

ALL READINGS BELOW ARE FIXED

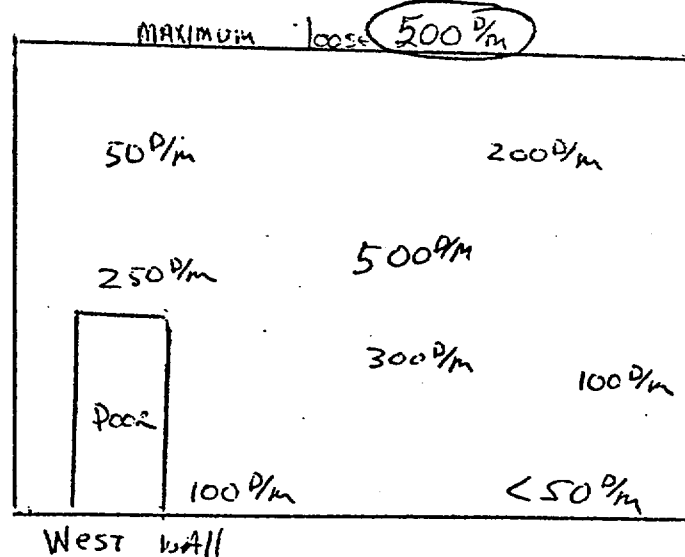
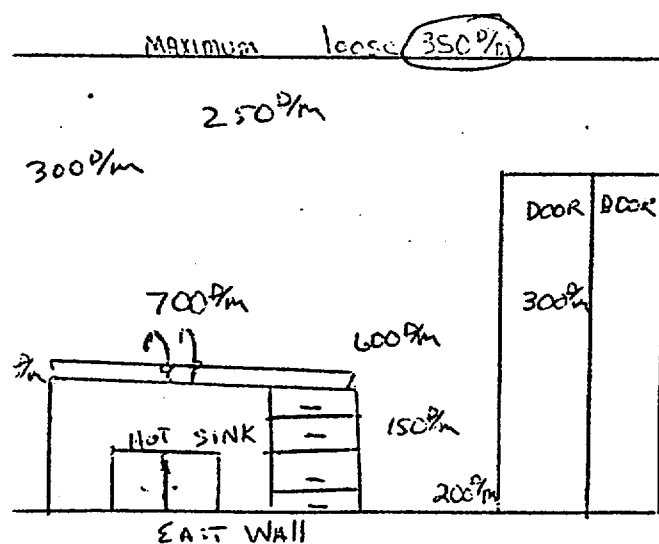
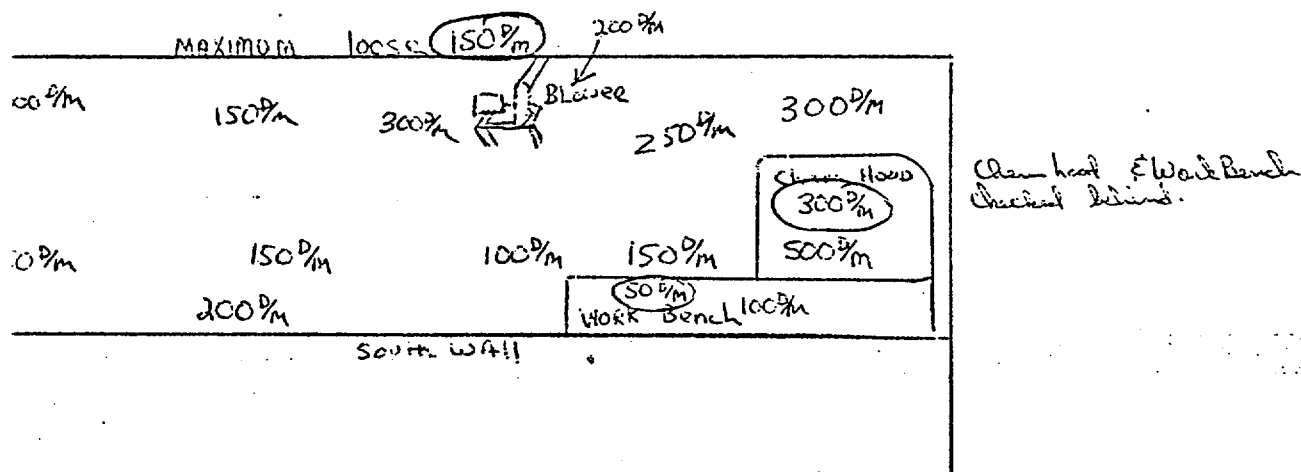
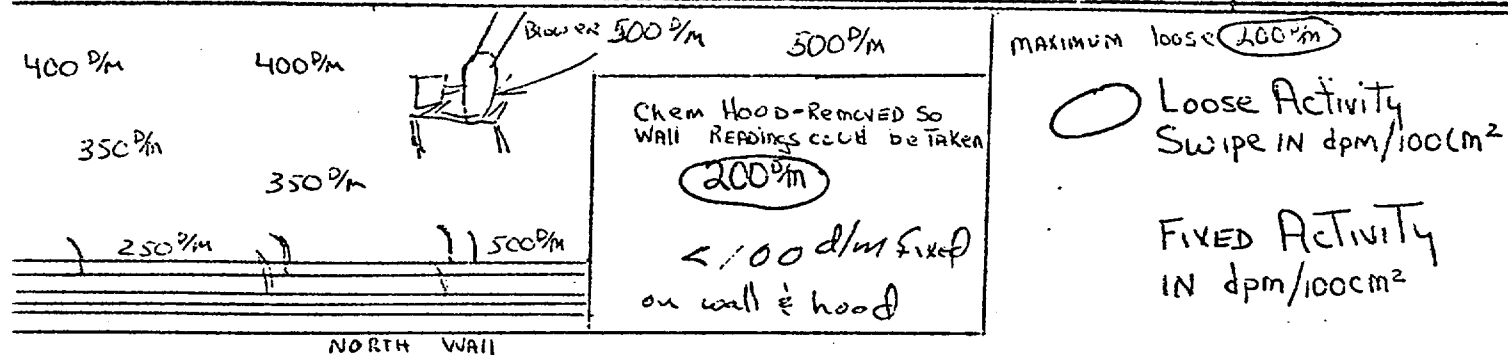


Type Survey: <input checked="" type="checkbox"/> Swipe in pCi/l cm ² <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 12-1-73	Time:
Taken by: Armstrong		Location: Lab Room 130	
Inst. Type: PAC-ISA	Ser. No.: 684	Scaler:	Bgr: c/m
Probe:	Cal. Date: 11-9-73	Eff: %	Eff. Date:

Ceiling



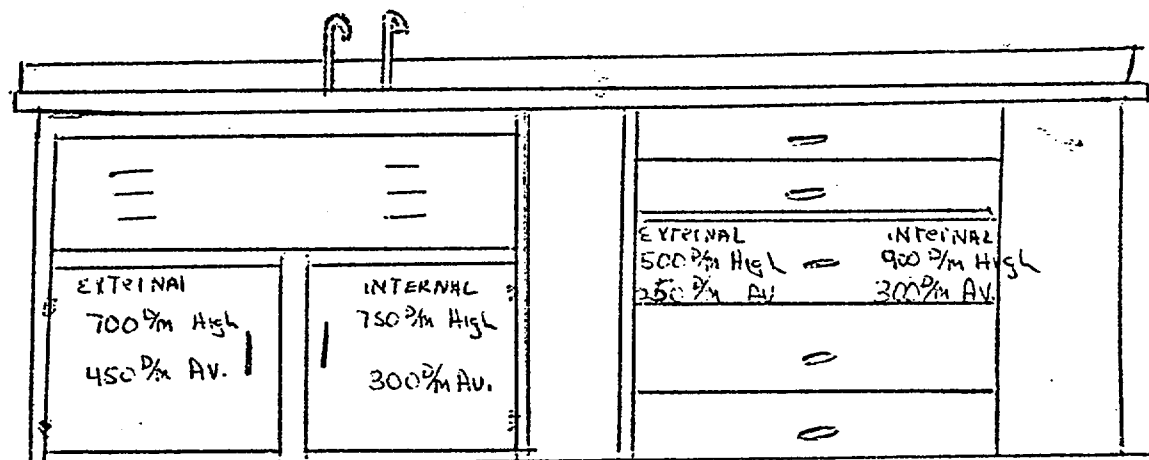
Type Survey: Swipe in pCi/3cm ² <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 12-1-73	Time: 0900
Taken by: <i>Amation</i>		Location: <i>Chem Lab</i>	
Inst. Type: PAC-ISA	Ser. No.: 684	Scaler: —	Bgr: — c/m
Probe: <i>Attached</i>	Cal. Date: 12-12-73	Eff: — %	Eff. Date: —



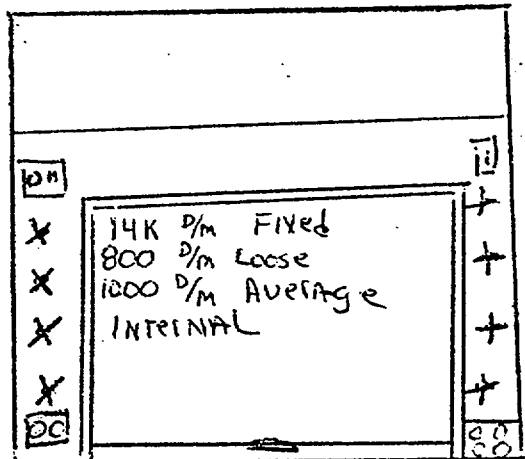
ALL READINGS FIXED CONTAMINATION

Type Survey: <input checked="" type="checkbox"/> Swipe in pCi/100cm ² <input checked="" type="checkbox"/> Dose Rate in mrem/hr		Date: 12-1-73	Time: 0930
Taken by: <i>Christy</i>		Location: Chem Lab	
Inst. Type: PAC-ISA	Ser. No.: 684	Scaler: —	Bgr: — c/m
Probe: <i>Attached</i>	Cal. Date: 10-18-73	Eff: — %	Eff. Date: —

HOT SINK
 HIGHEST SWIPE 450 D/m
 ALL OTHER READINGS FIXED



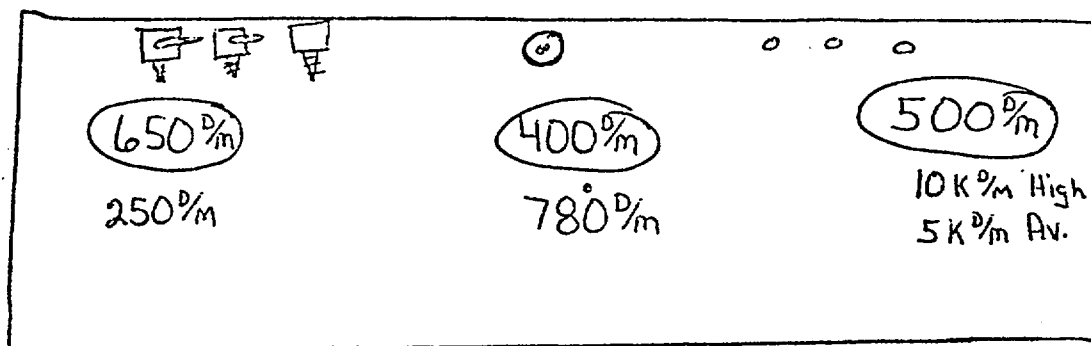
WORK BENCH SOUTH WALL
 HIGHEST SWIPE 1600 D/m
 ALL OTHER READINGS FIXED



EXTERNAL 300 D/m High 150 D/m AV.	EXTERNAL 150 D/m High 100 D/m AV.	EXTERNAL 800 D/m High 500 D/m AV.	EXTERNAL 500 D/m High 150 D/m AV.	EXTERNAL 850 D/m High 500 D/m AV.	EXTERNAL 1800 D/m Fixed 600 D/m AV.
INTERNAL 800 D/m High 250 D/m AV.	INTERNAL 400 D/m High 200 D/m Aver.	INTERNAL 350 D/m High 150 D/m AV.	INTERNAL 450 D/m High 200 D/m AV.	INTERNAL 600 D/m High 450 D/m AV.	INTERNAL 350 D/m High 250 D/m AV.

Taken by: <i>Amstiano</i>		Location: <i>Lab. Room # 130</i>	
Inst. Type: <i>PAC-ISA</i>	Ser. No.: <i>684</i>	Scaler:	Bgr: <i>c/m</i>
Probe: <i>-</i>	Cal. Date: <i>11-9-73</i>	Eff: <i>%</i>	Eff. Date:

Top of WORK Bench - South Wall



○ LOOSE Activity
Swipe IN dpm/100cm²

FIXED Activity
IN dpm/100cm²

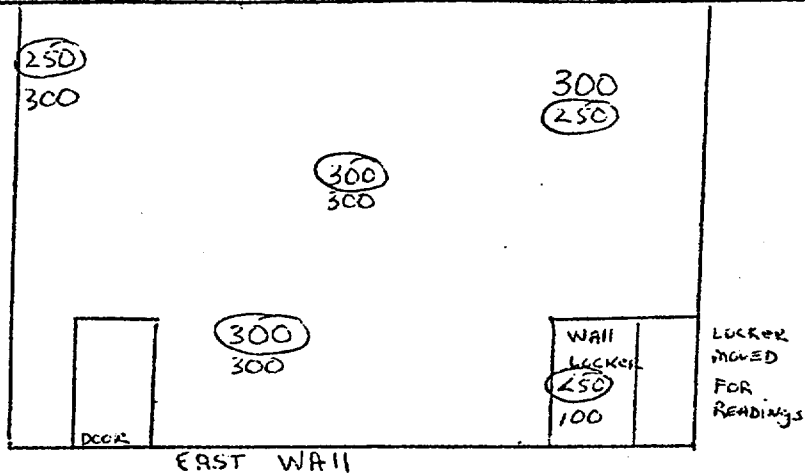
Item by:		Location: <u>Room - 130</u>	
St. Type:	Ser. No.:	Scalar:	Bgr: c/m
Obj:	Col. Date:	Eff. %	Eff. Date:

ITEM	LOOSE ACTIVITY		FIXED ACTIVITY		ITEM	LOOSE ACTIVITY		FIXED ACTIVITY	
	ACTIVITY	HIGH	AVERAGE			ACTIVITY	HIGH	AVERAGE	
ASTE BASKET	250	150	N/A		Test Tube Rack	250	850	N/A	
DUCT 3'x10'	400	500	N/A		1/2" conduit Pipe (4')	250	250	N/A	
Filter Housing	250	200	N/A		ALUMINUM CONTAINER (2)	250	250	N/A	
NIUM CART (Empty)	200	7500	1500		Misc. Chemicals (2 Boxes)	250	250	N/A	
NIUM CART Cage	50	50	N/A		s/s Screen Scale	250	300	N/A	
Protective face shield	250	50	N/A		s/s Tray	250	250	N/A	
all Filter Housing	250	800	N/A		Gas Burners (3)	250	250	N/A	
r Housing Bolts (8)	250	250	N/A						
Electric Heater	250	250	N/A						
s 1/2 DEPM (3 gross)	250	250	N/A						
x BAKING DISH	250	250	N/A						
R COVERS (3)	250	250	N/A						
SC CUTTER	100	400	N/A						
ASS VIALS (250)	250	250	N/A						
ASS JAR w/lid	250	50	N/A						
Petri DISH (10)	250	250	N/A						
Petri DISH (2)	250	250	N/A						
1. IAB Glass (200)	250	250	N/A						
Filter circles (400)	250	250	N/A						
PRT PAPER (4 Boxes)	250	250	N/A						
Filter Circles (500)	250	250	N/A						
ACETIC ACID (2)	400	400	N/A						
BRER Hose (30')	250	250	N/A						
T LAMP STAND	200	800	N/A						
AKER STAND	250	500	N/A						
AKER HEATER	100	650	N/A						
SSION PUFF SOLINOID	250	250	N/A						
PIPE (15")	250	300	N/A						

The above listed items are unconditionally released per the specifications set forth in "Guidelines for Decontamination of Equipment and Facilities Prior to Release for Unrestricted Use or Termination of Licenses for Source By-Product or Special Nuclear Material", - USA: April 22, 1970.

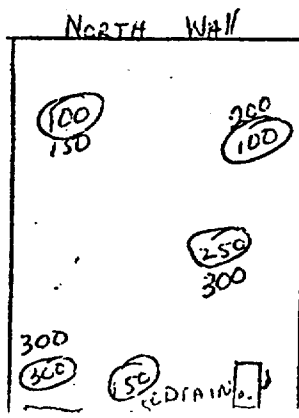
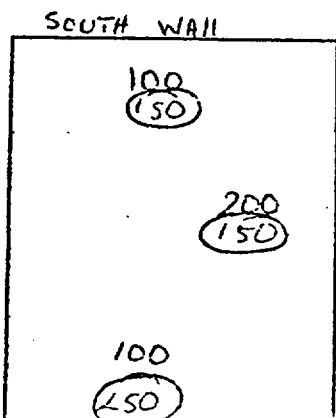
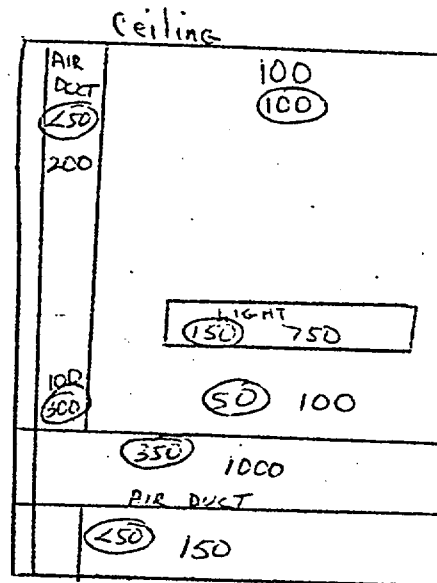
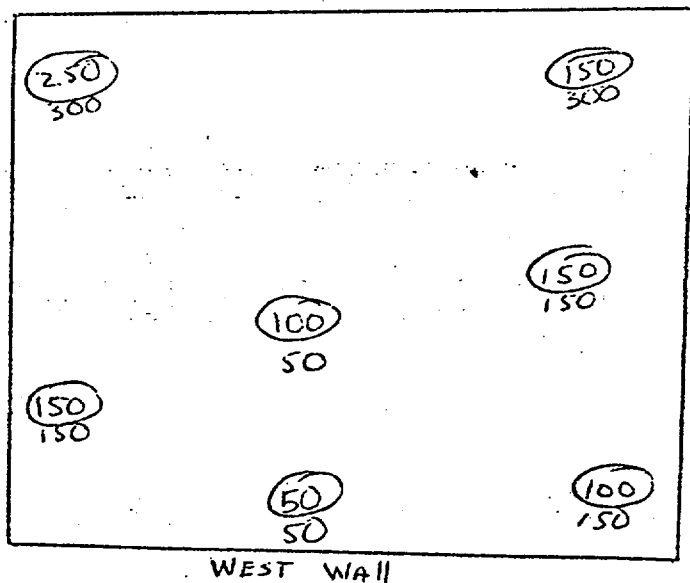
TODD NUCLEONICS DIVISION - RADIOLOGICAL SURVEY FORM

Type Survey: Swipe in pCi/100cm ² <input type="checkbox"/> Dose Rate in mRem/hr <input type="checkbox"/>		Date: 12-1-73	Time:
Taken by: <i>Amish, Hunter</i>		Location: Rm 129 - Janitor closet	
Inst. Type: PAC-ISA	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:



○ Loose Activity
Swipe in dpm/100cm²

— Fixed Activity
in dpm/100cm²

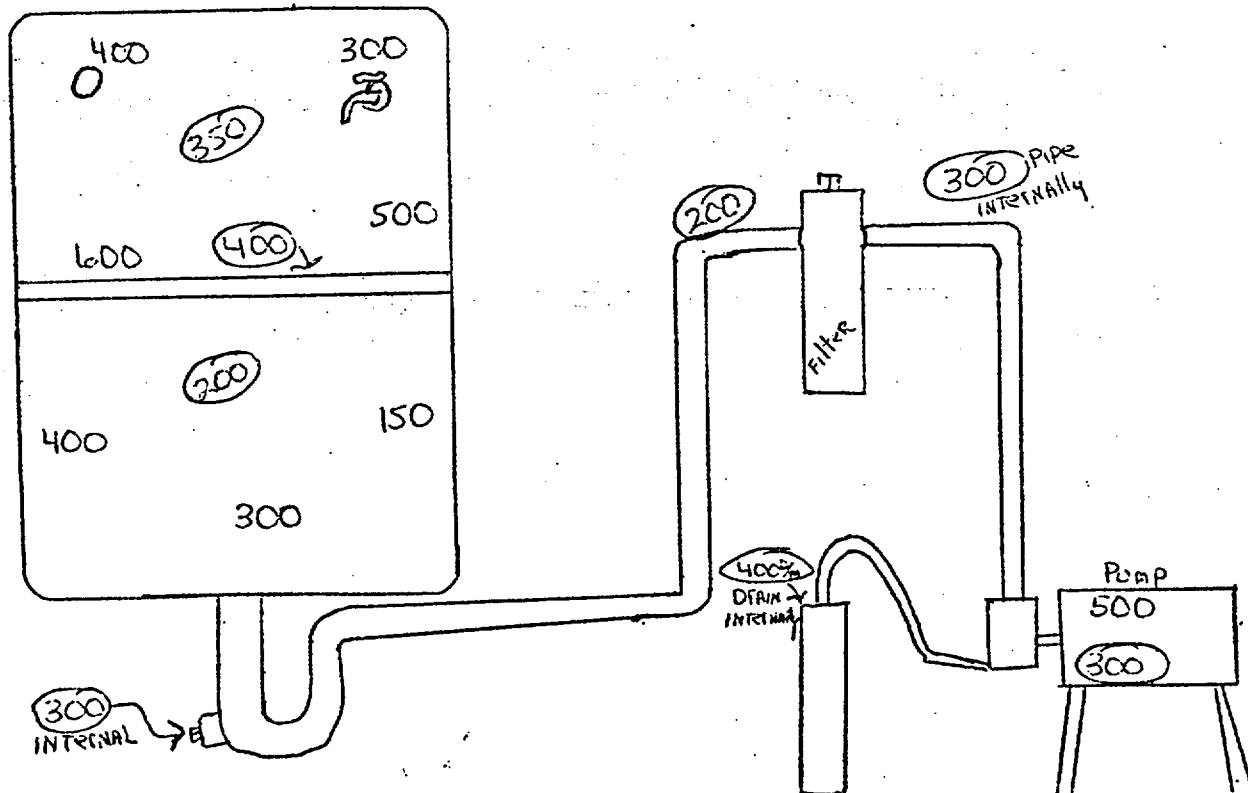
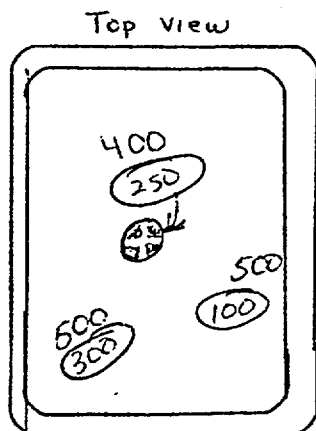


Type Survey: Swipe in $\mu\text{Ci}/100\text{cm}^2$ <input type="checkbox"/>		Date: 12-1-73	Time:
Dose Rate in mRem/hr <input type="checkbox"/>			
Taken by: Hunter E.E.		Location: Rm 129 - Janitorial closet	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:

DEEP SINK & Piping

Loose activity
Swipe in $\text{DPM}/100\text{cm}^2$

Fixed Activity
in $\text{DPM}/100\text{cm}^2$



[illegible]

IP3 SURVEY: FIXED (CENTRAL) ACTIVITY IN DPM / 100 CM ²		Date: 12-2-73	Time:
Taken by:		Location: DRUG CARBIDE - LAWRENCEBURG, TENN ROOM - 131	
1. Type:	Ser. No.:	Scalar:	Bgr: c/m
2. Obj:	Cal. Date:	Eff: %	Eff. Doly:

ITEM	LOOSE ACTIVITY	FIXED ACTIVITY		ITEM	LOOSE ACTIVITY	FIXED ACTIVITY	
		HIGH	AVERAGE			HIGH	AVERAGE
1 Poly Bottle	<50	150	N/A	PLASTIC JAR	<50	<50	N/A
2 Poly Bottle	<50	<50	N/A	STORAGE CABINET	200	450	N/A
3 Broid Film	<50	<50	N/A	CHART RECORDER w/Housing	200	250	N/A
4 VER Glass (Bor)	<50	200	N/A	S/S WORK TABLE	200	800	N/A
5 VAT (3)	<50	100	N/A	DI WATER Filters (4)	<50	50	N/A
6 Pipe Nipple (2)	<50	<50	N/A	Transformers (2)	200	800	N/A
7 COVERS (2)	<50	<50	N/A	"Pig" Complete	<50	450	N/A
8 Telescope electrodes (3 Bores)	<50	<50	N/A	TUBE TO ABOVE 'Pig'	<50	<50	N/A
9 Caps (150)	<50	<50	N/A	Filter Housing (3)	450	800	N/A
10 welds wrap (2 Bores)	<50	<50	N/A	Paper Cutter	<50	100	N/A
11 Rifle GUN	<50	<50	N/A	Clip BOARD	<50	250	N/A
12 Radio RACK (2)	<50	<50	N/A	RMS Records (3 Books)	<50	<50	N/A
13 Sample RACK (2)	100	800	N/A	Stapler desk	<50	<50	N/A
14 Jaw meter (2)	<50	100	N/A	Electric WATER Heater	250	300	N/A
15 scraping logs (4)	<50	<50	N/A				
16 Dish (4)	<50	<50	N/A				
17 TUBE clamp	<50	<50	N/A				
18 1" PLATE	<50	<50	N/A				
19 Hole Punch	<50	<50	N/A				
20 RESINE LABEL (6)	<50	<50	N/A				
21 Polishing wheel	<50	<50	N/A				
22 Slides (39)	<50	<50	N/A				
23 Tray w/ lid	<50	100	N/A				
24 n Holders (4)	<50	100	N/A				
25 Site Molds (27)	<50	50	N/A				
26 TIC Trays (2)	<50	150	N/A				
27 Ray Film	<50	100	N/A				
28 ML BEAKER	<50	150	N/A				

The above listed items are unconditionally released for the specifications set forth in, "Guidelines for Decontamination of Equipment and Facilities Prior to Release for Unrestricted Use or Termination of Licenses for Source By-Product or Special Nuclear Material", - USAEC April 22, 1970.

TODD NUCLEAR DIVISION - RADIOLOGICAL SURVEILLANCE FORM

Type Survey: ☐ Swipe in pCi/100cm² ☐
 Dose Rate in mRem/hr

Date:

12-2-73

Time:

Taken by: 11

1501123

RM 131

Inst. Type:

Ser. No.:

Scaler:

Bgr: **c/m**

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Cal. Date:

Er:

Eff. Date:

Loose Activity \propto
(Square) in $\text{dpm}/100\text{cm}^2$

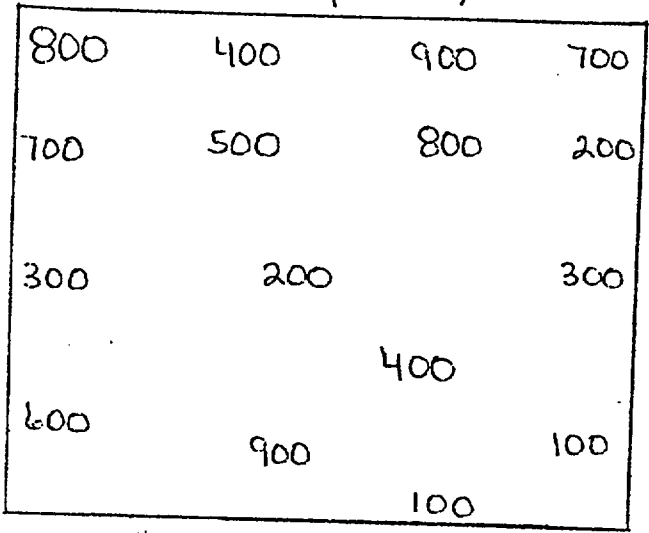
— $F_{X,ED}$ Activity \propto
in dpm/100cm²

Maximum B-2
2.1 mgm/hr
7.100 mgm/100 ml

500 Au Fix	700 Au Fix	900 Au Fix	500 Au Fix
300 loose	400 loose	500 loose	300 loose
500 Au Fix	900 Au Fix	800 Au Fix	300 Au Fix
400 loose	700 loose	600 loose	400 loose
500 Au Fix	500 Au Fix	500 Au Fix	500 Au Fix
300 loose	400 loose	200 loose	200 loose
500 Au Fix	700 Au Fix	800 Au Fix	1500 Au Fix
300 loose	400 loose	600 loose	600 loose
500 Au Fix	900 Au Fix	300 Au Fix	300 Au Fix
400 loose	500 loose	200 loose	700 loose

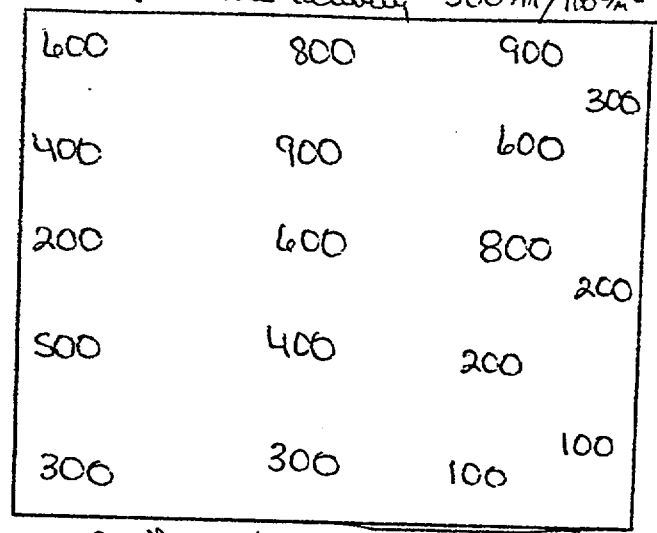
Type Survey: Swipe in pCi/100cm ² <input type="checkbox"/>		Date: 12-2-73	Time:
Dose Rate in mRem/hr <input type="checkbox"/>			
Taken by: Hunter		Location: Poling Room #132	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff. %	Eff. Date:

Highest loose activity 700%/100cm²



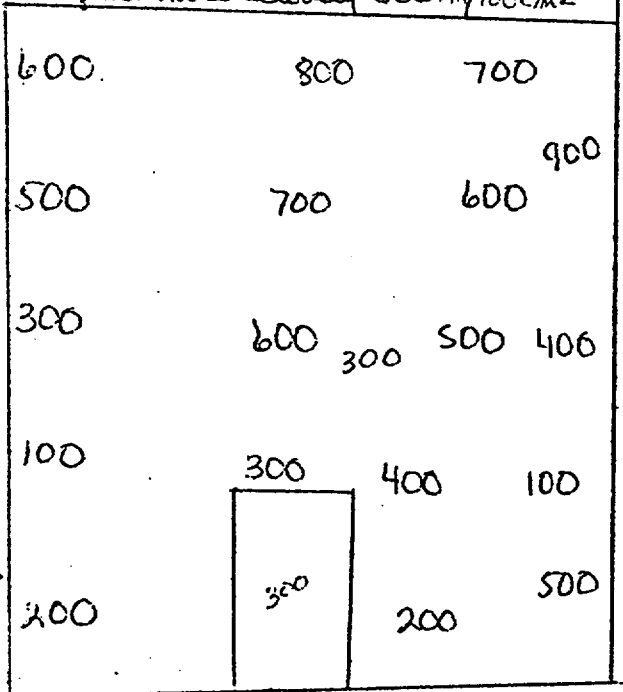
NORTH WALL

Highest loose activity 500%/100cm²



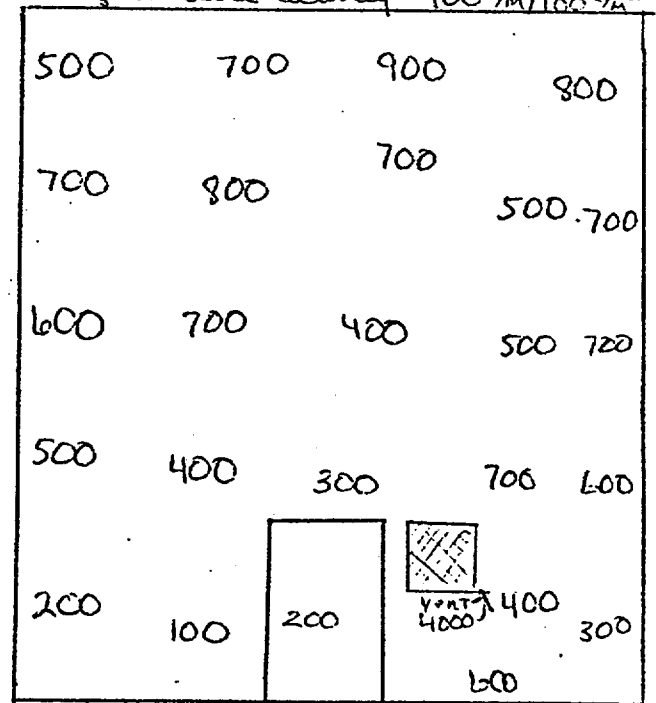
South WALL

Highest loose activity 600%/100cm²



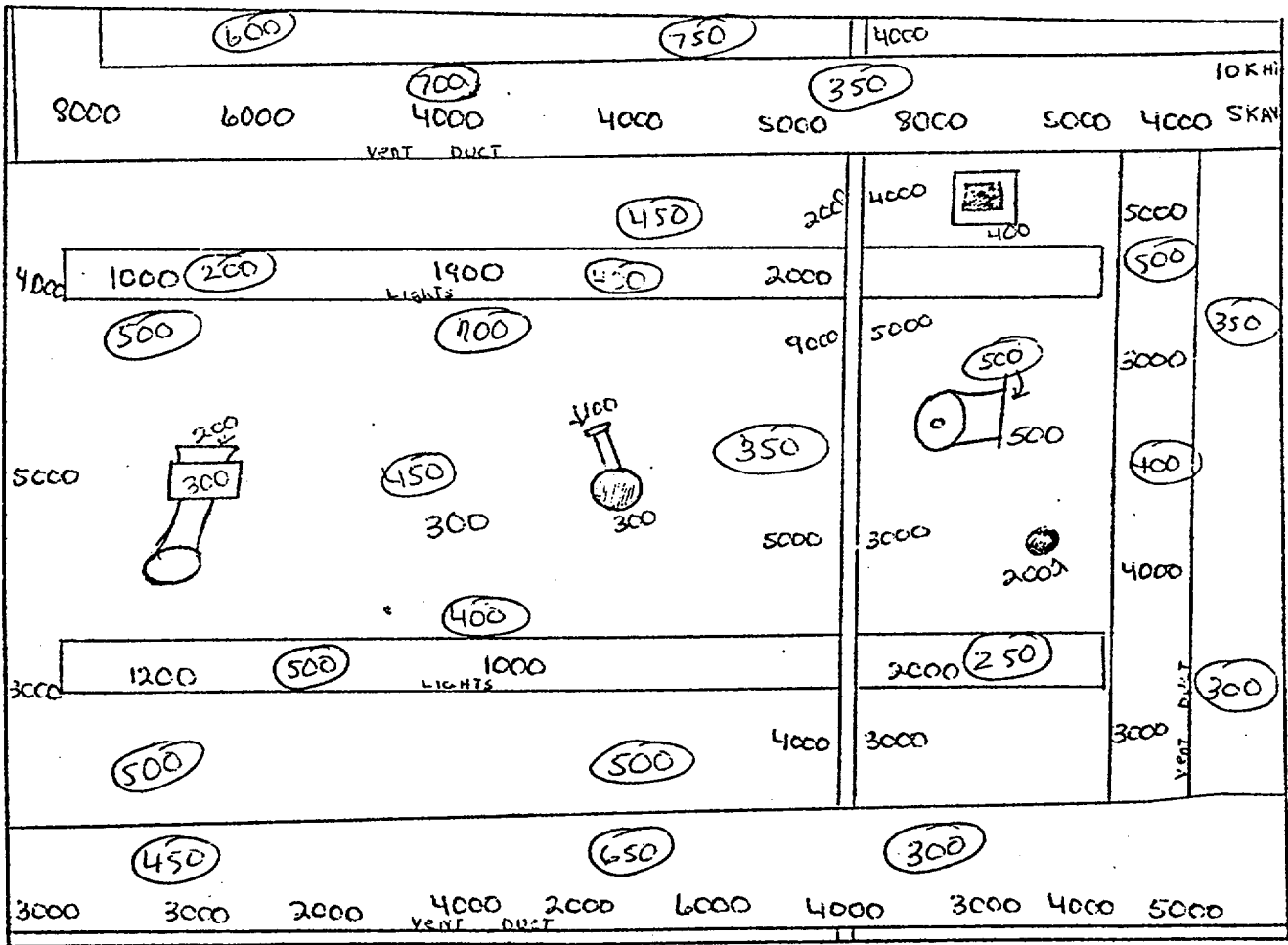
West WALL

Highest loose activity 400%/100cm²



Type Survey: <input checked="" type="checkbox"/> Swipe in pCi/100cm ² <input type="checkbox"/> Dose Rate in mRem/hr		Date: 12-2-73	Time:
Taken by: Hunter		Location: Ashing Room 132	
Inst. Type:	Ser. No.:	Scaler:	Bgr: c/m
Probe:	Cal. Date:	Eff: %	Eff. Date:

Ceiling



○ Loose Activity
Swipe in DPM/100cm²

— Fixed Activity
in DPM/100cm²

TYPE SURVEY: FIXED (COUNT) ACTIVITY
100 DPM / 100 CM²

Date:

12-2-76

Time:

Done by:

Location: JONES CAREIDE - LAWRENCEVILLE, TENN
ROOM -

131. Type:

Ser. No.:

Scalar:

Bgr: c/m

Obs:

Cal. Date:

Eff: %

Eff. Date:

ITEM	LOOSE ACTIVITY	FIXED ACTIVITY		ITEM	LOOSE ACTIVITY	FIXED ACTIVITY	
		HIGH	AVERAGE			HIGH	AVERAGE
ELECTRICAL CONTROLS (2)	200	200	N/A	3/4" Copper Pipe (15')	800	1000	200
5'S TABLE	400	400	N/A	3/4" Conduit 5'	200	200	N/A
5'S Top (2)	500	500	N/A	1/2" Copper Pipe (25')	300	300	N/A
CONDUIT Pipe (2)	150	150	N/A	1" Pipe (8')	750	750	N/A
1" CONDUIT	400	4000	400	1/2" Copper Pipe (6')	200	100	N/A
CABINET Piece	200	200	N/A	3/4" Conduit (5')	500	1100	150
Capacitor	200	200	N/A	3/4" Conduit (8')	300	300	N/A
3" Pipe	400	400	N/A	Argon line	250	1100	100
TRANSFORMER (2)	500	500	N/A	1" Copper Pipe (12')	550	550	N/A
SCREENS (8)	400	400	N/A	1 3/4" Pipe (6')	300	300	N/A
Steel wool (2 Boxes)	100	100	N/A	2" Pipe (8')	300	300	N/A
UPPER TUBING (15')	100	100	N/A	1" CONDUIT (2')	100	100	N/A
Metal Strip	200	200	N/A	DUCT WORK	800	800	N/A
1" Pipe (5'9")	300	500	N/A	1" CONDUIT (8')	700	700	N/A
Hydraulic Hose (15')	800	800	N/A	VENT w/Blower	100	100	N/A
USES (10)	100	100	N/A	OVEN	250	250	N/A
um Dolly	100	100	N/A	Vent w/MOTOR	400	400	N/A
ished Tray (2)	100	50	N/A	Metal STAIRS	900	900	N/A
EX GASKET (8)	50	50	N/A	Vent	500	500	N/A
INT CAN 1gal	500	500	N/A	Vent w/Pipe	350	350	N/A
R. Hose (25')	900	900	N/A	BASKETS	950	9000	1500
NT Pipe (15')	150	150	N/A	DUCT WORK	600	600	N/A
PPER pipe (30')	100	200	N/A	WORK TABLE	400	400	N/A
uct WORK	100	50	N/A		750	8000	1500
" Pipe	50	150	N/A	<p>The above listed items are unconditionally released per the specifications set forth in "Guidelines for Decontamination of Equipment and Facilities Prior to Release for Unrestricted Use or Termination of Licenses for Source By-Product or Special Nuclear Material", - USF April 22, 1970.</p>			
8" Pipe	100	100	N/A				
DUCT (10')	400	150	N/A				
1/4" Pipe 18'	100	200	N/A				

