

Pu-Plant Room 121

While in production room 121 was used for fuel rod cleaning, final inspection, and storage. During decommissioning we used this room for waste storage.

On our initial scan, we identified five locations on the floor between 100-300 dpm and none on the walls. After cleaning these spots, our final release survey was performed.

We used a Ludlum 2220 with a Ludlum 43-17 low energy gamma probe to survey all cracks and seams. A Ludlum 2220 with a Ludlum 43-68, 43-4, or 43-27 was used with P-10 gas for all alpha release surveys. All smears were taken on Whatman smear paper and counted in a Hewlett-Packard 5560A (low background) automatic sample counter.

W. A. Rogers

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## Pu PLANT RELEASE SURVEY PLAN

1. For initial decontamination all surfaces will be scanned with an Eberline PRM-6 with a Radeco alpha scintillation probe. Background will be maintained at less than 100 CPM(200 dpm). All areas greater than twice background will be marked and reading will be taken with a release survey instrument to document contamination levels and random large area smears will be taken.
2. After these initial areas are decontaminated, all floor surfaces and the base of each wall will be completely surveyed with a digital readout release instrument and a Ludlum large area gas proportional alpha detector and random smear samples will be taken. Release instrumentation shall have a minimum detectable level of at least 50 dpm/100 cm<sup>2</sup>.
3. All hot spots greater than or equal to 100 dpm/100 cm<sup>2</sup> identified will be decontaminated.
4. A random survey with a release instrument will be taken on the walls and ceiling to try to identify any other problem areas.
5. If no problems are identified, each room will be gridded off into approximately 2 meter on a side square on the walls and floor and five readings will be taken in each grid. Readings shall be taken in the center and at the midpoint from the center to each corner.
6. Each ceiling has closely spaced rafters that will not be easily divided into 2 meter squares. Because of this, we will take readings on the bottom of each rafter at 2 meter intervals and one reading centered on the ceiling between rafters. Readings on each rafter will be staggered one meter.
7. These release readings will be documented on a map that is drawn to approximately scale measurements in meters.
8. Data provided on each map:
  1. Survey block numbers, identifiable on a scale drawings.
    - a. room or area name or number.
    - b. surface surveyed.
    - c. type of measurement and units.
  2. Name of surveyor taking measurements, date of survey, and location.

3. Type, model number, calibration data, sensitivity limit, background, and source response of instruments used in survey.
4. When a block surveyed is below the sensitivity of the instrument, the fact that such a measurement was made should be included as significant data.
9. All release survey smears will be taken on Whatman smear paper and counted in the automatic sample counters. Each smear will cover approximately 100 cm<sup>2</sup>.
10. There will be at least 30 survey blocks in each area to be released.
11. Piping and ductwork will be surveyed on all accessible sides at 2 meter intervals. If more than one line is running parallel in a pipe rack, readings shall be staggered at one meter intervals.
12. All readings taken that only cover part of a probe area will be corrected to dpm/100 cm<sup>2</sup>.
13. No survey block will measure less than one meter on a side.
14. No survey block will measure more than 3 meters on a side.
15. All portable release survey instruments will be calibrated quarterly and all instruments in use will be source checked daily.

Table I-1. Acceptable surface contamination levels

Nuclides <sup>a</sup>	Average <sup>b,c,d,f</sup>	Maximum <sup>b,c,d,f</sup>	Removable <sup>b,c,d,f</sup>
U-nat, U-235, U-238, and associated decay products	5,000 dpm α/100 cm <sup>2</sup>	15,000 dpm α/100 cm <sup>2</sup>	1,000 dpm α/100 cm <sup>2</sup>
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm <sup>2</sup>	300 dpm/100 cm <sup>2</sup>	20 dpm/100 cm <sup>2</sup>
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000 dpm/100 cm <sup>2</sup>	3,000 dpm/100 cm <sup>2</sup>	200 dpm/100 cm <sup>2</sup>
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and other noted above.	5,000 dpm βγ/100 cm <sup>2</sup>	15,000 dpm βγ/100 cm <sup>2</sup>	1,000 dpm βγ/100 cm <sup>2</sup>

<sup>a</sup>Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.

<sup>b</sup>As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

<sup>c</sup>Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

<sup>d</sup>The maximum contamination level applies to an area of not more than 100 cm<sup>2</sup>.

<sup>e</sup>The amount of removable radioactive material per 100 cm<sup>2</sup> of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

<sup>f</sup>The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.





AREA ROOM 121

TYPE OF SURVEY α DIRECT + SMEAR

COMPLETION DATE 9-14-88

SURVEY UNITS

FINAL GRID

TYPE OF INSTRUMENT Ludlum 2220/DET. 43-68

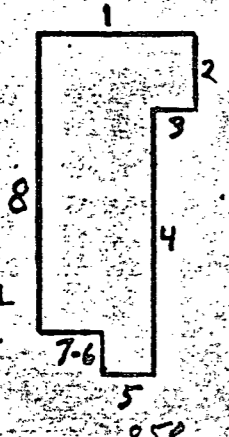
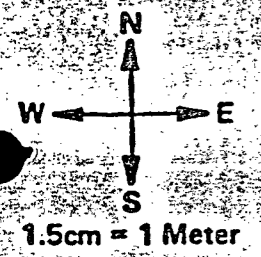
H.P. SIGNATURE W.C. Rogers

DPM/100cm<sup>2</sup>

MDA 1568  
DPM/100cm<sup>2</sup>  
FIXED

SERIAL NUMBER 37800, 48395, 50069/45819, 46172, 46173

AUTO. SAMPLE COUNTER # 82600108



F - FLOOR  
C - CEILING  
N - NORTH WALL  
S - SOUTH WALL  
E - EAST WALL  
W - WEST WALL

SOURCE: 2272 VALUE: 850  
6816 VALUE: 10280 DPM

INSTRUMENT		
DATE	SOURCE RESPONSE C/M	BKGO C/M
9-2-88	218 50069	1
9-2-88	259 37800	0
9-2-88	195 48395	0
9-6-88	210 48395	1
9-6-88	239 37800	1
9-7-88	212 48395	1
9-7-88	236 37800	0
9-7-88	251 37800	0
9-7-88	218 48395	1
9-8-88	265 37800	2
9-8-88	221 48395	0
9-8-88	218 50069	1
9-8-88	199 48395	1
9-8-88	198 50069	1
9-9-88	185 50069	0
9-9-88	197 48395	0
9-9-88	202 48395	0
9-9-88	206 50069	2
	ASC #2	
9-7-88	33	0
9-9-88	27	3
9-12-88	27	3
9-14-88	30	2

D-16 S-0	D-20 S-0	D-4 S-0	D-12 S-0	D-28 S-3	D-28 S-3	D-12 S-3	D-16 S-0	D-12 S-3		D-24 S-0							D-28 S-0	D-16 S-0
	D-24 S-0		D-28 S-3		D-12 S-0		D-32 S-0		D-0 S-0								D-20 S-0	
D-24 S-12	D-24 S-6	D-8 S-0	D-8 S-0	D-20 S-0	D-12 S-3	D-28 S-0	D-12 S-0	D-16 S-3		D-4 S-0							D-36 S-0	D-8 S-0
D-0 S-3	D-32 S-3	D-4 S-6	D-12 S-3	D-20 S-3	D-16 S-6	D-4 S-0	D-4 S-0	D-24 S-0		D-0 S-0							D-0 S-0	D-12 S-0
	D-12 S-0		D-16 S-0		D-36 S-0		D-32 S-0		D-0 S-0								D-16 S-3	
D-24 S-6	D-24 S-3	D-8 S-0	D-16 S-0	D-32 S-3	D-12 S-3	D-32 S-3	D-24 S-0	D-0 S-0		D-4 S-0							D-16 S-0	D-20 S-6
D-0 S-0	D-8 S-3	D-4 S-0	D-8 S-0	D-8 S-0	D-0 S-0	D-8 S-6	D-8 S-3	D-8 S-0		D-12 S-3							D-4 S-3	D-20 S-3
	D-8 S-3		D-16 S-0		D-4 S-3		D-0 S-0		D-4 S-0								D-16 S-0	
D-4 S-0	D-4 S-0	D-28 S-3	D-4 S-0	D-12 S-0	D-28 S-0	D-12 S-0	D-0 S-0	D-4 S-3		D-0 S-0							D-28 S-0	D-8 S-0
				WEST WALL - NORTH SECTION (8)													WEST WALL SOUTH SECTION (6)	
				EAST WALL - SOUTH SECTION (4)													EAST WALL - NORTH SECTION (2)	
D-20 S-6	D-8 S-3	D-16 S-0	D-24 S-3	D-4 S-3	D-0 S-0	D-8 S-0	D-8 S-0	D-12 S-3	D-0 S-0	D-8 S-0		D-8 S-0		D-4 S-6	D-8 S-3	D-24 S-6	D-8 S-6	
	D-4 S-0		D-4 S-0		D-8 S-3		D-0 S-0		D-20 S-0		D-8 S-0				D-8 S-3		D-12 S-0	
D-4 S-3	D-16 S-3	D-0 S-0	D-12 S-0	D-12 S-0	D-8 S-0	D-4 S-3	D-16 S-3	D-8 S-0	D-8 S-0	D-12 S-3		D-12 S-0		D-4 S-6	D-16 S-3	D-0 S-0	D-12 S-0	
D-8 S-0	D-8 S-0	D-16 S-6	D-16 S-3	D-4 S-0	D-28 S-3	D-4 S-0	D-8 S-0	D-8 S-0	D-8 S-0	D-4 S-0		D-8 S-3		D-8 S-3	D-8 S-0	D-8 S-3	D-12 S-0	
	D-16 S-0		D-4 S-0		D-8 S-0		D-8 S-3		D-4 S-0		D-0 S-3				D-4 S-0		D-0 S-6	
D-0 S-0	D-24 S-3	D-4 S-0	D-4 S-0	D-4 S-0	D-20 S-6	D-12 S-0	D-12 S-0	D-12 S-3	D-12 S-0	D-0 S-0		D-0 S-0		D-8 S-3	D-4 S-0	D-20 S-0	D-4 S-0	
D-20 S-3	D-12 S-0	D-20 S-3	D-20 S-6	D-8 S-3	D-0 S-3	D-0 S-3	D-4 S-3	D-12 S-3	D-8 S-3	D-4 S-0		D-4 S-3		D-12 S-0	D-8 S-0	D-8 S-3	D-8 S-0	
	D-36 S-0		D-48 S-0		D-24 S-0		D-32 S-0		D-8 S-3		D-20 S-6				D-4 S-0		D-20 S-0	
D-12 S-0	D-28 S-0	D-8 S-0	D-4 S-0	D-12 S-0	D-16 S-3	D-20 S-6	D-4 S-6	D-16 S-3	D-8 S-3	D-0 S-0		D-4 S-6		D-12 S-3	D-0 S-0	D-0 S-0	D-0 S-3	

OVER PIT

DIRECT SMEAR

TOTAL DPM 2444 312

# READINGS 210 210

AVG DPM/100cm<sup>2</sup> 11.65 1.49

MAX DPM/100cm<sup>2</sup> 48 12

WEST WALL - NORTH SECTION (8)

WEST WALL SOUTH SECTION (6)

EAST WALL - SOUTH SECTION (4)

EAST WALL - NORTH SECTION (2)









PLANT Pu AREA Room 121  
 SURVEYED BY ARLWIN / d. d. d.  
 INST. LIQUID 2220 \* 58318 DET. H3-4(27)  
 SOURCE CK 292-272 BKG. 2  
 DATE: 6-30-89 SOURCE # 1968 VALUE 1055 DPM

ASC # 1 83600115  
 CTD. BY J. Bluh  
 SOURCE CK. AVG. 35  
 BKG. 3  
 DATE: 6-30-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT		
	CPH	DPH	SHEAR
STORAGE BILLS #1 TOP	N 2	14	0
	E 0	0	3
	S 0	0	0
	W 10	70	0
3ft	N 2	14	0
	S 1	7	0
LG	E 0	0	6
	W 10	70	0
Bottom	N 2	14	3
	E 0	0	0
	S 0	0	0
	W 0	0	3
Bottom Detector	N/A	—	6
STORAGE CELL #2 TOP	N 1	7	0
	E 3	21	0
	S 2	14	0
	W 0	0	0
3ft	N 0	0	3
Direct Detector	S 0	0	0
Total DPM	4743	252	
Radiation	144	156	10ft
DPM/dec <sup>2</sup> AVG	32.94	1.62	W 2
MAX DPM/100cm <sup>2</sup>	102	9	
MDM	27.44		Bottom N 1
DPM/100cm <sup>2</sup>			E 3
FIXED			S 0
			W 2
Bottom P.	NA	—	0

PLANT Pu AREA Room 121  
 SURVEYED BY MCLAIN/HANLEY  
 INST. 1.101.11M 2220 \*58318 DET. 43-4  
 SOURCE CK 292-272 BKG. 2  
 DATE: 6-30-89 SOURCE # 6868 VALUE: 10550 DPM

ASC # 1 83600115  
 CTD. BY J Black  
 SOURCE CK. AVG. 35  
 BKG. .3  
 DATE: 6-30-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT		
	CPH	DPH	SHEAR
Storage Cell #3 TOP	N	0	0
	E	0	0
	S	3	21
	W	2	14
3ft	N	7	49
	S	7	49
6ft	E	3	21
	W	5	35
Bottom	N	3	21
	E	1	7
	S	5	35
	W	6	42
Bottom Position	N/A	—	3
Storage Cell #4 TOP	N	10	70
	E	10	70
	S	6	42
	W	6	42
3ft	N	12	84
	S	10	70
6ft	E	9	63
	W	16	102
Bottom	N	8	56
	E	6	42
	S	9	63
	W	11	77
Bottom Position	N/A	—	0

PLANT Pu AREA Room 121  
 SURVEYED BY MCLAIN/HANLEY  
 INST. 1.101.11M 2220 \*58318 DET. 43-4  
 SOURCE CK 292-272 BKG. 2  
 DATE: 6-30-89 SOURCE # 6868 VALUE: 10550 DPM

ASC # 1 83600115  
 CTD. BY J Black  
 SOURCE CK. AVG. 35  
 BKG. .3  
 DATE: 6-30-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT		
	CPH	DPH	SHEAR
Storage Cell #5 TOP	N	10	70
	E	4	28
	S	6	42
	W	4	28
3ft	N	4	28
	S	3	21
6ft	E	5	35
	W	9	63
Bottom	N	3	21
	E	10	70
	S	7	49
	W	3	21
Bottom Position	N/A	—	0

PLANT PV AREA ROOM 121  
 SURVEYED BY HANDLEY  
 INST. 1.1011M 2220 \*58318 DET. 43-4  
 SOURCE CK 250-283 BKG. 2  
 DATE: 6-30-89 SOURCE # 6868 VALUE: 1055 DPM

ASC # 1-83600115  
 CTD. BY A. Black  
 SOURCE CK. AVG. 25  
 BKG. .3  
 DATE: 6-30-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT	CPM			
		CPH	DPH	SHEAR	
#6 FUEL PIN STORAGE ROOM 121	Top	N	0	0	0
		E	3	21	0
		S	0	0	0
		W	1	7	0
	3ft	N	3	21	0
		S	1	7	0
	6ft	E	0	0	3
		W	3	21	0
	Bottom	N	0	0	0
		E	1	7	6
	S	2	14	6	
	W	3	21	0	
	Bottom	N/A	—	3	
#7 FUEL PIN STORAGE CELL	TOP	N	7	49	0
		E	5	35	0
		S	4	28	0
		W	6	42	9
	3ft	N	11	77	6
		S	9	63	0
	6ft	E	10	70	6
		W	7	49	0
	Bottom	N	10	70	0
		E	7	49	0
	S	9	63	3	
	-W	6	42	0	
	Bottom	N/A	—	0	

PLANT PV AREA ROOM 121  
 SURVEYED BY HANDLEY  
 INST. 1.1011M 2220 \*58318 DET. 43-4  
 SOURCE CK 250-283 BKG. 2  
 DATE: 6-30-89 SOURCE # 6868 VALUE: 1055 DPM

ASC # 1-83600115  
 CTD. BY J. Black  
 SOURCE CK. AVG. 29  
 BKG. .2  
 DATE: 7-3-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT	CPM			
		CPH	DPH	SHEAR	
#8 FUEL PIN STORAGE CELL - ROOM 121 - TOP	N	10	70	0	
	E	8	56	0	
	S	3	21	3	
	W	6	42	0	
	3ft	N	3	21	0
		S	8	56	0
	6ft	E	11	77	0
		W	8	56	0
	Bottom	N	3	21	3
		E	4	28	3
	S	6	42	0	
	W	2	14	3	
	Bottom	N/A	—	3	
#9 FUEL PIN STORAGE CELL	TOP	N	5	35	3
		E	3	21	0
		S	5	35	3
		W	4	28	3
	3ft	N	7	49	6
		S	8	56	3
	6ft	E	1	7	3
		W	5	35	3
	Bottom	N	5	35	0
		E	3	21	0
	S	6	42	3	
	-W	2	14	3	
	Bottom	N/A	—	0	

PLANT Pu AREA Room 121  
 SURVEYED BY S. Handley  
 INST. INDIUM 2220 \*58318 DET. 43-4  
 SOURCE CK 250/283 BKG. 2/0  
 DATE: 7-3-89 SOURCE # 6868 VALUE: 1055 DPM

ASC # 83600115  
 CTD. BY J. Black  
 SOURCE CK. AVG. 29  
 BKG. .1  
 DATE: 7-5-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECTION	DIRECT		SHEAR
		CPM	DPH	
#10 Fuel Pin Storage Cell	Top N	5	35	0
	E	8	56	0
	S	4	28	0
	W	9	63	3
	3ft. N	14	98	6
	S	12	84	0
	6ft E	15	105	X 3
	W	22	154	X 0
	Bottom N	15	105	X 0
	E	9	63	X 0
	S	15	105	X 3
	W	15	105	X 3
	Bottom	N/A	-	6
#10 recount after Decan	6ft E	4	28	0
	W	7	49	0
	Bottom N	4	28	0
	E	2	14	3
	S	2	14	0
	W	11	77	3
#11 Fuel Pin Storage Cell	Top N	5	35	3
	E	6	42	3
	S	3	21	3
	W	3	21	9
	3ft N	4	28	3
	S	3	21	6
	6ft E	6	42	3
	W	3	21	0
	Bottom N	7	49	3
	E	5	35	3
	S	2	14	0
	W	4	28	0
Bottom	N/A	-	0	

PLANT Pu AREA Room 121  
 SURVEYED BY J. Black  
 INST. INDIUM 2220 \*58318 DET. 43-4  
 SOURCE CK 250-283 BKG. 2-0  
 DATE: 7-3-89 SOURCE # 6868 VALUE: 1055 DPM

ASC # 1-83600115  
 CTD. BY J. Black  
 SOURCE CK. AVG. 29  
 BKG. .1  
 DATE: 7-5-89

READINGS IN DPM/100 cm<sup>2</sup>

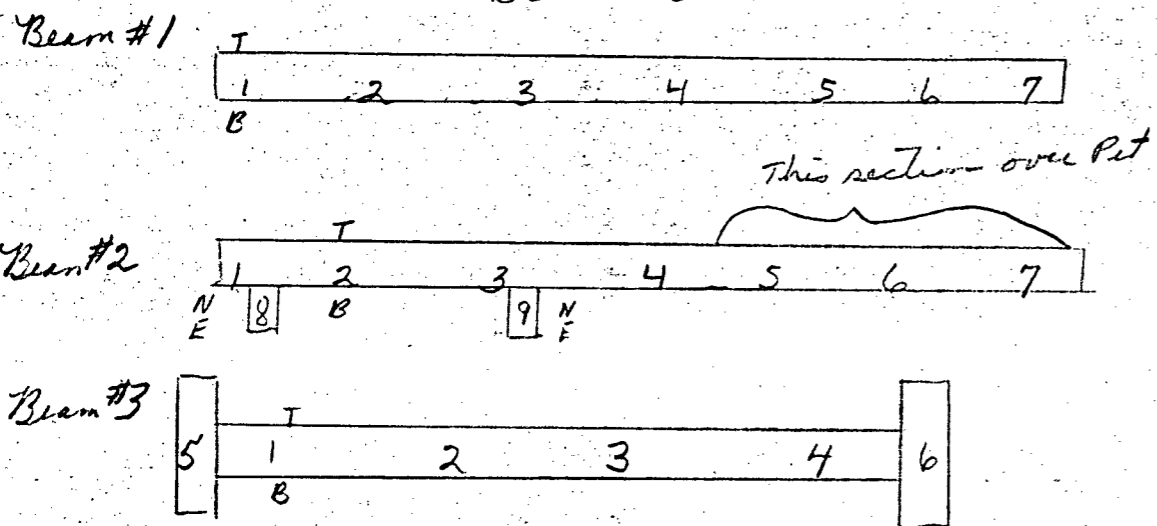
SAMPLE # OR DESCRIPTION	DIRECTION	DIRECT		SHEAR
		CPM	DPH	
#12 FUEL PIN STORAGE CELL TOP N 121	N	3	21	6
	E	2	14	0
	S	4	28	3
	W	3	21	0
	3FT N	6	42	0
	S	3	21	0
	E	6	42	6
	W	3	21	6
	N	4	28	0
	E	2	14	3
	S	3	21	0
	W	4	28	0
Bottom	N/A	-	3	

MDA 15.68 DPM/100cm<sup>2</sup> FIXED

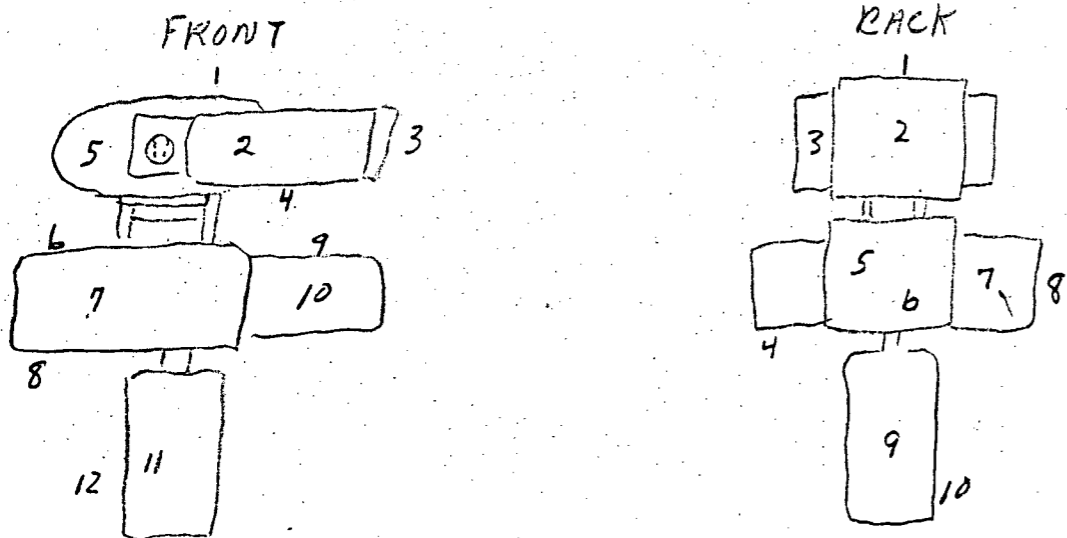
	DIRECTS	SMEARS
TOTAL DPM	1,056	108
READINGS	58	58
DPM/100cm <sup>2</sup> AVG	18.21	1.86
MAX DPM/100cm <sup>2</sup>	60	9

LUDLUM 2220  
 50068 43-68  
 Source 1832 342 dpm  
 6-13-89 Source check  
 124-94 Bkg 2  
 101-97 Bkg 2  
 6-14-89 117-123 Bkg 2

Beam Rm 121



Hoist Rm 121



PLANT PH AREA Room 121  
 SURVEYED BY I Powell Hoist + Beams  
 INST. LUDLUM 2220 \*# 50068 DET. 43-68  
 SOURCE CK 124-94 BKG. 2  
 DATE: 6-13-89 6-14-89 Source # 1832 VALUE: 342 DPM

ASC # 1-83600115  
 CTD. BY J Black  
 SOURCE CK. AVG. 34  
 BKG. 2  
 DATE: 1-14-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT		
	CPH	DPH	SMEAR
Beam #1			
1 T	3	12	0
B	5	20	0
2 T	15	60	0
B	4	16	3
3 T	15	60	0
B	4	16	6
4 T	4	16	3
B	3	12	3
5 T	10	40	3
B	1	4	0
6 T	4	16	0
B	2	8	3
7 T	11	44	3
B	2	8	3
Beam #2 5-6-7 over pit			
T 1	6	24	0
B	2	8	0
T 2	5	20	0
B	2	8	0
T 3	2	8	0
B	3	12	3
T 4	4	16	0
B	2	8	9
N 8	1	4	0
E	3	12	3
N 9	5	20	0
E	2	8	0
Beam #3			
1 T	10	40	0
B	0	0	0
2 T	11	44	3
B	7	28	6
3 T	4	16	6
B	5	20	6

PLANT PH AREA Room 121 Hoist  
 SURVEYED BY I Powell J Beane  
 INST. INDIUM 2220 \*# 50068 DET. 43-68  
 SOURCE CK 124-94 BKG. 2  
 DATE: 6-13-89 SOURCE # 1832 VALUE: 342 DPM

ASC # 1-83600115  
 CTD. BY J. R. O'neil  
 SOURCE CK. AVG. 34  
 BKG. .2  
 DATE: 6-14-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT			
	CPH	DPM	SHEAR	
<u>Hoist Front</u>	1	7	28	0
	2	8	32	6
	3	8	32	0
	4	7	28	0
	5	7	28	3
	6	9	36	3
	7	0	0	0
	8	4	16	0
	9	0	0	3
	10	0	0	3
	11	2	8	3
	12	2	8	3
<u>Hoist Back</u>	1	7	28	6
	2	3	12	0
	3	3	12	6
	4	1	4	3
	5	7	28	3
	6	8	32	0
	7	0	0	0
	8	2	8	0
	9	3	12	0
	10	0	0	3

PLANT PH AREA Room 121 Hoist  
 SURVEYED BY I Powell J Beane  
 INST. INDIUM 2220 \*# 50068 DET. 43-68  
 SOURCE CK 124-94 BKG. 2  
 DATE: 6-13-89 SOURCE # 1832 VALUE: 342 DPM

ASC # 1-83600115  
 CTD. BY J. R. O'neil  
 SOURCE CK. AVG. 34  
 BKG. .2  
 DATE: 6-14-89

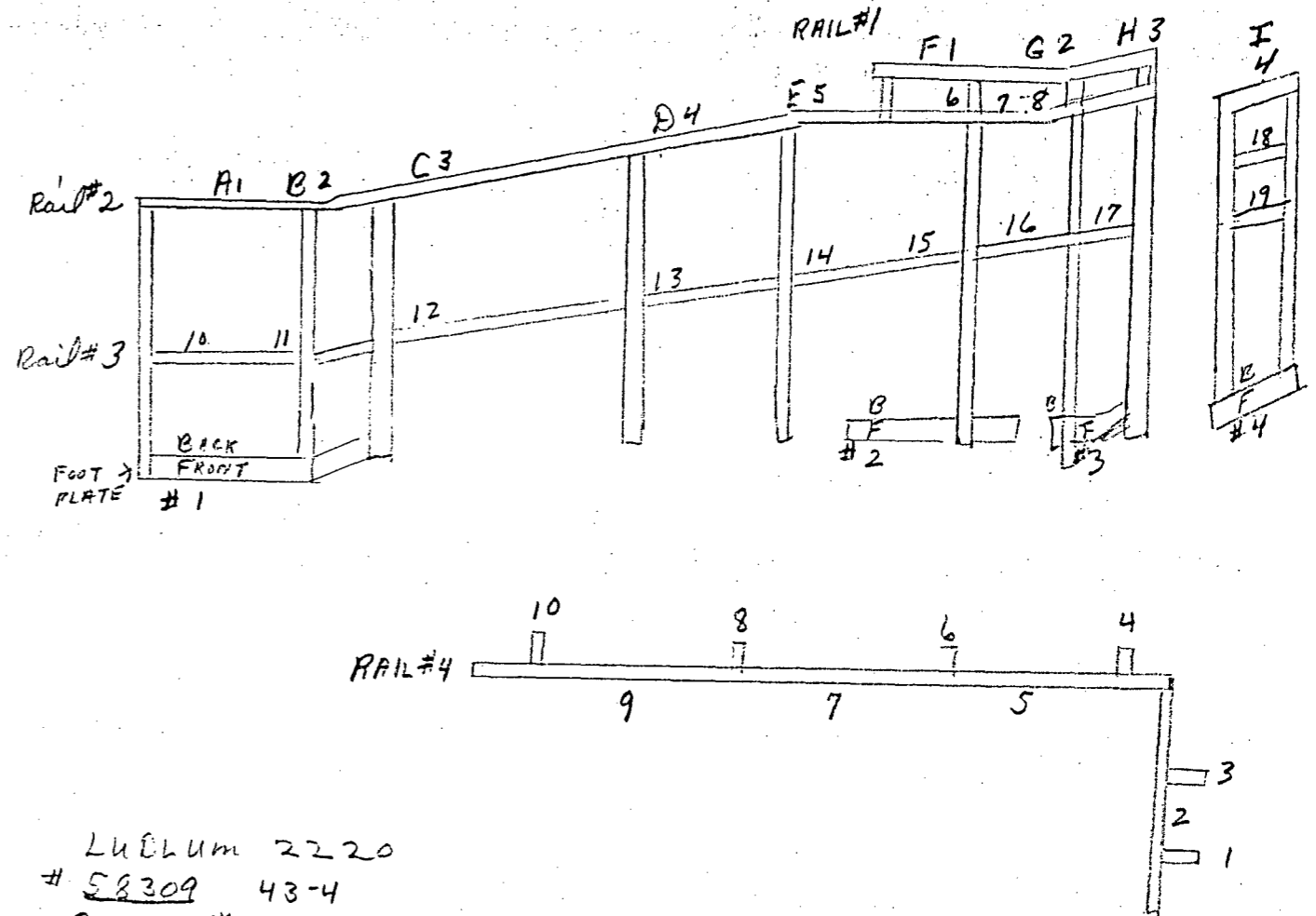
READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT			
	CPH	DPM	SHEAR	
<u>Beam #3</u>	4 T	9	36	0
	B	4	16	0
	5	2	8	0
	6	4	16	0



GUARD RAIL AROUND PIT

Room 12L 6-7-89



Ludlum 2220  
 # 58309 43-4  
 SOURCE # 6498 890 DPM

SOURCE CHECK  
 226-227 Bkg 1  
 233-227 Bkg 1

Ludlum 2220  
 #50057 43-68  
 Source 6498 890 dpm

Source Check  
 174-184 3 Bkg  
 174-205 3 Bkg

	DIRECT	SMEAR
TOTAL DPM	6876	441
READINGS	252	252
DPM/100cm <sup>2</sup> AVG	27.29	1.75
MAX DPM/100cm <sup>2</sup>	120	9
MDA	28.81	
DPM/100cm <sup>2</sup> FIXED		

These totals are for Guard rail, ladder, and walkway work

PLANT PH AREA Room 121 Guard Rail  
 SURVEYED BY J Powell around Pit  
 INST. INDIUM 2220 \*# 58309 DET. 43-4  
 SOURCE CK 226-227 BKG. 1  
 DATE: 6-7-89 SOURCE # 6498 VALUE: 890 DPM

ASC # 2-83600108  
 CTD. BY J Black  
 SOURCE CK. AVG. 33-31  
 BKG. 1-2  
 DATE: 6-7-89 6-8-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION		DIRECT		
		CPH	DPH	SHEAR
Rail #1	F#1 T	2	12	6
	B	0	0	6
	G#2 T	8	48	6
	B	20	120	3
	H#3 T	10	60	9
	B	6	36	6
I#4	T	6	36	0
	B	0	0	0
Rail #2	1-A T	0	0	0
	B	0	0	0
	2-B T	6	36	0
	B	10	60	0
	3-C T	0	0	6
	B	0	0	0
	4-D T	0	0	3
	B	0	0	3
	5-E T	6	36	0
	B	0	0	0
	6-F T	4	24	6
	B	0	0	0
7-G	T	0	0	0
	B	6	36	3
8-H	T	6	36	0
	B	0	0	0
9-I	T	0	0	6
	B	0	0	0
Rail #3	A1 T	2	12	3
	B	2	12	3
	B2 T	12	72	3
	B	2	12	3
	C-3 T	6	36	3
	B	6	36	0

PLANT PH AREA Room 121 Guard  
 SURVEYED BY J Powell Rail around Pit  
 INST. INDIUM 2220 \*# 58309 DET. 43-4  
 SOURCE CK 233-277 \*# 50057 BKG. 1-3  
 SOURCE CK 174184 BKG. 1-3  
 DATE: 6-7-89 SOURCE # 6498 VALUE: 890 DPM

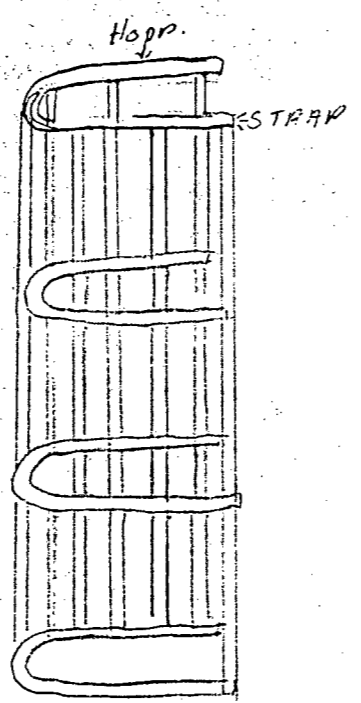
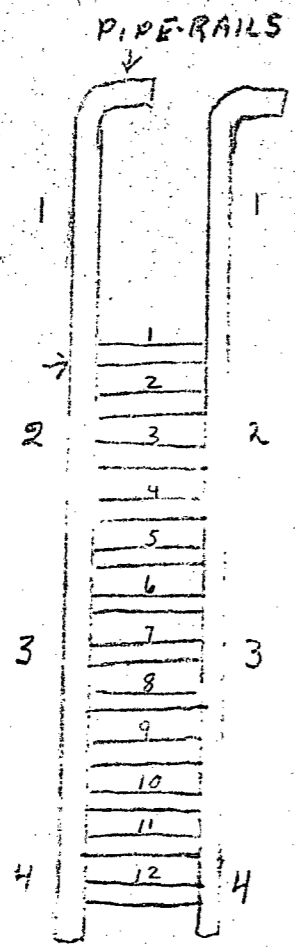
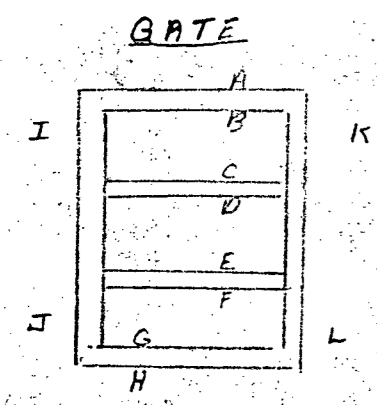
ASC # 2-83600108  
 CTD. BY J Black  
 SOURCE CK. AVG. 33-31  
 BKG. 1-2  
 DATE: 6-7-89 6-8-89

READINGS IN DPM/100 cm<sup>2</sup>

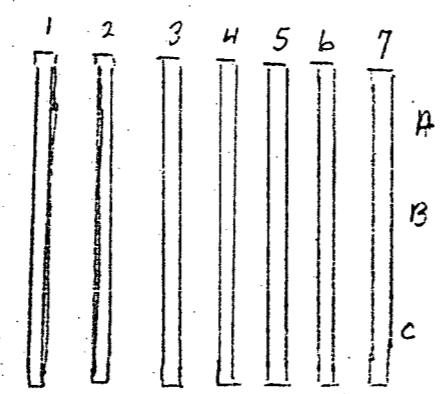
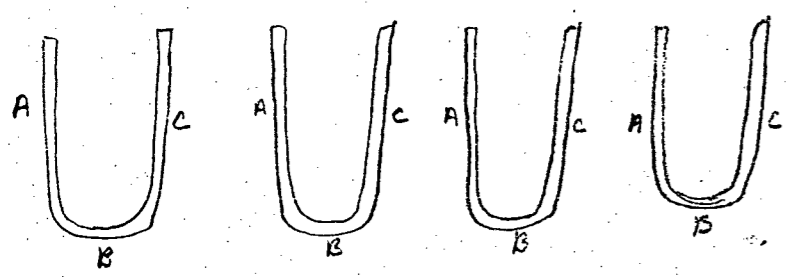
SAMPLE # OR DESCRIPTION		DIRECT		
		CPH	DPH	SHEAR
Rail #3	D-4 T	4	24	3
	B	0	0	3
	E-5 T	2	12	0
	B	2	12	3
	F-6 T	0	0	3
	B	0	0	6
	G-7 T	0	0	3
	B	0	0	0
	H-8 T	8	48	6
I-9	T	8	48	3
	B	0	0	0
FOOT Plate Front & Back	#1 F	4	16	0
	B	4	16	3
	#2 F	4	16	0
	B	10	40	3
	#3 F	7	28	3
	B	6	24	0
	#4 F	2	8	3
	B	2	8	0
Rail #4	1	9	54	6
	2	5	30	3
	3	10	60	0
	4	8	48	0
	5	3	18	0
	6	5	30	0
	7	10	60	0
	8	7	42	0
	9	2	12	0
	10	7	42	6

LUDLUM 2220

Room 121 Steps  
And Rails To Pit



STEPS  
TOP + BOTTOM



PLANT PH AREA Room 121  
 SURVEYED BY IRV P. STEPS + RAILS TO PIT  
 INST. LUDLUM 2220 \* 58309 DET. 43-4  
 SOURCE CK 256-232 BKG. 3  
 DATE: 6-12-89 SOURCE #: 6498 VALUE: 890 DPM

ASC # 1-8360015  
 CTD. BY A. Black  
 SOURCE CK. AVG. 34  
 BKG. .2  
 DATE: 6-13-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT		
	CPH	DPM	SHEAR
GATE Bars			
T A	5	30	0
B B	6	36	3
T C	5	30	6
B D	10	60	0
T E	3	18	0
B F	3	18	3
T G	4	24	3
B H	6	36	0
I	0	0	0
J	6	36	0
K	4	24	3
L	1	6	3
LADDER HAND RAILS			
E 1	4	24	3
W	4	24	3
E 1	10	60	0
W	12	72	0
E 2	14	84	3
W	6	36	3
F 2	6	36	0
W	14	84	0
E 3	2	12	6
W	10	60	0
E 3	2	12	0
W	4	24	0
E 4	6	36	3
W	4	24	0
E 4	12	72	6
W	10	60	3
LADDER STEPS			
T 1	2	12	0
B	0	0	0
T 2	8	48	3
B	8	48	0

Ludlum 2220  
 Inst # 58308 43-4 Probe  
 Source # 6498 890 dpm  
 Am 6-9-89 Source Check 222-234 Bkg 1 / 6-9-89 PM 226-255 Bkg 2  
 Am 6-12-89 Source Check 239-243 Bkg 1 / 6-12-89 PM 232-256 Bkg 3

PLANT PH AREA Room 121  
 SURVEYED BY IRV P. STEPS + Rail to Pit  
 INST. I.I.D.I.M 2220 \*# 58308 DET. 43-4  
 SOURCE CK 256-232 BKG. 3  
 DATE: 6-12-89 SOURCE #: 649 VALUE: 890 DPM

ASC # 1-83600115  
 CTD. BY Jm Black  
 SOURCE CK. AVG. 34  
 BKG. .2  
 DATE: 6-13-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION		DIRECT		
		CPH	DPH	SHEAR
LADDER STEPS	T 3	4	24	3
	B	0	0	3
	T 4	0	0	0
	B	8	48	3
	T 5	10	60	3
	B	6	36	9
	T 6	6	36	0
	B	4	24	0
	T 7	10	60	0
	B	2	12	0
	T 8	2	12	0
	B	14	84	6
	T 9	4	24	0
	B	12	72	0
	T 10	10	60	0
	B	8	48	0
	T 11	8	48	3
	B	16	96	0
	T 12	2	12	3
	B	10	60	3
HOOPS TO LADDER	#1 A	2	12	0
	B	1	6	0
	C	1	6	0
	#2 A	0	0	3
	B	3	18	0
	C	0	0	0
	#3 A	4	24	3
	B	1	6	6
	C	6	36	0
	#4 A	1	6	0
	B	3	18	3
	C	2	12	0

PLANT PH AREA Room 121  
 SURVEYED BY J. Powell Steps + Rails to Pit  
 INST. I.I.D.I.M 2220 \*# 58308 DET. 43-4  
 SOURCE CK 256-232 BKG. 3  
 DATE: 6-12-89 SOURCE #: VALUE: 890 DPM

ASC # 1-83600115  
 CTD. BY Jm Black  
 SOURCE CK. AVG. 34  
 BKG. .2  
 DATE: 6-13-89

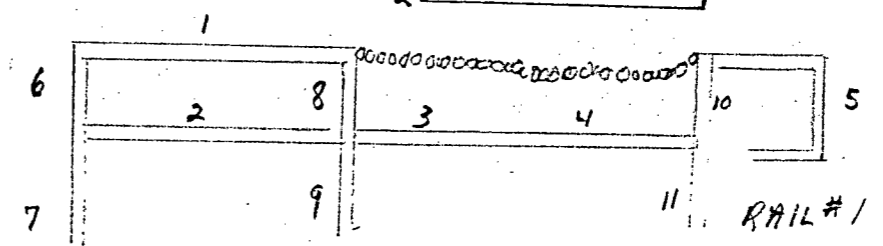
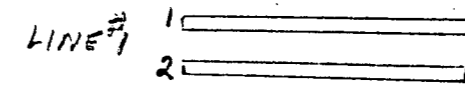
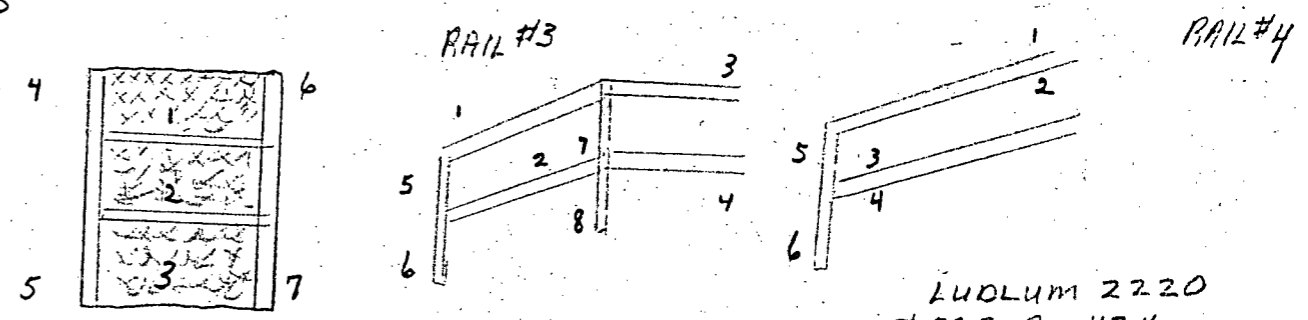
READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION		DIRECT		
		CPH	DPH	SHEAR
Stairs to Hoops around ladder #1	A	2	12	0
	B	5	30	3
	C	1	6	3
#2	A	3	18	6
	B	3	18	0
	C	0	0	3
#3	A	3	18	0
	B	3	18	0
	C	3	18	0
#4	A	2	12	0
	B	5	30	0
	C	3	18	0
#5	A	4	24	6
	B	0	0	0
	C	2	12	0
#6	A	2	12	0
	B	3	18	0
	C	2	12	0
#7	A	0	0	3
	B	4	24	0
	C	0	0	3

WALK WAY IN PIT  
K00121

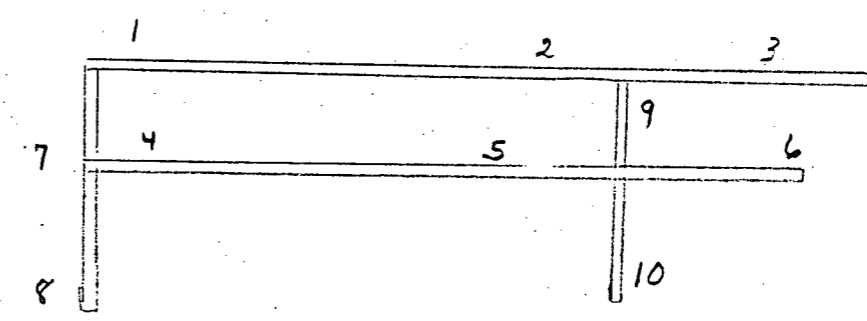
6-9-89

STEPS

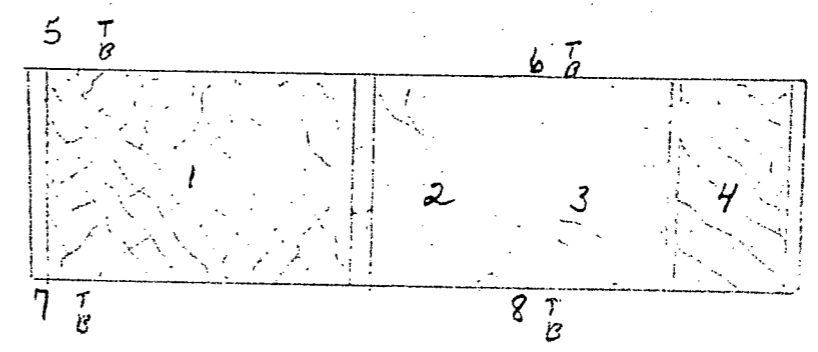


LUDLUM 2220  
#58309 43-4  
Source #6498 890dpm  
SOURCE CHECK  
6-9-89 222-234 Bly 1  
226-255 - 2  
6-12-89 239-243 1  
232-256 3

50057 43-68  
Source #6498  
Source check 6-12-89  
190-199 Bly 2  
200-184 Bly 1

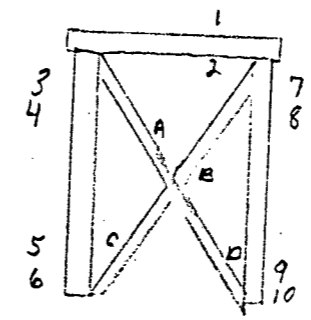


Rail #2

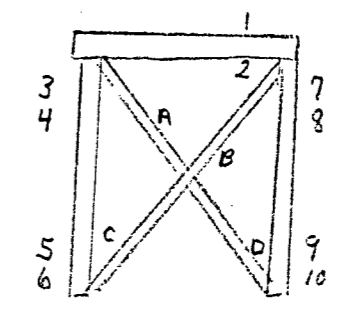


FLOOR

L-1



L-2



LEGS

PLANT PU AREA WALKWAY IN PIT  
 SURVEYED BY I Powell Room 121  
 INST. LIQUID 2220 \*58309 DET. 43-4/43-4  
 SOURCE CK 232-256 BKG. 3-2  
 DATE: 6-9-89 SOURCE # 6498 VALUE: 890 DPM

ASC # 1-83600115  
 CTD. BY J Black  
 SOURCE CK. AVG. 34  
 BKG. 12  
 DATE: 6-13-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT		
	CPH	DPH	SHEAR
STEPS x 10			
1	3	30	0
2	6	60	0
3	6	60	3
#4	T 9	54	3
	B 0	0	6
#5	T 4	24	6
	B 2	12	0
#6	T 10	66	3
	B 0	0	3
#7	T 8	48	0
	B 2	12	0
RAIL #1			
1	T 8	48	0
	B 7	42	0
2	T 1	6	0
	B 3	18	3
3	T 3	18	0
	B 9	54	3
4	T 14	84	3
	B 4	24	3
5	T 7	42	0
	B 2	12	0
6	T 3	18	3
	B 3	18	3
8	T 10	60	0
	B 8	48	0
10	T 9	54	0
	B 1	6	3

PLANT PU AREA WALKWAY IN  
 SURVEYED BY I Powell PIT Room 121  
 INST. LIQUID 2220 \*58309 DET. 43-4  
 SOURCE CK 232-256 BKG. 3  
 DATE: 6-9-89 SOURCE # 6498 VALUE: 890 DPM

ASC # 1-83600115  
 CTD. BY J Black  
 SOURCE CK. AVG. 34  
 BKG. 12  
 DATE: 6-13-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT		
	CPH	DPH	SHEAR
RAIL #2			
1	T	36	6
	B	6	3
2	T	54	6
	B	42	3
3	T	12	0
	B	0	0
4	T	18	0
	B	36	3
5	T	60	0
	B	30	3
6	T	42	0
	B	24	0
7	T	36	3
	B	24	3
9	T	42	0
	B	60	0
RAIL #3			
1	T	12	0
	B	36	0
2	T	42	3
	B	30	0
3	T	30	0
	B	24	0
4	T	54	0
	B	18	3
5	T	24	6
	B	30	0
7	T	12	0
	B	12	0

PLANT PU AREA WALKWAY IN PIT  
 SURVEYED BY I POWELL Room 121  
 INST. 1.INDIUM 2220 \*# 50057 DET. 43-4/43-6  
190-190 SOURCE CK 232-256 BKG. 3-2  
 DATE: 6-9-89 SOURCE # 6498 VALUE: 890 DPM

ASC # 1-83600115  
 CTD. BY A Black  
 SOURCE CK. AVG. 34  
 BKG. .2  
 DATE: 6-13-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT			
	CPH	DPH	SHEAR	
<u>Rails #4</u>	1 T	5	30	9
	2 B	6	36	6
	3 T	6	36	0
	4 B	4	24	0
	5 T	4	24	3
	6 B	7	42	3
<u>FLOOR</u>	A 1	7	70	0
	2	6	60	0
	X10 3	7	70	0
	4	7	70	0
	5 T	2	12	0
	B	3	18	0
	6 T	0	0	0
	B	3	18	3
	7 T	7	42	0
	B	1	6	0
	8 T	1	6	3
	B	1	6	0
<u>LEG #1</u>	1	2	12	0
	2	0	0	0
	3	4	24	0
	4	1	6	0
	5	1	6	6
	6	4	24	6
	7	0	0	0
	8	4	24	3
	9	3	18	3
	10	1	6	0
	A	3	18	0
	B	2	12	0
	C	4	24	0
	D	6	30	0

PLANT PU AREA WALKWAY IN PIT  
 SURVEYED BY I POWELL  
 INST. 1.INDIUM 2220 \*# 58309 DET. 43-4  
 SOURCE CK 232-256 BKG. 3  
 DATE: 6-9-89 SOURCE # 6498 VALUE: 890 DPM

ASC # 1-83600115  
 CTD. BY A Black  
 SOURCE CK. AVG. 34  
 BKG. .2  
 DATE: 6-13-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT			
	CPH	DPH	SHEAR	
<u>LEG #2</u>	1	11	66	0
	2	2	12	0
	3	1	6	0
	4	0	0	0
	5	2	12	3
	6	2	12	6
	7	3	18	0
	8	4	24	3
	9	3	18	3
	10	6	36	0
	A	3	18	0
	B	5	30	6
	C	2	12	0
	D	10	60	0
<u>LINE #1</u>	1T		48	6
	B		60	0
	2T		48	6
	B		36	6

LINE NUMBER ~~651~~ 651 DATE 6-14-89 + 6-15-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER #58308  
 DETECTOR 43-4 OPERATOR ILP  
 SOURCE NUMBER AND VALUE #1832 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM  
 SOURCE RESPONSE AND BACKGROUND PM 102-104, 3 115-109, 2 (6-15-89)

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable dpm/100cm <sup>2</sup>
				cpm	dpm/100cm <sup>2</sup>	
E. WALL JUNCTION BOX	CONDUIT	1 IN	0 METERS			
			E	7	98	0
			W	16	84	0
			2 METERS			
			E	4	56	3
			W	5	70	0
TOTAL DPM	5786	349	4 METERS			
# READINGS	162	162	T	4	56	0
AVG. DPM/100cm <sup>2</sup>	35.69	154	B	0	0	0
MAX DPM/100cm <sup>2</sup>	98	9	6 METERS			
MDA 67.21			T	5	70	3
DPM/100cm <sup>2</sup>			B	4	56	3
FIXED			8 METERS			
			T	4	56	6
			B	2	28	0
			10 METERS			
			E	3	42	0
			W	6	84	3
			12 METERS			
			E	3	42	0
			W	0	0	0
			13 METERS			
			E	7	98	0
W. WALL JUNCTION BOX			W	3	42	0

LINE NUMBER 652 DATE 6-14-89 + 6-15-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER #58308  
 DETECTOR 43-4 OPERATOR ILP  
 SOURCE NUMBER AND VALUE 1832, 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM  
 SOURCE RESPONSE AND BACKGROUND PM 102-104, 3 115-109, 2 (6-15-89)

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable dpm/100cm <sup>2</sup>
				cpm	dpm/100cm <sup>2</sup>	
E. WALL JUNCTION BOX	CONDUIT	1 IN	0 METERS			
			E	3	42	0
			W	5	70	3
			2 METERS			
			E	7	98	0
			W	6	84	0
			4 METERS			
			T	3	42	9
			B	6	84	6
			6 METERS			
			T	4	56	9
			B	3	42	0
			8 METERS			
			T	3	42	0
			B	2	28	0
			10 METERS			
			E	1	14	3
			W	5	70	0
			12 METERS			
			E	4	56	0
			W	0	0	6
			13 METERS			
			E	2	28	0
W. WALL JUNCTION BOX			W	4	56	0



LINE NUMBER 653 DATE 6-14-89 + 6-15-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER 58308  
 DETECTOR 43-4 OPERATOR JLP  
 SOURCE NUMBER AND VALUE 1832 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM  
 SOURCE RESPONSE AND BACKGROUND PM 102-104, 3 115-109, 2 (6-15-89)

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable	
				cpm	dpm/100cm <sup>2</sup>		dpm/100cm <sup>2</sup>
E. WALL JUNCTION BOX	CONDUIT	1 IN	0 METERS	E	5	70	0
				W	4	56	0
			2 METERS	E	2	28	3
				W	4	56	0
			4 METERS	T	5	70	3
				B	7	98	6
			6 METERS	T	1	14	0
				B	4	56	3
			8 METERS	T	2	28	0
				B	0	0	0
			10 METERS	T	4	56	0
				B	3	42	0
			12 METERS	T	3	42	3
				B	1	14	0
			14 METERS	T	1	14	3
				B	0	0	0
ON EAST BEAM							
CEILING							

LINE NUMBER 654 DATE 6-14-89 6-19-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER 58308  
 DETECTOR 43-4 OPERATOR JLP  
 SOURCE NUMBER AND VALUE 1832 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM 73-68, 2 6-19-89  
 SOURCE RESPONSE AND BACKGROUND PM 102-104, 3

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable	
				cpm	dpm/100cm <sup>2</sup>		dpm/100cm <sup>2</sup>
E. WALL SOCKET	CONDUIT	1 1/2 IN	0 METERS	E	7	98	0
				W	7	98	0
			2 METERS	E	5	70	0
				W	2	28	3
			4 METERS	T	2	28	0
				B	1	14	0
			6 METERS	T	0	0	3
				B	2	28	0
			8 METERS	T	4	56	3
				B	1	14	6
			9 METERS	T	2	28	0
				B	0	0	0
S. WALL							
PULL BOX							

LINE NUMBER 655 DATE 6-19-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER 58308  
 DETECTOR 43-4 OPERATOR ILP  
 SOURCE NUMBER AND VALUE 1832, 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM 73-68, 2  
 SOURCE RESPONSE AND BACKGROUND PM 77-79, 2

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable
				cpm	dpm/100cm <sup>2</sup>	
W. WALL	CONDUIT	1/2 IN	0 METERS			
JUNCTION BOX			E	1	14	6
			W	0	0	0
			2 METERS			
			E	0	0	0
			W	0	0	0
			4 METERS			
			T	3	42	6
			B	0	0	6
			6 METERS			
			T	0	0	3
			B	5	70	0
			8 METERS			
			E	0	0	0
			W	3	42	3
			10 METERS			
			E	3	42	0
			W	2	28	0
W. WALL						
PULL BOX						

LINE NUMBER 656 DATE 6-19-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER 58308  
 DETECTOR 43-4 OPERATOR ILP  
 SOURCE NUMBER AND VALUE 1832, 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM 73-68, 2  
 SOURCE RESPONSE AND BACKGROUND PM 77-79, 2

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable
				cpm	dpm/100cm <sup>2</sup>	
N. WALL ON	CONDUIT	1 IN	0 METERS			
CEILING			E	2	28	0
			W	4	56	3
			2 METERS			
			E	0	0	0
			W	3	42	0
			4 METERS			
			E	0	0	0
			W	3	42	0
			6 METERS			
			E	3	42	3
			W	1	14	3
			8 METERS			
			E	3	42	0
			W	0	0	0
			10 METERS			
			E	1	14	0
			W	0	0	3
			12 METERS			
			E	0	0	6
			W	1	14	0
			14 METERS			
			E	3	42	3
			W	0	0	0
S. WALL ON			15 METERS			
CEILING			N	3	42	6
			S	2	28	3

RM 121

PIPE SURVEY

PAGE 7 OF 14

LINE NUMBER 657 DATE 6-19-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER 58308  
 DETECTOR 43-4 OPERATOR ILP  
 SOURCE NUMBER AND VALUE 1832, 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM 73-68, 2  
 SOURCE RESPONSE AND BACKGROUND PM 77-79, 2

RM 121

PIPE SURVEY

PAGE 8 OF 18

LINE NUMBER 658 DATE 6-19-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER 58308  
 DETECTOR 43-4 OPERATOR ILP  
 SOURCE NUMBER AND VALUE 1832, 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM 73-68, 2  
 SOURCE RESPONSE AND BACKGROUND PM 77-79, 2

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable dpm/100cm <sup>2</sup>	
				cpm	dpm/100cm <sup>2</sup>		
E. WALL	CONDUIT	1 IN	0 METERS				
JUNCTION BOX			T	5	70	3	
			B	4	56	0	
			2 METERS				
			T	4	56	3	
			B	0	0	0	
			4 METERS				
			T	0	0	0	
			B	7	98	0	
			6 METERS				
			T	1	14	6	
			B	0	0	0	
			7 METERS				
TO HALLWAY			T	2	28	0	
	B	0	0	0			

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable dpm/100cm <sup>2</sup>	
				cpm	dpm/100cm <sup>2</sup>		
E. WALL	CONDUIT	1 IN	0 METERS				
JUNCTION BOX			T	2	28	6	
			B	7	98	0	
			2 METERS				
			T	2	28	6	
			B	5	70	3	
			4 METERS				
			T	5	70	0	
			B	1	14	0	
			6 METERS				
			T	2	28	0	
			B	0	0	3	
			7 METERS				
TO HALLWAY			T	0	0	3	
	B	0	0	3			

LINE NUMBER 659 DATE 6-19-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER 58308  
 DETECTOR 43-4 OPERATOR ILP  
 SOURCE NUMBER AND VALUE 1832, 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM 73-68, 2  
 SOURCE RESPONSE AND BACKGROUND PM 77-79, 2

LINE NUMBER 660 DATE 6-20-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER 58308  
 DETECTOR 43-4 OPERATOR ILP  
 SOURCE NUMBER AND VALUE 1832, 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM 73-75, 1  
 SOURCE RESPONSE AND BACKGROUND PM 77-79, 2 6-19-89

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable
				cpm	dpm/100cm <sup>2</sup>	
S. WALL CEILING	CONDUIT	1 IN	0 METERS			
			E	0	0	0
			W	0	0	3
			2 METERS			
			E	5	70	9
			W	3	42	0
			4 METERS			
			E	1	14	3
			W	3	42	0
			6 METERS			
			E	1	0	3
			W	7	98	6
			7 METERS			
			E	5	70	0
W	3	42	0			
To CEILING OVER PIT						

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable
				cpm	dpm/100cm <sup>2</sup>	
SWITCH To DOCK DOOR	CONDUIT	1 IN	0 METERS			
			N	4	56	0
			S	1	14	0
			2 METERS			
			N	0	0	3
			S	0	0	0
			4 METERS			
			N	0	0	0
			S	0	0	3
			6 METERS			
			E	0	0	0
			W	0	0	0
			7 METERS			
			E	0	0	0
W	0	0	0			
To DOCK DOOR						

LINE NUMBER 661 DATE 6-20-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER 58308  
 DETECTOR 43-4 OPERATOR ILP  
 SOURCE NUMBER AND VALUE 1832, 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM 73-75, 1  
 SOURCE RESPONSE AND BACKGROUND PM

LINE NUMBER 662 DATE 6-20-89  
 INSTRUMENT LUDLUM 2220 SERIAL NUMBER 58308  
 DETECTOR 43-4 OPERATOR ILP  
 SOURCE NUMBER AND VALUE 1832, 342 dpm  
 SOURCE RESPONSE AND BACKGROUND AM 73-75, 1  
 SOURCE RESPONSE AND BACKGROUND PM

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable	
				cpm	dpm/100cm <sup>2</sup>		
E WALL ON CEILING	CONDUIT	1 IN	0 METERS	E	0	0	
				W	2	28	3
				T	1	14	6
				B	0	0	6
TO W. WALL ON CEILING	CONDUIT	1 IN	4 METERS	E	2	28	
				W	6	84	0

START OF SURVEY	TYPE OF LINE	DIA.	READING LOCATION	Direct		Smearable	
				cpm	dpm/100cm <sup>2</sup>		
SOCKETS ON E. WALL	CONDUIT	1 IN	0 METERS	N	0	0	
				S	3	42	3
				N	3	42	3
				S	3	42	0
TO BOX ON E. WALL	CONDUIT	1 IN	3 METERS	N	0	0	
				S	3	42	0

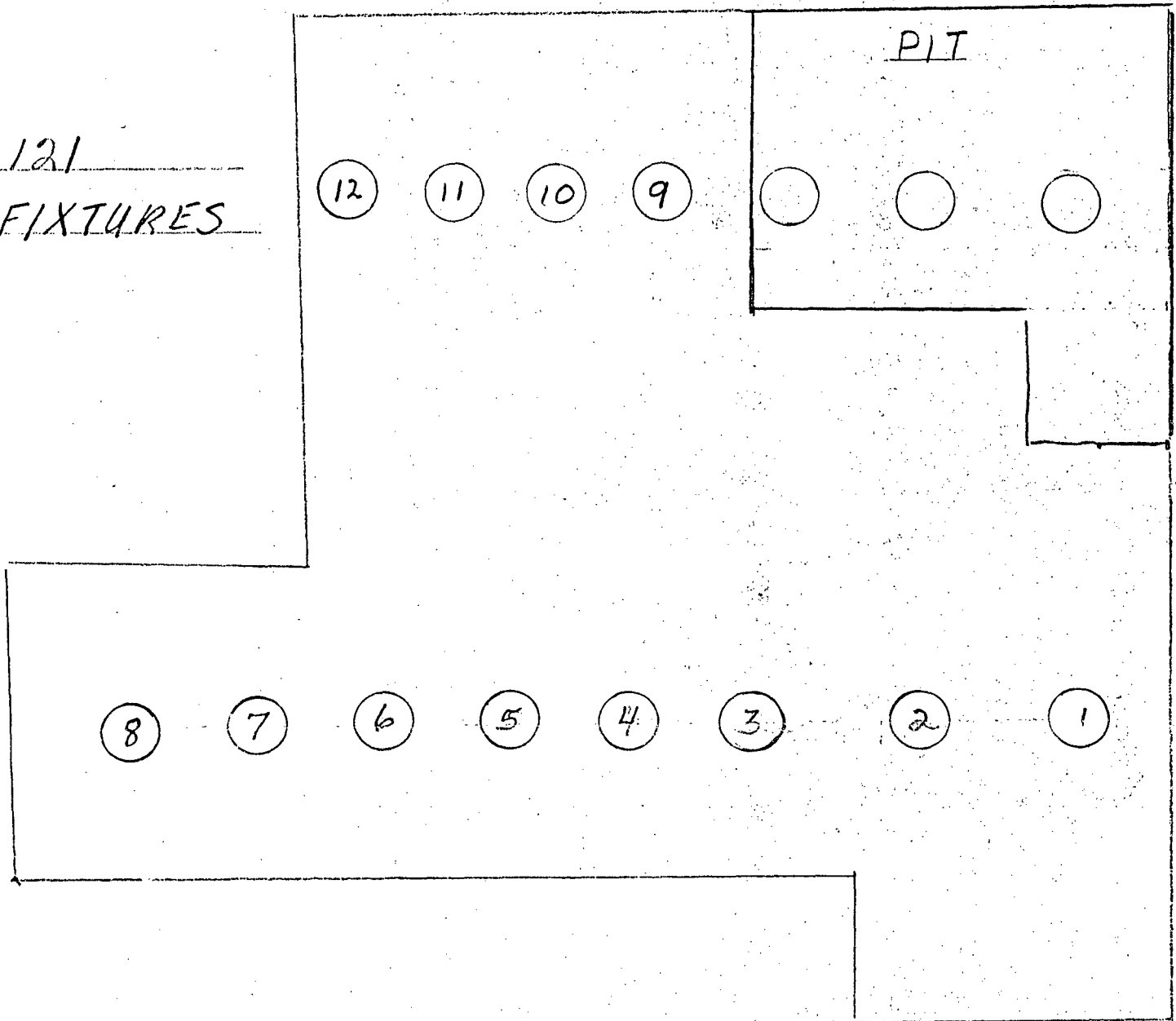








ROOM 121  
LIGHT FIXTURES



PLANT RU AREA RM 121  
 SURVEYED BY ILP  
 INST. LINDUM 2220 # 50068 DET. 4368  
 SOURCE CK 111-109 BKG. 1  
 DATE: 6-15-89 SOURCE # VALUE: DPM

Report 1-23600115  
 ASC # 2-23600109  
 CTD. BY J Black  
 SOURCE CK. AVG. 31-33  
 BKG. .3-1.0  
 DATE: 6-16-89 - 6-20-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION		DIRECT		SHEAR
		CPH	DPM	
LIGHT FIXTURES #1	T 1	16	64	3
	T 2	33	132	6
T OUT SIDE	B 1	5	20	0
	B 2	7	28	6
B INSIDE	T 1	10	40	6
	T 2	13	52	3
#2	B 1	3	12	3
	B 2	12	48	0
#3	T 1	4	16	0
	T 2	6	24	0
	B 1	2	8	3
	B 2	8	32	3
#4	T 1	7	28	6
	T 2	16	64	0
	B 1	8	32	0
	B 2	3	12	0
#5	T 1	9	36	0
	T 2	5	20	0
	B 1	5	20	0
	B 2	2	8	0
#6	T 1	9	36	3
	T 2	11	44	0
	B 1	1	4	6
	B 2	3	12	6
#7	T 1	14	56	3
	T 2	13	52	9
	B 1	3	12	0
	B 2	0	0	0
#8	T 1	21	84	0
	T 2	5	20	3
	B 1	1	4	3
	B 2	3	12	0

PLANT RU AREA RM 121  
 SURVEYED BY ILP  
 INST. LINDUM 2220 # 50068 DET. 43-11  
 SOURCE CK 111-109 BKG. 1  
 DATE: 6-15-89 SOURCE # VALUE: DPM

ASC # 2-23600109  
 CTD. BY J Black  
 SOURCE CK. AVG. 31  
 BKG. .3  
 DATE: 6-16-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION		DIRECT		SHEAR
		CPH	DPM	
#9	T 1	11	44	0
	T 2	13	52	6
	B 1	12	48	9
	B 2	1	4	3
#10	T 1	9	36	6
	T 2	8	32	3
	B 1	1	4	0
	B 2	3	12	3
#11	T 1	12	48	0
	T 2	6	24	0
	B 1	0	0	0
	B 2	3	12	0
#12	T 1	16	64	0
	T 2	114	456	3
	B 1	1	4	0
	B 2	6	24	0
RECON + RESURVEY #1				
	T 1	1	14	3
	T 2	6	84	3
#12	T 1	0	0	0
	T 2	0	0	6
DIRECT SHEAR				
TOTAL DPM		1338	505	
± READINGS		48	48	
AVG DPM/100cm <sup>2</sup>		27.89	2.19	
MAX DPM/100cm <sup>2</sup>		84	9	
MAD 11.09				
DPM/100cm <sup>2</sup> FIXED				

RM 121 DOOR #1

LOCATION OF COUNTS

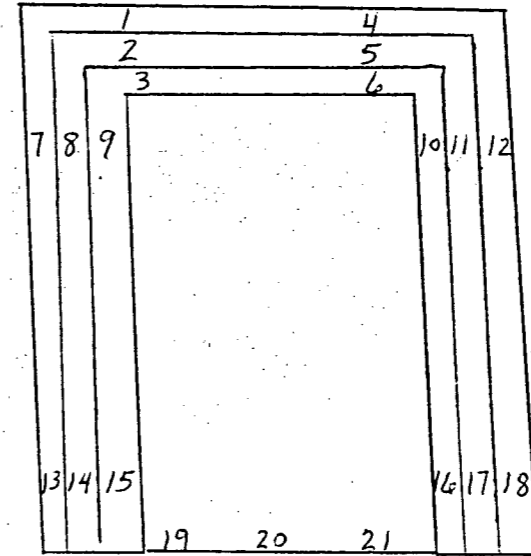
(NORTH DOOR)

7-21-89

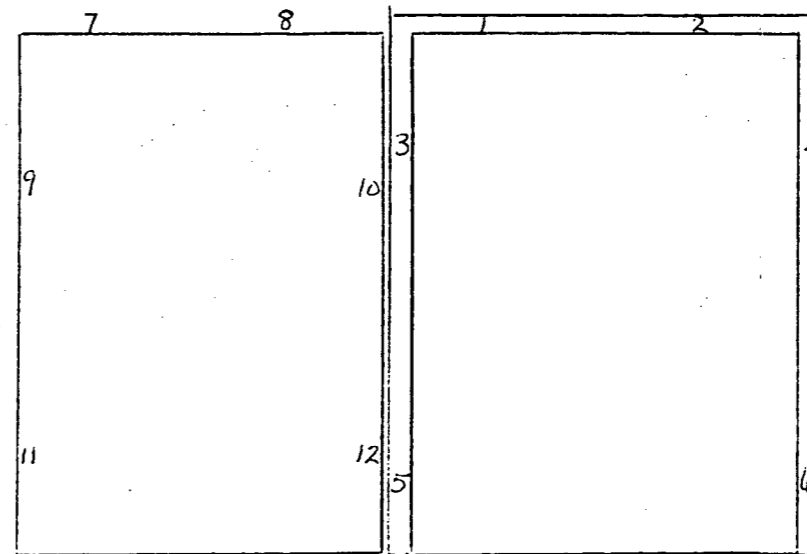
EM. EXIT

FRAME

ILP



DOOR



	TOTAL DPM	DIRECT	SMEAR
MDA		612	69
23.52 DPM/100cm <sup>2</sup>	# READINGS	33	33
FIXED	AVG DPM/100cm <sup>2</sup>	18.55	2.09
	MAX DPM/100cm <sup>2</sup>	54	9



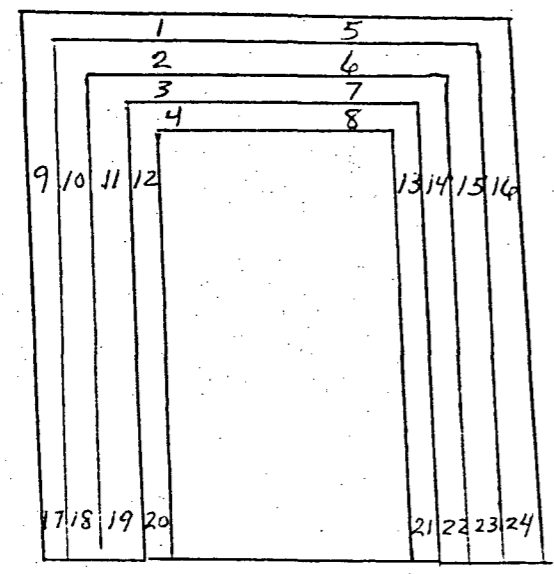
RM 121 AIRLOCK DOOR #2  
(NORTH DOOR)

LOCATION OF COUNTS

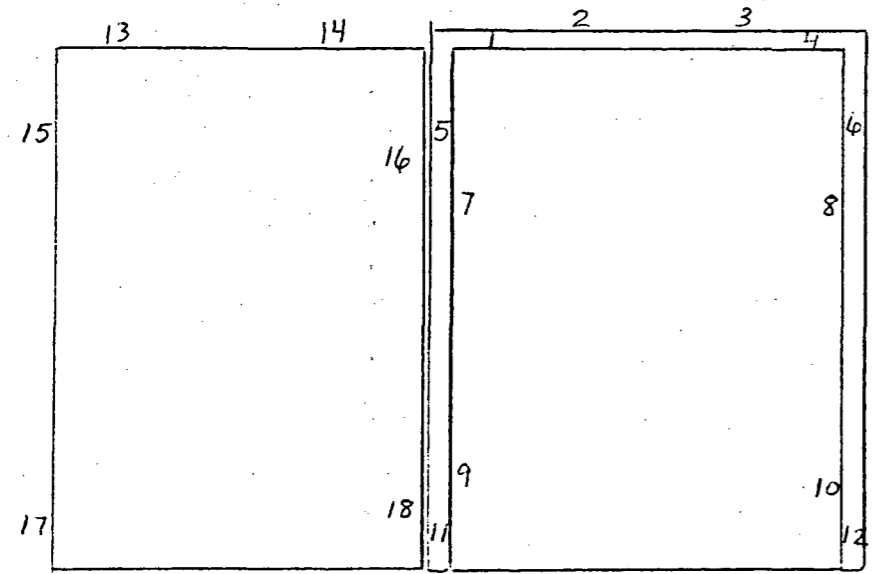
7-21-89

ILP

FRAME



DOOR



MOR  
23.52 DPM/100cm<sup>2</sup>

TOTAL DPM  
# READINGS  
AVE DPM/100cm<sup>2</sup>  
MAX DPM/100cm<sup>2</sup>

DIRECT  
714  
42  
17.0  
90

SMEAR  
72  
42  
1.71  
6

PLANT PU AREA 121 (AIRLOCK)  
SURVEYED BY ILP  
INST. INDIUM 2220 \*#52834 DET. 43-4  
SOURCE CK 265-310 BKG. 2(LPM)  
DATE: 7-21-89 SOURCE # 112 VALUE: 113 DPM

ASC # 83600 115  
CTD. BY S. Black  
SOURCE CK. AVG. 33  
BKG. 3  
DATE: 7-24-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT		SMEAR
	CPM	DPH	
RM 121 DOOR #2			
(NORTH AIRLOCK DOOR)			
Door			
D-1	2	12	0
D-2	0	0	3
D-3	0	0	6
D-4	0	0	3
D-5	4	24	3
6	2	12	0
7	3	18	6
8	4	24	3
9	0	0	0
10	1	6	0
11	3	18	0
12	1	6	0
13	0	60	0
14	15	90	0
15	1	6	0
16	2	12	6
17	0	24	3
18	4	24	0

PLANT PU AREA 121 AIRLOCK  
 SURVEYED BY ILP  
 INST. INDIUM 2220 \* 52834 DET. 43-4  
 SOURCE CK 266-310 BKG. 2LPM  
 DATE: 7-21-89 SOURCE # 112 VALUE: 1130pm

ASC # 83600115  
 CTD. BY J. Black  
 SOURCE CK. AVG. 33  
 BKG. .3  
 DATE: 7-24-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT		SHEAR
	CPH	DPM	
RM 121 DOOR#2 FRAME			
(NORTH AIRLOCK DOOR)			
F-1	2	12	0
F-2	0	0	6
F-3	2	12	3
F-4	1	36	0
F-5	1	6	6
6	2	12	0
7	2	12	6
8	1	6	3
9	3	18	0
10	3	18	0
11	2	12	3
12	2	12	0
13	0	0	0
14	0	0	3
15	3	18	0
16	0	0	0
17	3	18	0
18	5	30	0
19	5	30	0
20	5	30	3
21	3	18	0
22	1	6	3
23	0	0	0
24	2	12	3

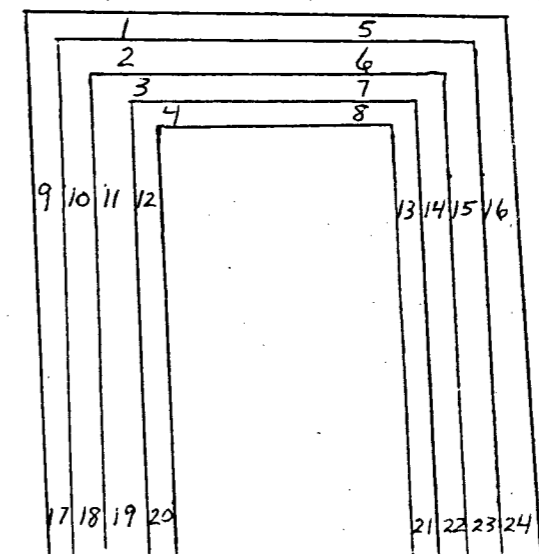
RM 121 AIRLOCK DOOR#3  
 (SOUTH DOOR)

LOCATION OF COUNTS

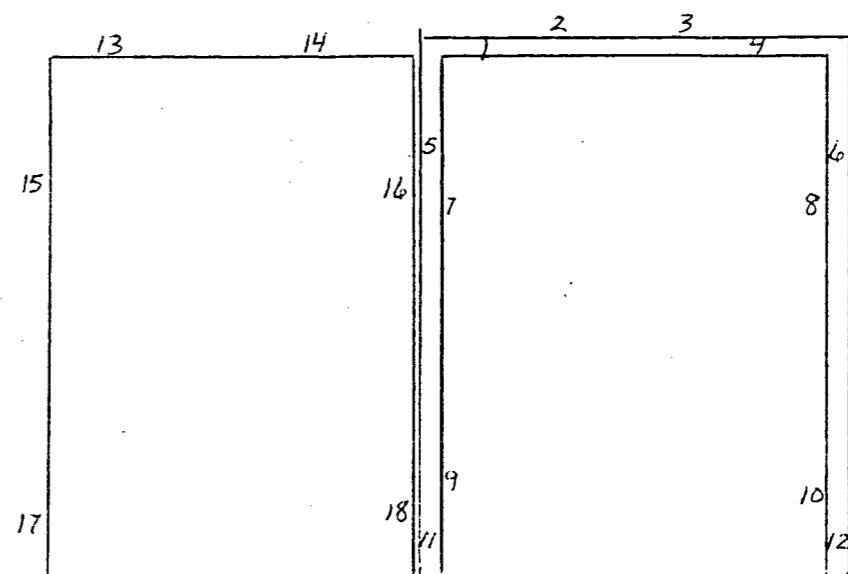
7-21-89

ILP

FRAME



DOOR



	DIRECT	SHEAR
MOR	666	78
23.52 DPM/100cm <sup>2</sup> # READINGS	42	42
FIXED	15.86	1.86
TOTAL DPM	78	6
AVG DPM/100cm <sup>2</sup>		
MAX DPM/100cm <sup>2</sup>		

PLANT PU AREA 121 AIRLOCK  
 SURVEYED BY ILP  
 INST. LIIDLIM 2220 \*52834 DET. 43-4  
 SOURCE CK 266-310 BKG. 2(PM)  
 DATE: 7-21-89 Source #: 112 VALUE: 11130pm

ASC # 83600115  
 CTD. BY J. Black  
 SOURCE CK. AVG. 33  
 BKG. .3  
 DATE: 7-24-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT		
	CPH	DPM	SHEAR
RM 121 DOOR #3			
(SOUTH AIRLOCK DOOR)			
D-1	2	12	6
D-2	1	6	3
D-3	1	6	0
D-4	3	18	0
D-5	1	6	3
6	1	6	0
7	0	0	0
8	0	0	3
9	1	6	3
10	2	12	0
11	2	12	3
12	3	18	3
13	7	42	0
14	13	78	6
15	3	18	0
16	2	12	3
17	2	12	0
18	4	24	0

PLANT PU AREA 121 AIRLOCK  
 SURVEYED BY ILP  
 INST. LIIDLIM 2220 \*52834 DET. 43-4  
 SOURCE CK 266-310 BKG. 2(PM)  
 DATE: 7-21-89 Source #: 112 VALUE: 11130pm

ASC # 83600115  
 CTD. BY J. Black  
 SOURCE CK. AVG. 33  
 BKG. .3  
 DATE: 7-24-89

READINGS IN DPM/100 cm<sup>2</sup>

SAMPLE # OR DESCRIPTION	DIRECT		
	CPH	DPM	SHEAR
RM 121 DOOR #3			
(SOUTH AIRLOCK DOOR)			
FRAME			
F-1	3	18	6
F-2	1	6	6
F-3	2	12	3
F-4	1	6	0
F-5	2	12	3
6	1	6	0
7	1	6	0
8	2	12	3
9	4	24	3
10	1	6	0
11	1	6	3
12	1	6	3
13	1	6	0
14	1	6	0
15	1	6	3
16	5	30	3
17	8	48	0
18	4	24	0
19	5	30	0
20	5	30	0
21	2	12	3
22	7	48	3
23	1	6	3
24	2	12	0