U.S. ATOMIC ENERGY COMMISSION

DIRECTORATE OF REGULATORY OPERATIONS

REGION I

RO Inspection Report No.: 70-456/73-03 Docket No.: 70-456

Licensee: W. R. Grace Company License No.: SNM-840

Grace/Nuclear Division Priority: 1

Category: A (1)

Location: Clarksville, Maryland

Type of Licensee: Fuel Fabrication

Type of Inspection: Verification of Close Out Survey for License Termination -Announced

Dates of Inspection: October 24, 25 and November 9, 1973

Dates of Previous Inspection: May 16-17, 1973

Reporting Inspector: Phillip C. Jerman November 14, 1973
PHILLIP C. JERMAN, Radiation Specialist Date

Accompanying Inspectors: NONE
Date

Date

Date

Date

Other Accompanying Personnel: NONE
Date

Reviewed by: P. J. Knapp 11/14/73
P. J. Knapp, Senior Facility Radiological and Environmental Protection Section Date

Date

SUMMARY OF FINDINGS

Enforcement Action

A. Violations

None

B. Safety Items

None

Licensee Action on Previously Identified Enforcement Items

Not applicable

Unusual Occurrences

None

Other Significant Findings

A. Current Findings

The inspection, consisting of a radiation survey to verify contamination levels at the facility, as reported by the licensee, showed that existing contamination levels appeared to meet the Directorate of Licensing guidelines for termination of License No. SNM-840, with the exception of a sump pump and tank which the licensee intends to dispose of as contaminated waste.

B. Status of Previously Reported Unresolved Items

None

Management Interview

The following individuals attended the management interview held at the conclusion of the inspection on October 25, 1973:

W. R. Grace Company

G. E. Ashby, Vice President, Manager

AEC

P. C. Jerman, Radiation Specialist

The following subject was discussed:

The inspector stated that his survey showed that contamination levels existing in those areas he had checked, appeared to verify the licensee's survey documentation. In a telephone conversation on November 13, 1973 the inspector pointed out that some action would

have to be taken with regard to the tank and sump pump in the floor of the change room.

DETAILS

1. Persons Contacted

   G. E. Ashby, Vice President, Manager

   R. J. Herbst, Manager, Operation Services

   C. T. Lamberth, Foreman, Nuclear Production

2. Material Possessed and Processed Under the License

   A licensee represenative stated that highly enriched uranium-235(97 %) was used exclusively.

3. Facility Status

   a. By letter dated September 19, 1973, signed by G. E. Ashby, the licensee transmitted a document entitled, Decontamination of W. R. Grace and Company's Nuclear Facility for Decommissioning and Return to Unrestricted Use, to the Directorate of Licensing. The document included a report of surveys conducted by the licensee.

   b. The inspection was limited to a survey by the inspector of those areas identified in the survey report. The survey consisted of spot checks of surfaces employing portable survey meters (1)(2) and wiping 100 cm^2 surfaces with #541 Whatman filter papers. (3)

   c. The inspector verified the survey report submitted by the licensee. The inspector's survey report superimposed on the licensee's survey report is included as Attachment 1.

   d. Contamination levels were not measured in a sump tank and pump located in the floor of the change room under an iron grating. This tank was used for gathering lab sink, shower and wash basin drainage by the licensee. The inside of the tank and pump were not accessible to the inspector. A licensee representative stated that the tank, pump and associated piping would be removed and disposed of as contaminated waste and the surrounding area would be surveyed after removal. The inspector noted that certification this removal and survey would have to be supplied to the Directorate of Licensing.

   e. The licensee had not included results of surveys of the lighting fixtures and ventillation ducts in the original report. The results of these surveys, which were submitted to the AEC with a letter dated October 30, 1973, are included as Attachment 2. This report was in acceptable agreement with the inspector's findings.

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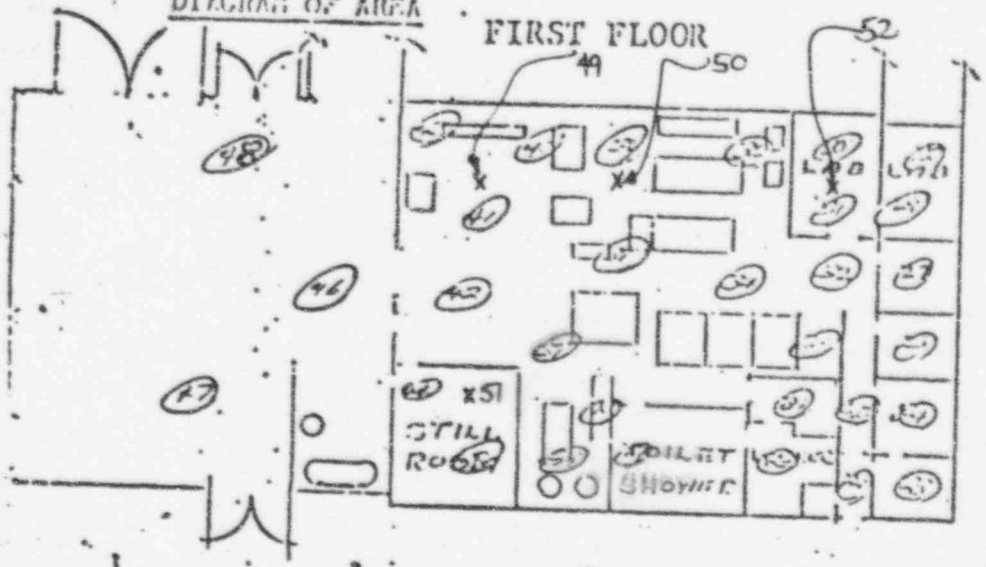
(1) Eberline AC 1SA
(2) Eberline E-120 with 7 mg/cm absorber
(3) Wipes were counted in an Eberline SAC-4 and an Eberline LCS-1 with RD-14 Beta Detector

~~DECAY TABLE~~ TA SHEET

PAC-4G INSTRUMENT SURVEY

DIAGRAM OF AREA



DATE 8/28/73

BUILDING OR AREA 16A - main Floor Floor

SUSPECTED ACTIVITY Eu

SURVEYED ~~SUPERVISED~~ BY R. L. Matt

COUNTED BY n/a

SUPERVISOR R. J. Hurst - 8/29/75.

1 SAMPLE NUMBER	2 LOCATION	3 AREA OF SMEAR 100 cm²	4 ACTIVITY COUNTED α	4 ACTIVITY COUNTED β-γ	5 GROSS CPM	6 BKGND. CPM	7 NET CPM	8 EFFICIENCY	9 DPM/100 cm² TOTAL	10 CORR. DPM/100 cm²	11 REMARKS
	(18)		✓		100	<100	25	51	100	5000	25,000
	(19)		✓		350	<100	275	51	1100		
	(20)		✓		350	<100	275	51	1100		
	(21)		✓		450	<100	375	51	1500		
	(22)		✓		50	<100	BKd	51	OK		
	(23)		✓		25	<100	BKd	51	OK		
	(24)		✓		50	<100	BKd	51	OK		
	(25)		✓		50	<100	BKd	51	OK		
	(26)		✓		75	<100	BKd	51	OK		
	(27)		✓		150	<100	25	51	300		
	(28)		✓		75	<100	BKd	51	OK		
	(29)		✓		150	<100	25	51	300		
	(30)		✓		375	<100	250	51	1500		
	(31)										

ATTACHMENT 1

ALL INSTRUMENT SURVEY 10/24/72

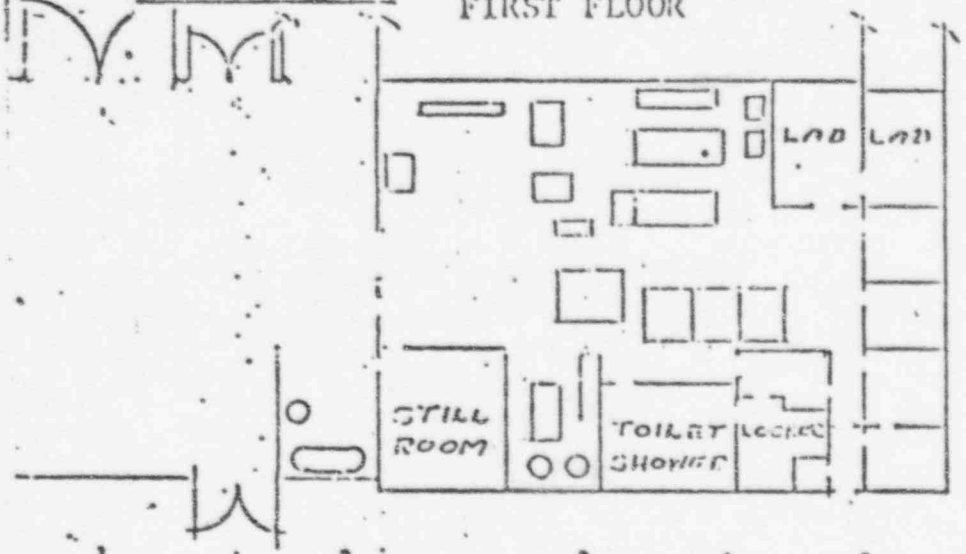
49 2200 dpma/100cm²
50 2200 dpma/100cm²
51 2000 dpma/100 cm²
52 2000 dpma/100 cm² (lab bench near sink)

Floors 18 through 52 for pr:
<0.1 mrad/hr through 7 mg/cm²

(1)

DIAGRAM OF AREA

FIRST FLOOR



DATE 8/28/73.

BUILDING OR AREA 16A Main Floor Floor

SUSPECTED ACTIVITY EU

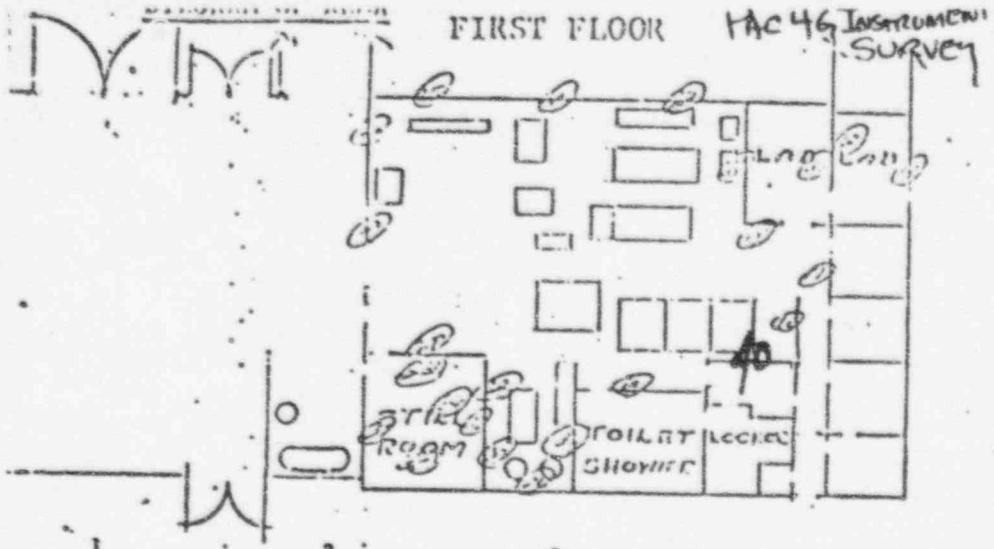
SURVEYED
~~SHARED~~ BY R. L. Matt

COUNTED BY n/a

SUPERVISOR R. J. Nuckolls - 8/29/73.

1 SAMPLE NUMBER	2 LOCATION	3 AREA OF SMEAR 100 cm²	4 ACTIVITY COUNTED α	4 ACTIVITY COUNTED β-γ	5 GROSS CPM	6 BKGND. CPM	7 NET CPM	8 EFFICIENCY	9 DPM/100 cm² TOTAL	10 GOAL DPM/100 cm²	11 REMARKS
	(33)	0.5	✓		100	<100	25	51	100	5000/15,000	
	(34)	0.5	✓		450	<100	375	51	1500		
	(35)	0.5	✓		400	<100	325	51	1300		
	(36)	0.5	✓		2000	<100	1925	51	7700		
	(37)	0.5	✓		500	<100	425	51	1700		
	(38)	0.5	✓		1000	<100	925	51	3700		
	(39)	0.5	✓		750	<100	675	51	2700		
	(40)	0.5	✓		1500	<100	1425	51	5700		
	(41)	0.5	✓		500	<100	425	51	1700		
	(42)	0.5	✓		150	<100	75	51	300		
	(43)	0.5	✓		1000	<100	925	51	3700		
	(44)	0.5	✓								
	(45)	0.5	✓								
	(46)	0.5	✓		400	<100	325	51	1300		
	(47)	0.5	✓		150	<100	75	51	300		

(2) SEE PAGE 1



HAC 46 INSTRUMENT SURVEY

DATE 3/29/73

BUILDING OR AREA 16A Main Floor - Walls

SUBJECTED ACTIVITY EU

SURVEYED SIGNED BY R. L. Marr

COUNTED BY h/a

SUPERVISOR

1 SAMPLE NUMBER	2 LOCATION	3 AREA OF SMEAR 100 cm²	4 ACTIVITY COUNTED α	4 ACTIVITY COUNTED β-γ	5 GROSS CPM	6 BKGND. CPM	7 NET CPM	8 EFFICIENCY	9 DPM/100 cm² TOTAL	10 GOAL DPM/100 cm²	11 REMARKS
14		0.5	✓		50	<50	0	50	Bkgd	5000	25000
15		0.5	✓		1000	<50	950	50	3800	"	
16		0.5	✓		200	<50	150	50	600	"	
17		0.5	✓		50	<50	0	50	Bkgd	"	
18		0.5	✓		50	<50	0	50	"	"	
19		0.5	✓		50	<50	0	50	"	"	
20		0.5	✓		100	<50	50	50	200	"	
21		0.5	✓		50	<50	0	50	Bkgd	"	
22		0.5	✓		150	<50	100	50	400	"	
23		0.5	✓		100	<50	50	50	200	"	
24		0.5	✓		150	<50	100	50	400	"	
25		0.5	✓		150	<50	100	50	400	"	
26		2.5	✓		100	<50	50	50	200	"	
27		2.5	✓		50	<50	0	50	0	"	
28		2.5	✓		50	<50	0	50	0	"	

AEC INSTRUMENT SURVEY 10/24/73

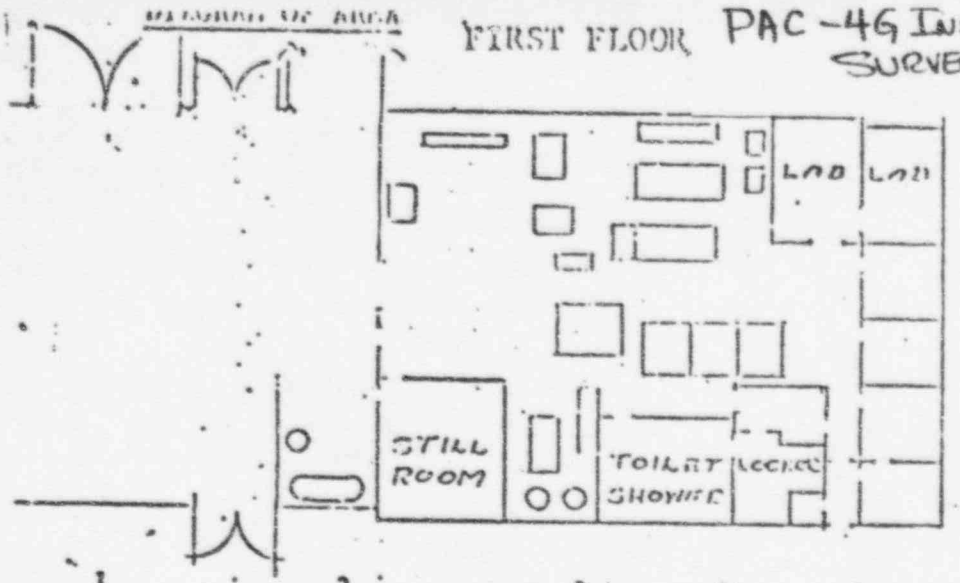
IN AREA DESIGNATED 40
IN NO AREA LARGER THAN 10 M²
The highest reading was 12,000 dpm α/100 cm²
and the AVERAGE Reading was
3000 dpm α/100 cm²

All other Areas < 500 dpm α/100 cm²

ALL WALLS 14 through 37
< 0.1 mrad/hr β/γ through 7 mg/cm²

ATTACHMENT 1

(3)



FIRST FLOOR PAC-4G INSTRUMENT SURVEY

9/29/73

BUILDING OR AREA 16A Main Floor - Walk

SUSPECTED ACTIVITY EU

SURVEYED BY R. L. Matt

COUNTED BY N/A

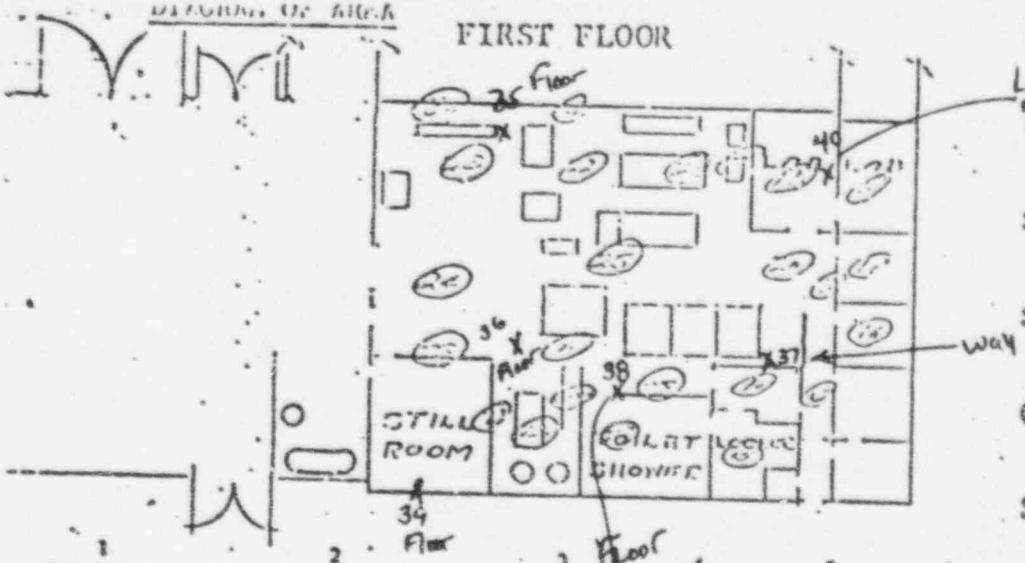
SUPERVISOR

1 SAMPLE NUMBER	2 LOCATION	3 AREA OF SMEAR 100cm²	4 ACTIVITY COUNTED α	4 ACTIVITY COUNTED β-γ	5 GROSS CPM	6 BKGND. CPM	7 NET CPM	8 EFFICIENCY	9 DPM/100cm² TOTAL	10 COAL DPM/100 cm²	11 REMARKS
30		0.5	✓		100	<50	50	50	200	5000/25000	
31		0.5	✓		150	<50	100	50	100	"	
32		0.5	✓		3000	<50	2950	50	11,500	"	
33	Floor - Still Rm	0.5	✓		350	200	150	50	600	5000/25000	9/18/73
34	" "	0.5	✓		1000	200	800	50	3200	"	9/18/73
35	" "	0.5	✓		1000	200	800	50	3200	"	9/18/73
36	Wall - Still Rm.	0.5	✓		500	200	300	50	1200	"	9/18/73
37	" "	0.5	✓		300	200	100	50	400	"	9/18/73
38	Floor - Bldg 20	Avg	✓		250	200	50	50	200	5000/25000	9/18/73
39	Wall - Bldg 20	Avg	✓		250	200	50	50	200	"	9/18/73

(4) SEE PAGE 3

ATTACHMENT 1

DIAGRAM OF AREA



DATE 8/31/67

BUILDING OR AREA K-13 - Primary Area

SUSPECTED ACTIVITY EU

SMEARED BY R. Mott

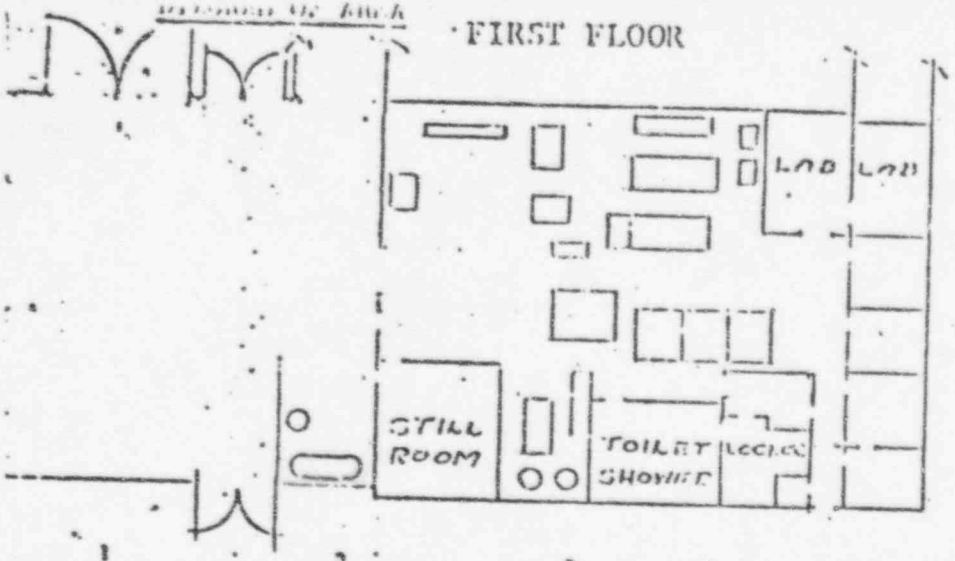
COUNTED BY R. Mott

SUPERVISOR R. J. Hurst

1 SAMPLE NUMBER	2 LOCATION	3 AREA OF SMEAR 100 cm²	4 ACTIVITY COUNTED α	4 ACTIVITY COUNTED β-γ	5 GROSS CPM	6 BKGND. CPM	7 NET CPM	8 EFFICIENCY	9 DPM/100 cm² TOTAL	10 GOAL DPM/100 cm²	11 REMARKS
11	Floor	7	✓		18	2.9		70/51	6	1000	AEC SMEAR SURVEY 10-24-73
12	Floor	7	✓		7	2.9		70/51	2	"	LOCATIONS 35 through 40
13	Floor	7	✓		16	2.9		70/51	5	"	Highest smear was 34 dpm α/100cm²
14	Floor	7	✓		25	4.3		70/51	8	"	
15	Floor	7	✓		11	2.9		70/51	3	"	
16	Floor	7	✓		31	4.3		70/51	11	"	LOCATIONS 35 through 40
17	Floor	7	✓		11	2.9		70/51	3	"	Highest smear 2 dpm β/100cm²
18	Floor	7	✓		17	4.3		70/51	5	"	
19	Floor	7	✓		50	2.9		70/51	19	"	
20	Floor	7	✓		30	4.3		70/51	10	"	
21	Floor	7	✓		150	2.9		70/51	59	"	
22	Floor	7	✓		26	4.3		70/51	9	"	
23	Floor	7	✓		31	2.9		70/51	11	"	
24	Floor	7	✓		34	4.3		70/51	12	"	
25	Floor	7	✓		41	2.9		70/51	15	"	

5

ATTACHMENT 1



DATE 9/31/67

BUILDING OR AREA 116A - Process Area

SUBJECTED ACTIVITY EU

SHEARED BY R. Marr

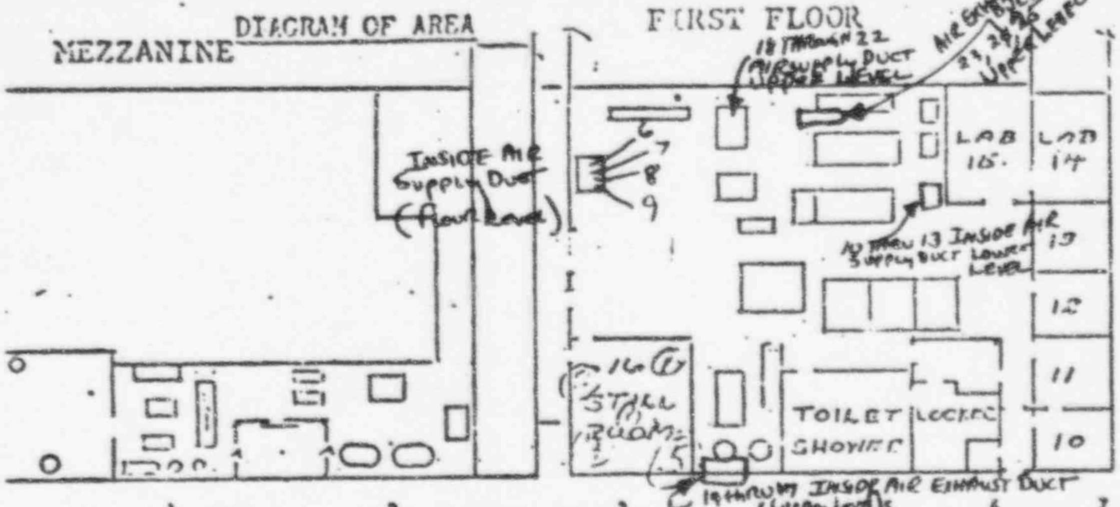
COUNTED BY R. Marr

SUPERVISOR R. J. Hurst

1 SAMPLE NUMBER	2 LOCATION	3 AREA OF SMEAR 100 cm²	4 ACTIVITY COUNTED α	4 ACTIVITY COUNTED β-γ	5 GROSS CPM	6 BKGND. CPM	7 NET CPM	8 EFFICIENCY	9 DPM/100 cm² TOTAL	10 GOAL DPM/100 cm²	11 REMARKS
27	Wall	7			329	2.9		50/51	183	1000	
28	Wall	7			98	4.3		50/51	52	1	
29	Wall	7			154	2.9		50/51	85	"	
30	Wall	7			61	4.3		50/51	32	"	
31	Wall	7			78	2.9		50/51	42	"	
32	Wall	7			435	4.3		50/51	241	"	
33	Wall	7			371	2.9		50/51	206	"	
34	Stairs	5			48	4.3		50/51	24	"	10⁵ 1
										"	A.J
	Exhaust Alcove	3.0			423	2.9		50/51	549	"	
	Wall - N Center	7			1144	2.9		50/51	1278	"	Dust on outlet box and conduit
	Exhaust Alcove	3.0			531	2.9		50/51	670	"	
	" "	2.0			287	2.9		50/51	357	"	
	Exhaust Vent	3.0			497	2.9		50/51	616	"	(6) SEE PAGE 5
										"	

ATTACHMENT 1

SAMPLE DATA SHEET



DATE 9/18/73

BUILDING OR AREA 16A - Still Room

SUSPECTED ACTIVITY EU

SAMPLED BY R. L. Marr

FILTER PAPER USED

COUNTED BY R. L. Marr

INSTRUMENT USED PC - 4

BOOK AND PAGE

1	2	3	4		5	6	7	8	9	10	11	12
SAMPLE NUMBER	LOCATION	Area VOLUME OF SMPL. IN IN^2	ACTIVITY COUNTED α	ACTIVITY COUNTED β-γ	GROSS CPM	BKGND. CPM	NET CPM	EFFICIENCY	DPM/FT^3	~~μc/cc~~	MPC	REMARKS
1	Floor	3			1	3.8	0	51.3	Insig	OK	1000	
2	Floor	3			27	3.8	23	51.3	45	OK	"	
3	Floor	3			35	3.8	31	51.3	68	OK	"	
4	Wall	3			20	3.8	16	51.3	35	OK	"	
5	Wall	3			3	3.8	0	51.3	Insig	OK	"	

AEC SURVEY (SMEARS) 10/24/73

LOCATIONS 10 THROUGH 20; HIGHEST: 102 dpmα/$100cm^2$, 186 dpmβ/$100cm^2$

LOCATION	DESCRIPTION	dpmα/$100cm^2$	dpmβ/$100cm^2$
21	Top Surface	756	534
22	Light Fixture	124	70
23	Inside Duct	832	454
24	Baffle of Duct	348	~~300~~
25	Light Fixture	10	52

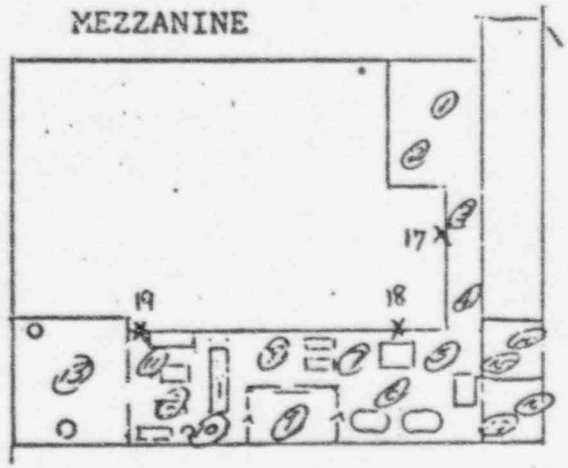
ATTACHMENT I (7)

SMEAR SAMPLE DATA SHEET

PAC 46 INSTRUMENT SURVEY

DIAGRAM OF AREA

MEZZANINE



DATE 8/28/73

BUILDING OR AREA 16A - Mezzanine Floor

SUSPECTED ACTIVITY EU

SURVEYED ~~SURVEYED~~ BY R. L. Matt.

COUNTED BY n/a

SUPERVISOR R. J. Hurst - 8/29/73

1	2	3	4		5	6	7	8	9	10	11
SAMPLE NUMBER	LOCATION	AREA OF SMEAR 100cm²	ACTIVITY COUNTED α	ACTIVITY COUNTED β-γ	GROSS CPM	BKGND. CPM	NET CPM	EFFICIENCY	DPM/ 100cm² Total	GOAL DPM/100 cm²	REMARKS
1	①	0.5	✓		50	400	Bkgd	51	0	5000	25000 INSTRUMENT SURVEY 10/24/73
2	②	0.5	✓		75	<400	Bkgd		0		
	③	0.5	✓		60	<400	Bkgd		0		
	④	0.5	✓		150	<400	50	51	200		
	⑤	0.5	✓		425	<400	400		1600		
	⑥	0.5	✓		450	<400	400		1600		
	⑦	0.5	✓		600	<400	500		2000		
	⑧	0.5	✓		400	<400	350		1400		
	⑨	0.5	✓		200	<400	150		600		
	⑩	0.5	✓		150	<400	100		400		
	⑪	0.5	✓		210	<400	150		600		
	⑫	0.5	✓		350	<400	300		1200		
	⑬	0.5	✓		400	<400	350		1400		

ATTACHMENT 1

A&C SURVEY 10/24/73

LOCATION 12 3400 dpmα/100cm²

LOCATIONS 1 thru 11 & 13 thru 16 > 200 dpmα/100cm²

ALONG FLOOR EDGE FROM 17 to 19 - 3000 to 7000 dpmα/100cm²

ONE SPOT AT 18 READS 30,000 dpmα/100cm²

THE FLOOR EDGE WAS CLEANED DURING THE INSPECTION AND RESURVEYED ALL LEVELS WERE REDUCED - SPOT AT 18 WAS REDUCED TO 15,000 dpmα/100cm²

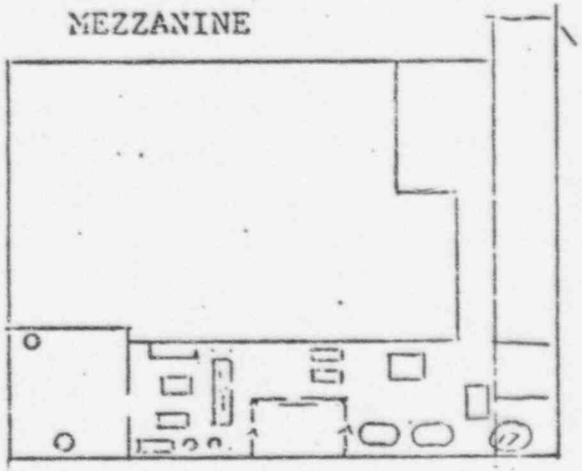
βγ Survey: LOCATIONS 1 through 19 less than 0.1 mrad/hr through 7 mg/cm²

(8)

S-M-E-A-R S-A-M-P-L-E D-A-T-A S-H-E-E-T

RAC 4G Instrument Survey

DIAGRAM OF AREA



DATE 8/28/73

BUILDING OR AREA 16A Mezzanine Floor

SUSPECTED ACTIVITY EU

SURVEYED ~~SMEARED~~ BY R. L. Mott

COUNTED BY n/a

SUPERVISOR [signature] 8/28/73

1 SAMPLE NUMBER	2 LOCATION	3 AREA OF SMEAR in 100cm²	4 ACTIVITY COUNTED α	β-γ	5 GROSS CPM	6 BKGND. CPM	7 NET CPM	8 EFFICIENCY	9 DPM/100cm² Total	10 GOAL DPM/100 cm²	11 REMARKS
	(17)	0.5	✓		75	<100	Bkgd	51	OK	5000/25,000	
									.005		Avg

(9) SEE PAGE 8

ATTACHMENT 1

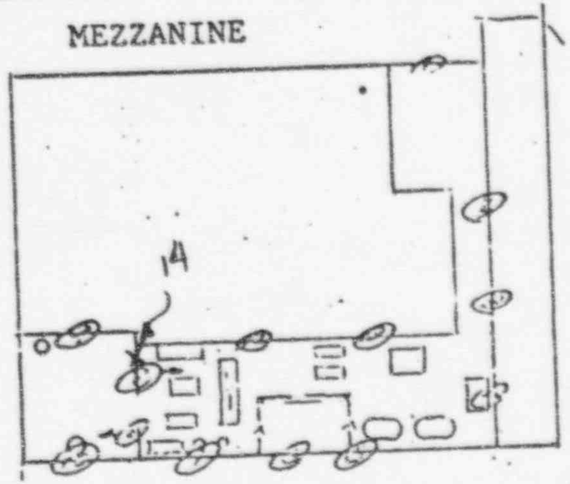
~~SMEAR SAMPLE DATA~~ SHEET

PAC-4G INSTRUMENT SURVEY

DATE 8/29/73

DIAGRAM OF AREA

MEZZANINE



BUILDING OR AREA 16A Mezzanine Walls

SUSPECTED ACTIVITY E U.

SURVEYED ~~SMEARED~~ BY R. L. Marr

COUNTED BY n/a

SUPERVISOR

1 SAMPLE NUMBER	2 LOCATION	3 AREA OF ~~SMEAR~~ 100cm²	4 ACTIVITY COUNTED α	β-γ	5 GROSS CPM	6 BKGD. CPM	7 NET CPM	8 EFFICIENCY	9 DPM/100cm² Total	10 GOAL DPM/100 cm²	11 REMARKS
1	Wall	0.5	✓		50	<50	0	50	Bkgd.	5000	25,000 ~~[illegible]~~
2	Wall	0.5	✓		50	<50	0	50	"		
3	Wall	0.5	✓		50	<50	0	50	"		
4	Wall	0.5	✓		25	<50	0	50	"		
5	Wall	0.5	✓		25	<50	0	50	"		
6	Wall	0.5	✓		25	<50	0	50	"		
7	Wall	0.5	✓		50	<50	0	50	200		
8	Wall	0.5	✓		100	<50	50	50	Bkgd.		
9	Wall	0.5	✓		25	<50	0	50	"		
10	Wall	0.5	✓		50	<50	0	50	"		
11	Wall	0.5	✓		50	<50	0	50	"		
12	Rail	0.5	✓		500	<50	450	50	(1800)		
13	Rail	0.5	✓		450	<50	400	50	(1600)		

AEC SURVEY 10-24-73

LESS THAN 200 dpmα/100cm² locations 1 through 13

8000 dpmα/100cm² on wall at location 14

All βγ locations 1 through 14 less than 0.1 mrad/hr through 7 mg/cm²

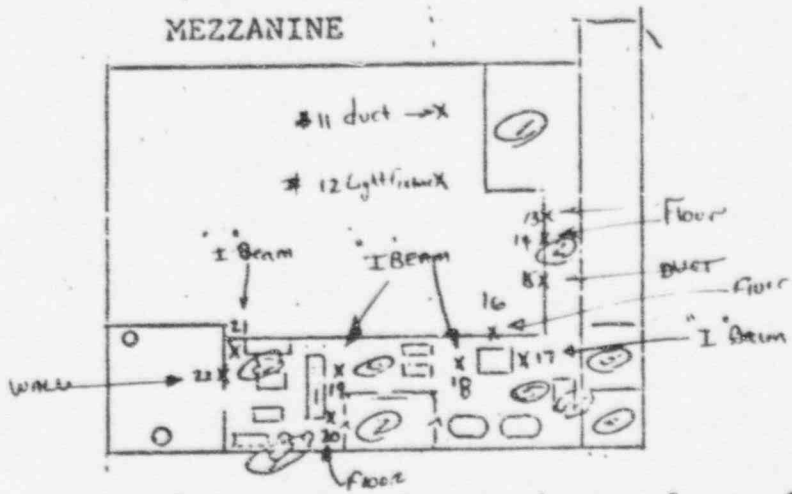
ATTACHMENT I

(10)

2.80'

SMEAR SAMPLE DATA SHEET

DIAGRAM OF AREA



DATE 8/31/67

BUILDING OR AREA 16A - MEZZANINE

SUSPECTED ACTIVITY EU

SMEARED BY R. Marr

COUNTED BY R. Marr

SUPERVISOR R. J. Hurst

1	2	3	4		5	6	7	8	9	10
SAMPLE NUMBER	LOCATION	AREA OF SMEAR 100cm²	ACTIVITY COUNTED α	ACTIVITY COUNTED β-γ	GROSS CPM	BKGND. CPM	NET CPM	EFFICIENCY	DPM/100cm² Total	GOAL DPM/100 cm²
1	Floor	7	✓		34	2.9	51	2π/51	13	100
2	Floor	7			36	2.9		2π/51	13	"
3	Floor	7			58	4.3		2π/51	22	"
4	Floor	7			20	2.9		2π/51	10	"
5	Floor	7			81	4.3		2π/51	31	"
6	Floor	7			28	2.9		2π/51	10	"
7	Floor	7			80	4.3		2π/51	30	"
8	Floor	7			32	2.9		2π/51	12	"
9	Wall	7			157	4.3		2π/51	56	"
10	Wall	7			80	4.3		2π/51	15	"
5	Floor	7			65	2.9		2π/51	25	"

ATTACHMENT 1

11

REL SMEAR SURVEY
10-24-73

LOCATIONS 11 THROUGH 22
Highest: # 16 160dpm β/100cm²
OF THE REMAINING LOCATIONS NONE exceeded 96 dpm β/100 cm²

LOCATIONS 11 THROUGH 22
Highest: # 17 52dpm β/100cm²
OF THE REMAINING LOCATIONS NONE exceeded 48 dpm β/100cm²

PC 5 4

W.R. GRACE & CO.

RESEARCH DIVISION

WASHINGTON RESEARCH CENTER
7379 ROUTE 32, COLUMBIA, MARYLAND 21044
Telephone 301 - 531-5711

October 30, 1973

Director, Division of Materials Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Sir:

The attached data sheets summarize additional fixed and removable contamination estimates made regarding light fixtures and appurtenances near the ceiling of our 16A Nuclear Facility. These data supplement those already supplied in our report of September 1973.

The average levels of fixed and removal contamination on these surfaces is 2205 and 28 dpm/100 cm^2, respectively. No individual measurements of fixed contamination were in excess of the Guideline(1) limit of 25,000 dpm/100 cm^2. We believe these data further confirm the success of our decontamination efforts.

Data are also included showing the results of action taken to decontaminate the surfaces of the narrow ledge of the mezzanine outside the railing. This ledge was shown to be contaminated by measurements which Mr. P. German (USAEC - Region 1) made during this inspection and survey on 24 and 25 October 1973. Decontamination to below the Guideline limits was achieved. To the best of our knowledge, this is the only area wherein Mr. German's measurements failed to corroborate our own findings.

We hope submitting these data will enable the Commission to finally disposition our request for termination of our SNM

ATTACHMENT 2 ①

License and release for unrestricted use of the premises formerly relegated to our nuclear work.

Very sincerely,

R. J. Herbst

RJH/kh

Attachments

cc: Director, Directorate of Regulatory Operations - Region 1
U. S. Atomic Energy Commission
631 Park Avenue
King of Prussia, Pa. 19406

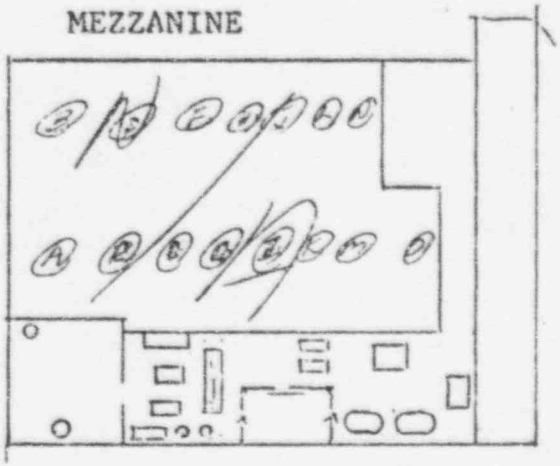
(1) Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source or Special Nuclear Material. U. S. Atomic Energy Commission, 22 April 1970.

ATTACHMENT 2 (2)

SMEAR SAMPL. DATA SHEET

DIAGRAM OF AREA

MEZZANINE



≈560 = 48
3030

DATE 10/26/73

BUILDING OR AREA 16A – LIGHT FIXTURES & POWERHOUSE NEAR CEILING

SUSPECTED ACTIVITY EU

SMEARED BY C.T. Lambarth

COUNTED BY R.J. Herbst

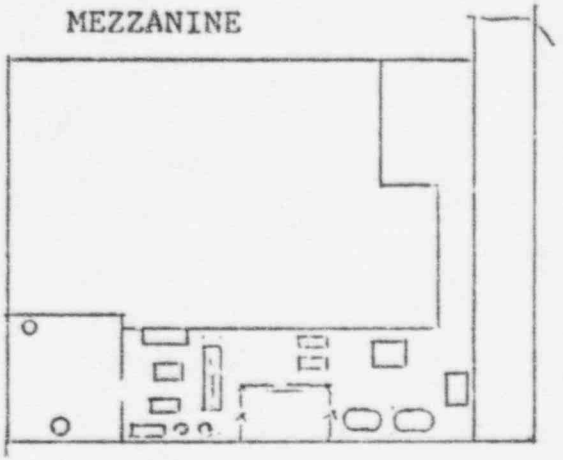
SUPERVISOR

1	2	3	4		5	6	7	8	9	10	11
SAMPLE NUMBER	LOCATION	AREA OF SMEAR IN 100cm²	ACTIVITY COUNTED α	ACTIVITY COUNTED β-γ	GROSS CPM	BKGND. CPM	NET CPM	EFFICIENCY	DPM/100cm² Total	GOAL DPM/100 cm²	REMARKS
26.1	Light Fixture #A3	7.5	✓		15	3	12	6/48	6	1000	
26.2	do # B3	7.5	✓		30	3	27	6/48	12	"	
26.3	do # C3	7.5	✓		74	3	71	6/48	33	"	
26.4	do # D3	7.5	✓		14	3	11	6/48	5	"	
26.5	do # E3	7.5	✓		51	3	48	6/48	22	"	
26.6	do # F3	7.5	✓		75	3	72	6/48	35	"	
26.7	do # G3	7.5	✓		27	3	24	6/48	11	"	
26.8	do # H3	7.5	✓		28	3	25	6/48	11	"	
26.9	do # J3	7.5	✓		40	3	37	6/48	17	"	
26.10	do # K3	7.5	✓		224	3	221	6/48	102	"	
26.11	do # K3	7.5	✓		21	3	18	6/48	8	"	
26.12	do # L3	7.5	✓		64	3	61	6/48	28	"	
26.13	do # M3	7.5	✓		22	3	19	6/48	9	"	
26.14	do # N3	7.5	✓		43	3	40	6/48	19	"	
26.15	do # O3	7.5	✓		12	3	9	6/48	4	"	

ATTACHMENT 2

SMEAR SAMPLE DATA SHEET

DIAGRAM OF AREA



DATE 10/26/73

BUILDING OR AREA 16A - Ductwork or ceiling

SUSPECTED ACTIVITY EU

SMEARED BY C.T. Lamberth

COUNTED BY R.J. Herbst

SUPERVISOR

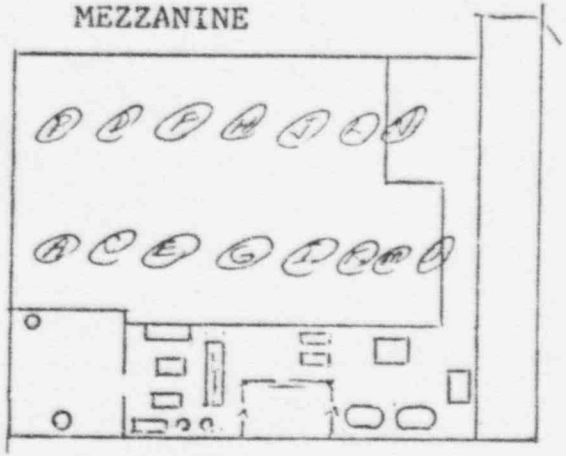
1	2	3	4		5	6	7	8	9	10	11
SAMPLE NUMBER	LOCATION	AREA OF SMEAR IN $100cm^2$	ACTIVITY COUNTED		GROSS CPM	BKGND. CPM	NET CPM	EFFI-CIENCY	DPM/ $100cm^2$ Total	GOAL DPM/$100cm^2$	REMARKS
			α	$\beta-\gamma$							
26.16	mezzanine floor or railing	2.5	✓		23	3	20	7/45	24	1000	
26.17	Ductwork @ #1 (inside)	5.0	✓		45	3	42	5/45	35	"	
26.18	#2 (inside)	5.0	✓		37	3	34	5/45	28	"	
26.19	#3 (inside)	5.0	✓		154	3	151	5/45	126	"	
26.20	#4 top.	7.5	✓		~~154~~	~~3~~	~~151~~	7/45	53	"	
26.21	#5 (inside)	5.0	✓		16	3	13	5/45	11	"	
26.22	#6 (inside)	5.0	✓		173	3	170	5/45	142	"	
26.23	#7 (outside)	7.5	✓		30	3	27	7/45	10	"	
26.24	#8	7.5	✓		24	3	21	7/45	8	"	
26.25	#10	7.5	✓		5	3	2	7/45	1	"	
26.26	#11	7.5	✓		26	3	23	7/45	9	"	
26.27	#12	7.5	✓		57	3	54	7/45	21	"	
26.28	#13	7.5			7	3	4	7/45	2	"	
		7							28 / Avg		
										ATTACHMENT 2	

~~SMEAR~~ SAMPLE DATA SHEET

TAC-4G Instrument

DIAGRAM OF AREA

MEZZANINE



DATE 12/25/73

BUILDING OR AREA 6A - Light Fixtures & ~~Apparatuses~~ on ceiling of Process Air

SUSPECTED ACTIVITY EU

SMEARED BY N/a

COUNTED BY C.T. Lamberth

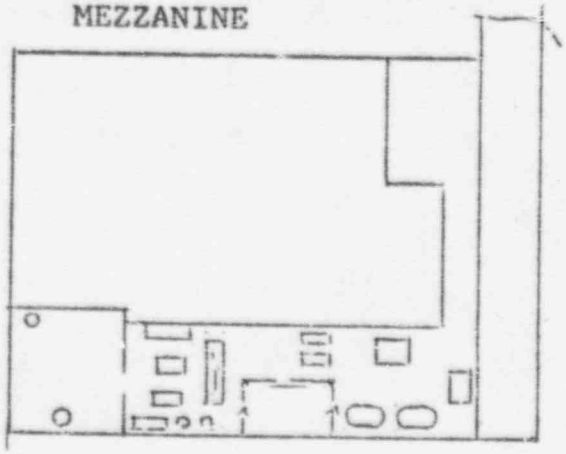
SUPERVISOR R.J. Hunt - 10/25/73

1	2	3	4		5	6	7	8	9	10	11
SAMPLE NUMBER	LOCATION	~~AREA OF SMEAR~~ 100cm^2	ACTIVITY COUNTED		GROSS CPM	BKGND. CPM	NET CPM	EFFICIENCY	DPM/ 100cm^2 Total	GOAL DPM/100 cm^2	REMARKS
			α	β-γ							
A1	Light Fixture	0.6	✓		200	<50		.51	500	5000/25,000	
A2	Light Fixture	0.6	✓		300	50		.51	800	"	
B1	Light Fixture	0.6	✓		1500	50		.51	4800	"	
B2	"	0.6	✓		2000	50		.51	6500	"	
C1	"	0.6	✓		200	50		.5	500	"	
C2	"	0.6	✓		200	50		.5	500	"	
D1	"	0.6	✓		300	50		.5	800	"	
D2	"	0.6	✓		400	50		.5	1300	"	
E1	"	0.6	✓		1500	50		.5	5800	"	
E2	"	0.6	✓		1000	50		.5	3200	"	
F1	"	0.6	✓		2000	50		.5	6500	"	
F2	"	0.6	✓		1500	50		.5	4800	"	
G1	"	0.6	✓		1000	50		.5	3200	"	
G2	"	0.6	✓		600	50		.5	1800	"	
H1	"	0.6	✓		2200	50		.5	7200	"	

~~SMEAR SAMPLE~~ DATA SHEET

FAC.-46 Instrument

DIAGRAM OF AREA



DATE 10/25/73

BUILDING OR AREA 16A - Apartments nr. Light Fixtures & Ceiling of Trailer Area

SUSPECTED ACTIVITY EU

SMEARED BY N/a

COUNTED BY C. T. Lambeth.

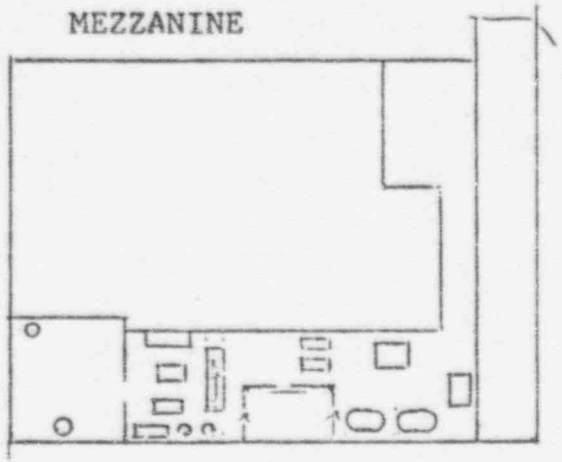
SUPERVISOR R. J. Hulet - 10/25/73

1	2	3	4		5	6	7	8	9	10	11
SAMPLE NUMBER	LOCATION	AREA ~~OR~~ IN $100cm^2$	ACTIVITY COUNTED		GROSS CPM	BKGND. CPM	NET CPM	EFFICIENCY	DPM/ $100cm^2$ Total	GOAL DPM/100 cm^2	REMARKS
			α	$\beta-\gamma$							
I1	Light Fixture	0.6	✓		160	<50		.5	200	5000/25,000	
I2	Light Fixture	0.6	✓		300	"		.5	800	"	
J1	"	0.6	✓		800	"		.5	2200	"	
J2	"	0.6	✓		700	"		.5	2500	"	
K1	"	0.6	✓		<100	"		.5	200	"	
K2	"	0.6	✓		<100	"		.5	200	"	
L1	"	0.6	✓		1000	"		.5	3200	"	
L2	"	0.6	✓		1000	"		.5	3200	"	
M1	"	0.6	✓		<100	"		.5	200	"	
M2	"	0.6	✓		400	"		.5	1200	"	
N1	"	0.6	✓	400	~~<400~~	"		.5	1200	"	
N2	"	0.6	✓	800	~~<800~~	"		.5	2500	"	
O1	"	0.6	✓	<100	~~200~~	"		.5	200	"	
O2	"	0.6	✓		300	"		.5	800	"	
*8	Duct @ #8	0.6	✓		1000	"		.5	3200	"	

SMEAR SAMPLE DATA SHEET

PAC-4G Instrument

DIAGRAM OF AREA



DATE 10/25/73

BUILDING OR AREA 16A — Ductwork or Ceiling

SUSPECTED ACTIVITY EU

SMEARED BY N/a

COUNTED BY C. T. Lanperth.

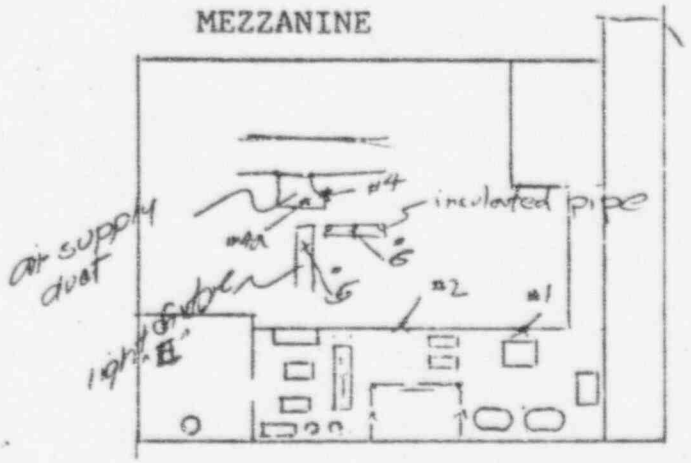
SUPERVISOR R. J. Hurst - Phone

1	2	3	4		5	6	7	8	9	10	11
SAMPLE NUMBER	LOCATION	AREA SMEARED IN $100cm^2$	ACTIVITY COUNTED		GROSS CPM	BKGND. CPM	NET CPM	EFFICIENCY	LPM/ $100cm^2$ Total	GOAL DPM/100 cm^2	REMARKS
			α	β-γ							
#6 & #7	Ductwork @ 647	0.6	✓		200	≤50		0.5	500	5000 / 25,000	
#12		0.6	✓		1500	"		.5	4800	"	
#13		0.6	✓		800	"		5	2450	"	
									~~Avg = 2205~~		
							Avg =				

ATTACHMENT 2 (7)

SMEAR SAMPLE DATA SHEET

DIAGRAM OF AREA



DATE 10/28/73

BUILDING OR AREA 16A - Process Area @ Ceiling

SUSPECTED ACTIVITY EU

SMEARED BY R. J. Hurbst

COUNTED BY R. J. Hurbst - 10/28/73

SUPERVISOR

1	2	3	4		5	6	7	8	9	10	11
SAMPLE NUMBER	LOCATION	AREA OF SMEAR 100cm²	ACTIVITY COUNTED α	ACTIVITY COUNTED β γ	GROSS CPM	BKGND. CPM	NET CPM	EFFICIENCY	DPM/100cm² Total	GOAL DPM/100 cm²	REMARKS
28.4	Outside of Air Supply Duct	7.5	✓		2843	5	2838	7/51	1059	~~2200~~ 1000	
28.4a	"	7.5	✓		1869	5	1864	7/51	696	"	
28.5	Light Fixture "E"	7.5	✓		278	5	223	7/51	102	"	
28.6	Insulated Pipe	7.5	✓		726	5	721	5/51	376	"	
28.1	Mezzanine outside column C1	7.5	✓		485	5	480	6/51	209	"	
28.2	" C2	7.5	✓		102	5	97	6/51	42	"	
28 4	Outside of Air Supply Duct	7.5	✓		92	2	90	7/51	34	1000	after decon
28.4a	"	7.5	✓		70	2	68	7/51	25	"	"
28 5	Light Fixture "E"	5.0	✓		72	2	70	7/51	40	"	"
28.6	Insulated Pipe	7.5	✓		445	2	441	5/51	231	"	" (wet)
											ATTACHMENT 2 (8)