APPENDIX C-4

VERIFICATION SURVEYS FOR FIRST FLOOR OFFICES AND SMALL HALLWAY

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY # 454

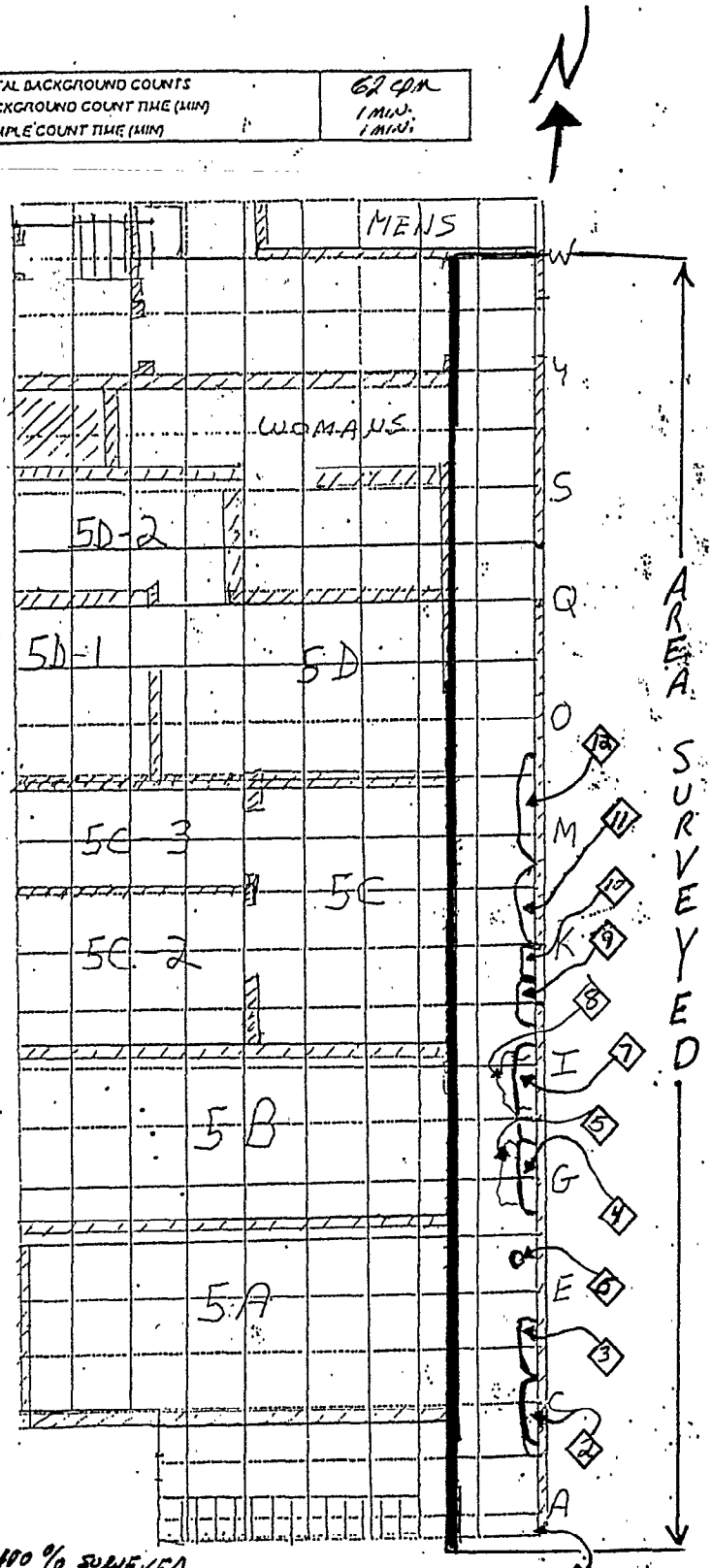
SAMPLE DATE: 6-23-97
LOCATION: PEARLAIR SITE
B-14 1ST FL OFFICES
-HALLWAY FLOOR DELINEATION

RADIATION MEASUREMENT: Beta-Gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: direct scaler measurements

TOTAL BACKGROUND COUNTS	62 cpm
BACKGROUND COUNT TIME (MIN)	1 min.
SAMPLE COUNT TIME (MIN)	1 min.

ELEVATED AREAS & HOT SPOTS

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION		βγ GROSS SAMPLE COUNTS
1	SEE	FLOOR - AREA ft² = 2.5		200
2	MAP	SURFACE	2.5	250-350
3			1	150-250
4			1.5	16k-35k
5		CRACK	—	300-1k
6		CHIPPED FLOOR	—	450
7		AREA ft² = 2.5		200-1500
8			3	200-1000
9			1	200-600
10			2	500-2000
11			3	190-260
12				
13				
14				
15				
16				
17				
18				
19				
20				
21		N/A		
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				



KEY
◇ = DIRECT PROBE (15.5cm²/βγ) MEASUREMENT LOCATION

WL
6-23-97

Instrument Model & s/n:	LB221 W/44-9
Detector Model & s/n:	
Calibration Date:	
Efficiency	cpm / dpm based on S/N90 = .20
Detector Area	cm2 = 15.5 cm²

FLOOR 100% SURVEYED IN SPECIFIED AREA SHOWN ABOVE ALONG WITH AREA BEHIND MOP BOARD ON WALLS.

REVIEW

ENCL-C2.XLS

ION TECHNOLOGY, INC. C. BALCAM

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9-4-97 (SURVEY # 700) * = DUPLICATE

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey OF AREA 7A, 7B, 7C, 7D 9-4-97 1ST FLOOR OFFICES

RADIATION MEASUREMENT:

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	W0 A	FLOOR	BG	1386	1						
2	↓ B			1320	1						
3	W2 A			1418	1						
4	↓ B			1411	1						
5	W4 A			2218	1						
6	↓ B			1700	1						
7	X1 A			1480	1						
8	↓ B			1449	1						
9	X3 A			1437	1						
10	↓ B			1444	1						
11	X5 A			1709	1						
12	↓ B			1735	1						
13	Y0 A			1750	1						
14	↓ B			1533	1						
15	Y2 A			1532	1						
16	↓ B			1454	1						
17	Y4 A			2462	1						
18	↓ B			2256	1						
19	Z1 A			1609	1						
20	↓ B			1590	1						
* 21	Z1 B			1602	1						
22	Z3 A			2004	1						
23	↓ B			1961	1						
24	Z5 A			1572	1						
25	↓ B			1713	1						
26	AA0 A			1622	1						
27	↓ B			1559	1						
28	AA2 A			1481	1						
29	↓ B			1507	1						
30	AA4 A			1686	1						
31	↓ B			1593	1						
32	BB1 A			2202	1						
33	↓ B			2260	1						
34	BB3 A			1820	1						
35	↓ B			1752	1						
36	BB5 A			1926	1						
37	↓ B			1663	1						
38	DD1 A			1367 1365 9-4-97	1						
39	↓ B			1808 1375 9-4-97	1						
40	DD3 A			2259	1						
41 9-4-97	↓ B			1816	1						
* 42	DD3 B 9-4-97			1879	1						

Instrument Model & s/n: L2221 / 78163 (J)

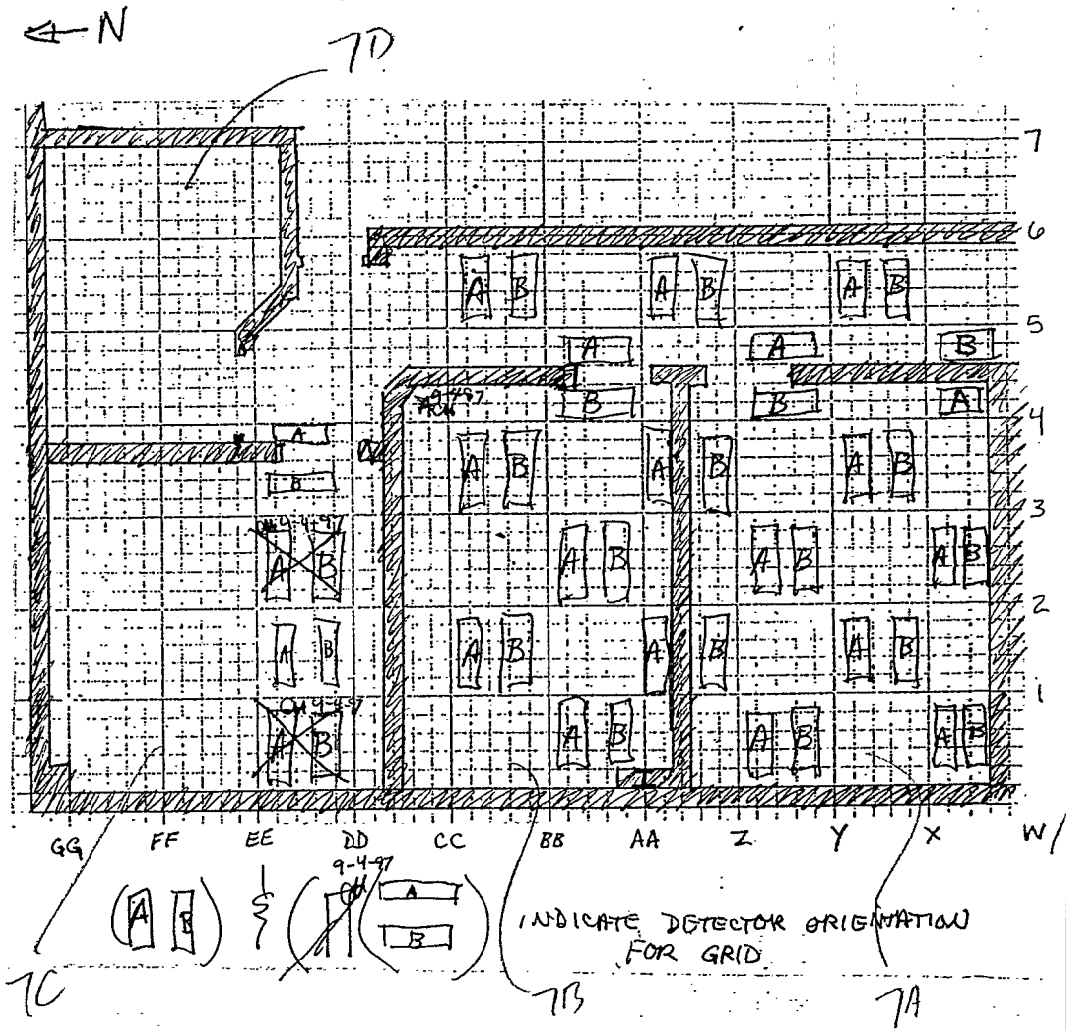
Detector Model & s/n: L43-37 / 124940

Calibration Date: 2/7/97

Efficiency: 0.19

Detector Area: 425 cm²

cpm / dpm based on CM2



Background	Counts	Ct Time (min)	Rb	Date
BG	6356	5	1271	9-4-97

ION TECHNOLOGY, INC. C. HALLAM

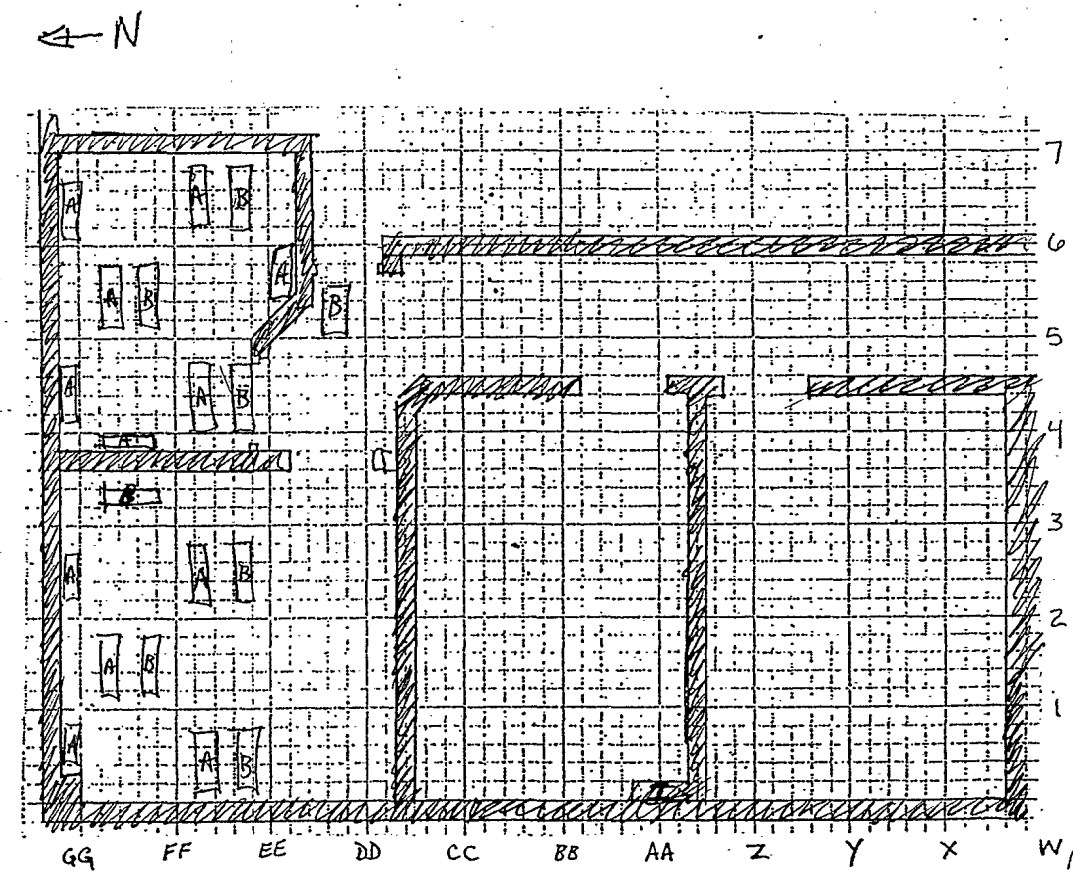
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9-4-97
ANALYSIS DATE:
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey OF AREAS 7C, 7D 1ST FLOOR OFFICES

SURVEY # ~~70-04~~ 9-5-97 701 X = DUPLICATE

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	DD5 A	FLOOR	β0	1460	1						
2	B			2166	1						
3	EE0 A			1533	1						
4	B			1326	1						
5	EE2 A			1700	1						
6	B			1528	1						
7	EE4 A			1785	1						
8	B			1427	1						
9	EE6 A			1785	1						
10	B			2125	1						
11	FF1 A			1530	1						
12	B			2062	1						
13	FF3 A			1272	1						
14	B			1447	1						
15	FF5 A			1517	1						
16	B			1950	1						
17	GG0 A			1767	1						
18	GG2 A			1470	1						
19	GG4 A			1323	1						
20	GG6 A			1716	1						
X 21	GG6 A			1737	1						
22					1						
23					1						
24					1						
25					1						
26					1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						



INDICATE DETECTOR ORIENTATION FOR GRID

Instrument Model & s/n: L2221 / 78163 (J)
Detector Model & s/n: L43-37 / 124940
Calibration Date: 2-7-97
Efficiency: 0.19 cpm / dpm based on CM2
Detector Area: 425 cm²

Background	Counts	Ct Time (min)	Rb	Date
A	6356	5	1271	9-4-97

SURVEY # 702

ION TECHNOLOGY, INC.

C. HALLAM

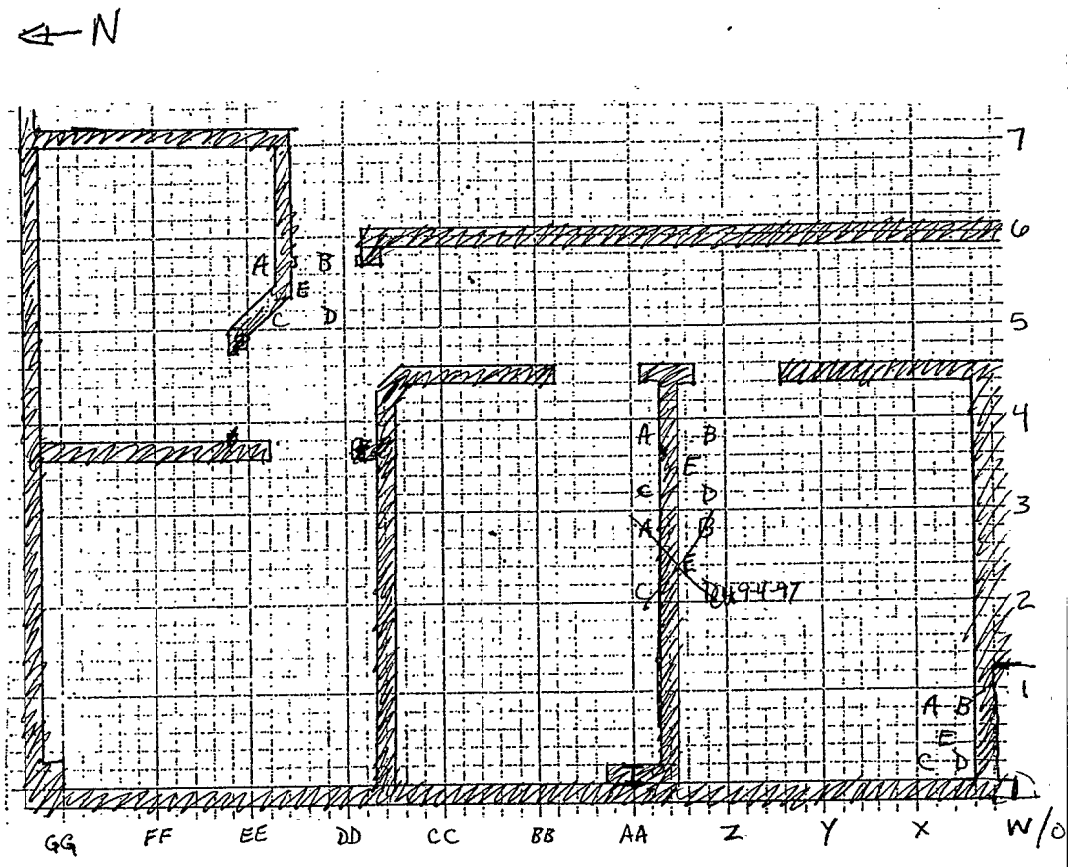
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

* = DUPLICATE

SAMPLE DATE: 9-4-97
ANALYSIS DATE:
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey OF AREAS 7A, 7B, 7C, 7D 1ST FLOOR OFFICES

RADIATION MEASUREMENT: Alpha
RESULTS REPORTED UNITS: DPM per 100cm2
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	W0 A	FLOOR	A	0	1						
2	B		A	1	1						
3	C		A	1	1						
4	D		A	0	1						
5	E		A	0	1						
6	Z3 A		A	0	1						
7	B		A	3	1						
8	C		A	1	1						
9	D		A	0	1						
10	E		A	2	1						
11	DD5 A		A	3	1						
12	B		A	2	1						
13	C		A	0	1						
14	D		A	3	1						
15	E		A	1	1						
16	FF1 A		A	3	1						
17	B		A	1	1						
18	C		A	1	1						
19	D		A	4	1						
20	E		A	1	1						
* 21	FF1 E		A	1	1						
22			A		1						
23			A		1						
24			A		1						
25			A		1						
26			A		1						
27			A		1						
28			A		1						
29			A		1						
30			A		1						
31			A		1						
32			A		1						
33			A		1						
34			A		1						
35			A		1						
36			A		1						
37			A		1						
38			A		1						
39			A		1						
40			A		1						



A B / C E D = INDICATES SURVEY POINT ORIENTATION FOR GRID

Instrument Model & s/n:	ESP-1 s/n: 03027		
Detector Model & s/n:	43-5 s/n: 88087		
Calibration Date:	2/10/97		
Efficiency A (Alpha): 0.13		cpm / dpm based on Th230	
Detector Area:	50	CM2	

Background	Counts	Ct Time (min)	Rb	Date
Alpha	1	1	###	9-4-97

A_BLANK.XLS

HILBE SSOCIATES, INC. C. HALLAM

SURVEY # 703

SMEAR MEASURE...NT ANALYSIS REPORT

VERIFICATION

SAMPLE DATE: 9-5-97
ANALYSIS DATE: 9-5-97/0255
LOCATION: B14 PRAXAIR AREAS 7A, 7B, 7C, 7D (1ST FLOOR OFFICES)

RADIATION MEASUREMENT: Alpha and Beta-gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	W0	FLOOR	A	0	1 MIN					+/-		
1	↓		BG	72						+/-		
2	W2		A	0						+/-		
2	↓		BG	42						+/-		
3	W4		A	2						+/-		
3	↓		BG	61						+/-		
4	X1		A	1						+/-		
4	↓		BG	58						+/-		
5	X3		A	0						+/-		
5	↓		BG	56						+/-		
6	X5		A	0						+/-		
6	↓		BG	62						+/-		
7	Y0		A	1						+/-		
7	↓		BG	74						+/-		
8	Y2		A	1						+/-		
8	↓		BG	48						+/-		
9	Y4		A	0						+/-		
9	↓		BG	52						+/-		
10	Z1		A	0						+/-		
10	↓		BG	52						+/-		
11	Z3		A	0						+/-		
11	↓		BG	51						+/-		
12	Z5		A	0						+/-		
12	↓		BG	54						+/-		
13	AA0		A	0						+/-		
13	↓		BG	45						+/-		
14	AA2		A	0						+/-		
14	↓		BG	63						+/-		
15	AA4		A	0						+/-		
15	↓		BG	66						+/-		
16	BB1		A	1						+/-		
16	↓		BG	62						+/-		
17	BB3		A	0						+/-		
17	↓		BG	69						+/-		
18	BB5		A	0						+/-		
18	↓		BG	57						+/-		
19	DD1		A	0						+/-		
19	↓		BG	58						+/-		
20	DD3		A	1						+/-		
20	↓		BG	51						+/-		

Instrument Model & s/n: L2929 /I
Detector Model & s/n:
Calibration Date: 2-7-97
Efficiency BG (Beta/Gamma): 0.28 cpm / dpm based on S/Y90
Efficiency A (Alpha): 0.22 cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha	129	700	0.18	9-4-97
Beta-Gamma	42473	700	61	9-4-97

HILBE. .SSOCIATES, INC. 9-5-97

SURVEY # ~~708~~ 704 C. WALLAM

SAMPLE DATE: 9-5-97

ANALYSIS DATE: 9-5-97/0255

LOCATION: B14 PRAXAIR AREAS 7A, 7B, 7C, 7D (1ST FLOOR OFFICES)

SMEAR MEASURE...NT ANALYSIS REPORT

VERIFICATION

RADIATION MEASUREMENT: Alpha and Beta-gamma

RESULTS REPORTED UNITS: dpm per 100cm2

MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	DD5	FLOOR	A	0	1 MIN					+/-		
1	↓		BG	77						+/-		
2	EE0		A	0						+/-		
2	↓		BG	39						+/-		
3	EE2		A	0						+/-		
3	↓		BG	55						+/-		
4	EE4		A	1						+/-		
4	↓		BG	55						+/-		
5	EE6		A	0						+/-		
5	↓		BG	61						+/-		
6	FF1		A	0						+/-		
6	↓		BG	53						+/-		
7	FF3		A	1						+/-		
7	↓		BG	62						+/-		
8	FF5		A	0						+/-		
8	↓		BG	63						+/-		
9	GG0		A	2						+/-		
9	↓		BG	65						+/-		
10	GG2		A	0						+/-		
10	↓		BG	59						+/-		
11	GG4		A	0						+/-		
11	↓		BG	57						+/-		
12	GG6		A	2						+/-		
12	↓		BG	59						+/-		
13			A							+/-		
13			BG							+/-		
14			A							+/-		
14			BG							+/-		
15			A							+/-		
15			BG							+/-		
16			A							+/-		
16			BG							+/-		
17			A							+/-		
17			BG							+/-		
18			A							+/-		
18			BG							+/-		
19			A							+/-		
19			BG							+/-		
20			A							+/-		
20			BG							+/-		

Instrument Model & s/n: L2929/I

Detector Model & s/n:

Calibration Date: 2-7-97

Efficiency BG (Beta/Gamma): 0.28 cpm / dpm based on S/Y90

Efficiency A (Alpha): 0.32 cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha	129	100	0.18	9-4-97
Beta-Gamma	42473	100	61	9-4-97

7a, b, c, d

ION TECHNOLOGY, INC. SURVEY # 714
C. HALLAM

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9-8-97
ANALYSIS DATE: 9-8-97
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey OF AREA 7A / 1ST FLOOR OFFICE WALLS / CEILING

VERIFICATIONS

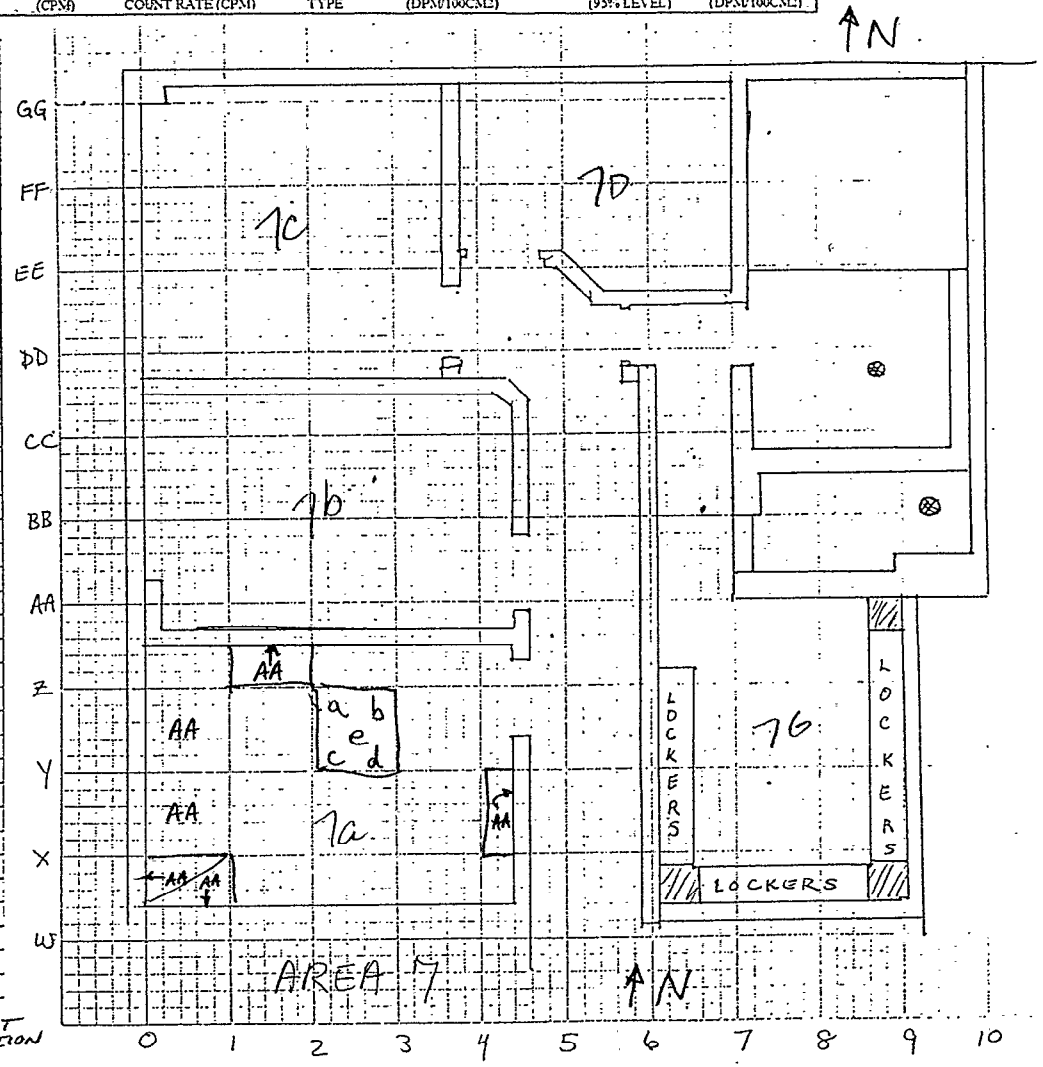
* = DUPLICATE

RADIATION MEASUREMENT: BETA GAMMA
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	W0 a	7A WEST WALL (AA/0-1 meter)	BG	81	1						
2	b			90	1						
3	c			90	1						
4	d			75	1						
5	e			95	1						
6	X0 a	WEST WALL / AA		74	1						
7	b			81	1						
8	c			106	1						
9	d			80	1						
10	e			75	1						
11	Y0 a	WEST WALL / AA		73	1						
12	b			92	1						
13	c			112	1						
14	d			99	1						
15	e			67	1						
16	W0 a	SOUTH WALL / AA		52	1						
17	b			65	1						
18	c			46	1						
19	d			58	1						
20	e			57	1						
* 21	W0 e	SOUTH WALL / AA DUPLICATE		65	1						
22	Z1 a	NORTH WALL / AA		65	1						
23	b			64	1						
24	c			56	1						
25	d			71	1						
26	e			61	1						
27	X4 a	EAST WALL / AA		62	1						
28	b			67	1						
29	c			51	1						
30	d			79	1						
31	e			70	1						
* 32	X4 e	EAST WALL / AA		64	1						
33	Y2 a	CEILING		52	1						
34	b			47	1						
35	c			61	1						
36	d			59	1						
37	e			58	1						
38					1						
39					1						
40					1						

↑ facing wall [a b c e d] = SURVEY WALL POINT ORIENTATION

↑N facing ceiling [a b c e d] = SURVEY CEILING POINT ORIENTATION



Instrument Model & s/n: L2221 / D / 86313
Detector Model & s/n: L44-9 / 91740
Calibration Date: 8-12-97
Efficiency ~~A (Alpha)~~: 0.19 cpm / dpm based on SV490
Detector Area: 15.5 CM2

Background	Counts	CI Time (min)	Rb	Date
BETA GAMMA	316	5	63	9-8-97

ION TECHNOLOGY, INC. SURVEY # 715 C. HALLAM

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

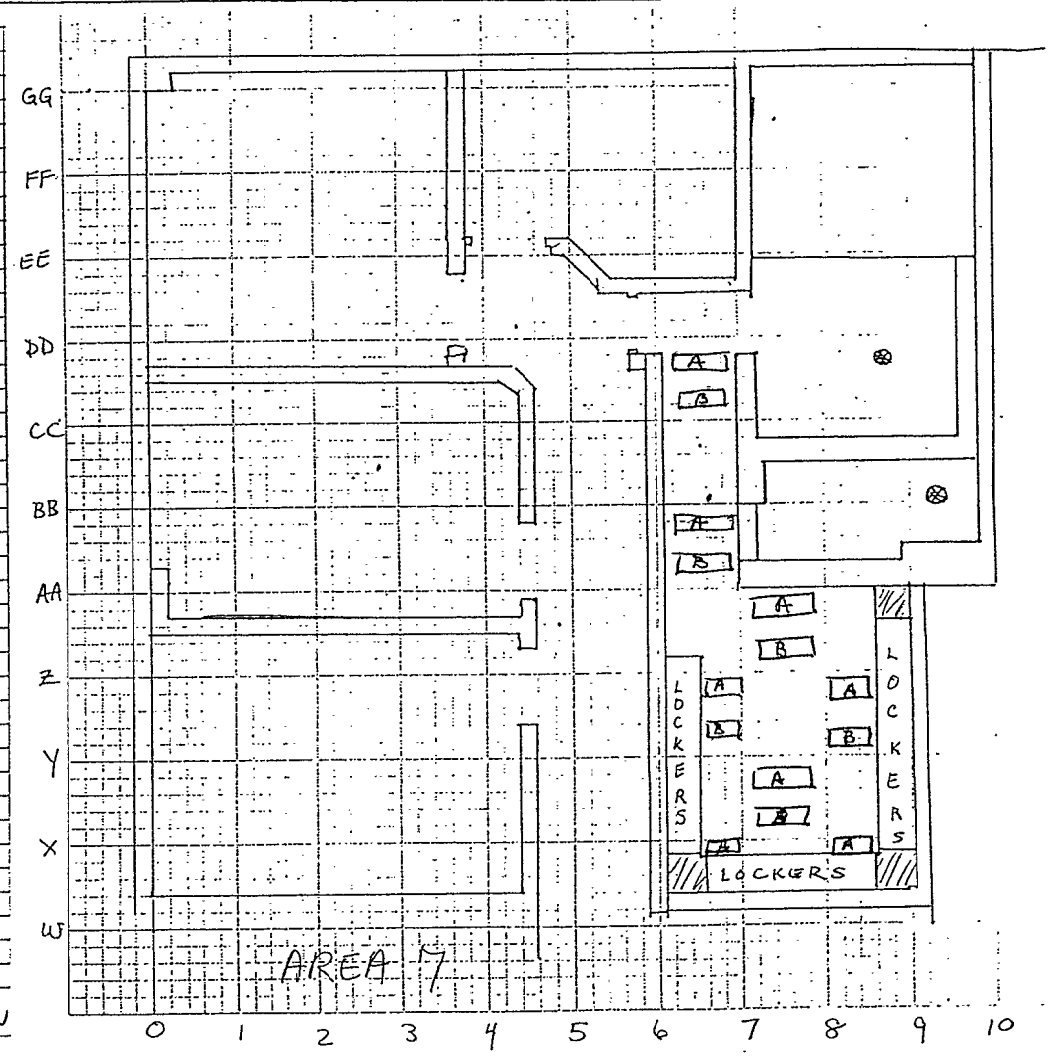
VERIFICATION

SAMPLE DATE: 9-8-97
ANALYSIS DATE: 9-8-97
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey OF AREA 7G/1ST FLOOR OFFICES / FLOOR

RADIATION MEASUREMENT: BETA GAMMA
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	W6 A	FLOOR 7G	BG	2081	1						
2	W8 A	/		1610	1						
3	X7 A			1541	1						
4	B			1546	1						
5	Y6 A			1908	1						
6	B			1613	1						
7	Y8 A			1666	1						
8	B			1729	1						
9	Z7 A			2424	1						
10	B			1571	1						
11	AA6 A			1446	1						
12	B			1648	1						
13	CC6 A			2165	1						
14	B			2441	1						
* 15	CC6 B			2492	1						
16					1						
17					1						
18					1						
19					1						
20					1						
21					1						
22					1						
23					1						
24					1						
25					1						
26					1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						

* = DUPLICATE BG = BETA, GAMMA A/B = DETECTOR ORIENTATION



Instrument Model & s/n: LZ221
Detector Model & s/n: L43-37
Calibration Date: 2-7-97
Efficiency ~~A (Alpha)~~: 0.20 cpm / dpm based on Sr/90
Detector Area: 425 CM2

Background	Counts	Ct Time (min)	Rb	Date
BG	10908	10	1091	9-8-97

ION TECHNOLOGY, INC. SURVEY # 716 C. HALLAM

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

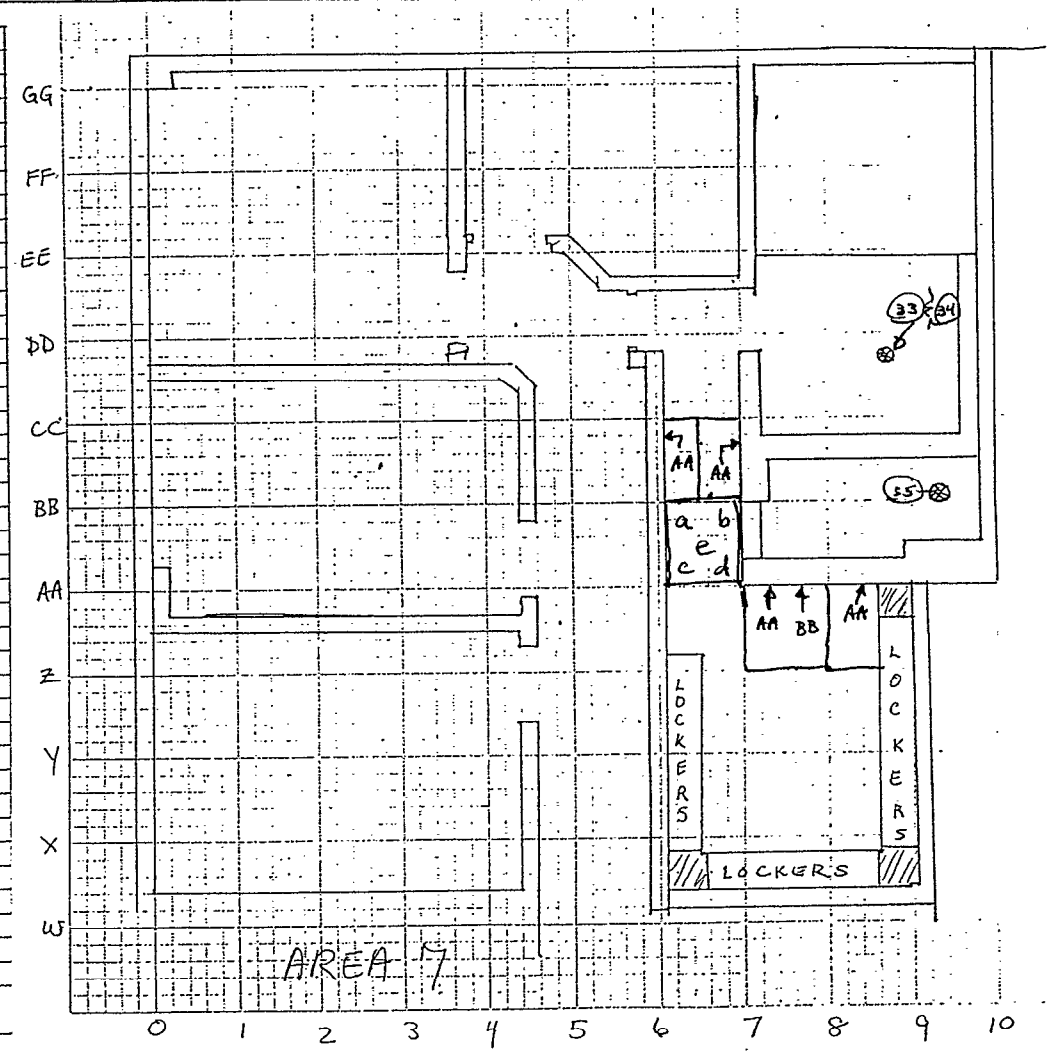
VERIFICATIONS

* = DUPLICATE

SAMPLE DATE: 9-8-97
ANALYSIS DATE: 9-8-97
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey AREA 7G / 1ST FLOOR OFFICES WALLS & CEILING & DRAINS

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	Z7 a	AREA 7G NORTH WALL/AA (0-1 meter) BG		81	1						
2	b			78	1						
3	c			80	1						
4	d			94	1						
5	e			88	1						
6	Z7 a	AREA 7G NORTH WALL/BB (1-2 meter)		74	1						
7	b			89	1						
8	c			66	1						
9	d			81	1						
10	e			82	1						
11	Z8 a	AREA 7G NORTH WALL/AA		112	1						
12	b			96	1						
13	c			102	1						
14	d			95	1						
15	e			101	1						
16	BB6 a	AREA 7G WEST WALL /AA		52	1						
17	b			71	1						
18	c			62	1						
19	d			57	1						
20	e			50	1						
* 21	BB6 c	AREA 7G WEST WALL/AA (DUP)		60	1						
22	BB7 a	AREA 7G EAST WALL AA		65	1						
23	b			60	1						
24	c			67	1						
25	d			59	1						
26	e			70	1						
27	AA6 a	CEILING AREA 7G		70	1						
28	b			79	1						
29	c			68	1						
30	d			81	1						
31	e			72	1						
* 32	AA6 e	CEILING AREA 7G (DUP)		78	1						
33	CC8	AREA 7E DRAIN COVER		62	1						
34		AREA 7E DRAIN INTERNAL		59	1						
35	BB9	AREA 7F DRAIN COVER		40	1						
36					1						
37					1						
38					1						
39					1						
40					1						



Instrument Model & s/n:	L2221 / D / 86313
Detector Model & s/n:	L44-9 / 91740
Calibration Date:	8-12-97
Efficiency ~~A (Alpha)~~: BG	0.19 cpm / dpm based on
Detector Area:	15.5 CM2

Background	Counts	Ct Time (min)	Rb	Date
BETA GAMMA	316	5	63	9-8-97

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SURVEY # 717
C. RALLAM

ION TECHNOLOGY, INC.

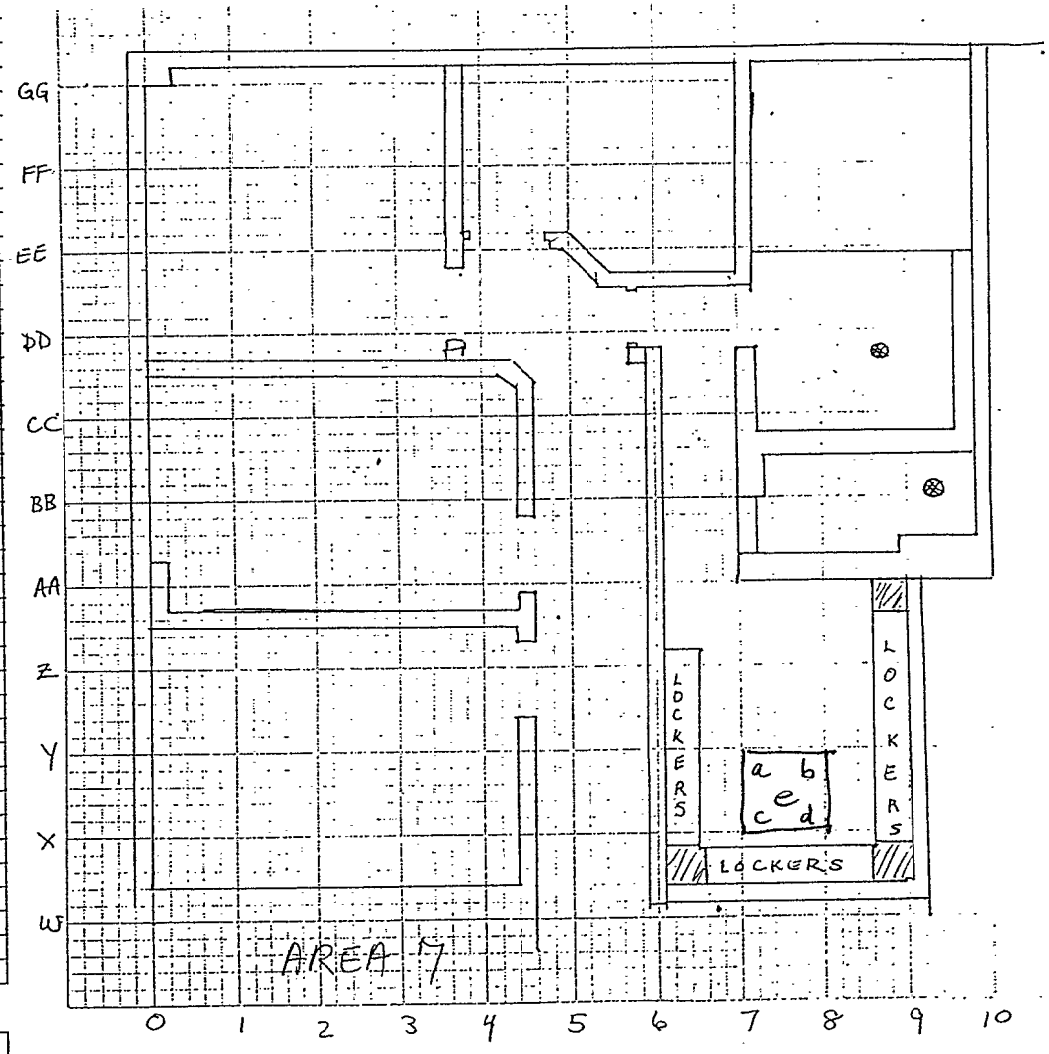
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

VERIFICATIONS

SAMPLE DATE: 9-8-97
ANALYSIS DATE: 9-8-97
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey OF AREA 7G FLOOR / 1ST FLOOR OFFICES

RADIATION MEASUREMENT: Alpha
RESULTS REPORTED UNITS: DPM per 100cm2
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	X7 a	AREA 7G FLOOR	A	3	1						
2	b		A	3	1						
3	c		A	0	1						
4	d		A	1	1						
5	e		A	0	1						
6	X7 e	AREA 7G FLOOR (DUP)	A	1	1						
7			A		1						
8			A		1						
9			A		1						
10			A		1						
11			A		1						
12			A		1						
13			A		1						
14			A		1						
15			A		1						
16			A		1						
17			A		1						
18			A		1						
19			A		1						
20			A		1						
21			A		1						
22			A		1						
23			A		1						
24			A		1						
25			A		1						
26			A		1						
27			A		1						
28			A		1						
29			A		1						
30			A		1						
31			A		1						
32			A		1						
33			A		1						
34			A		1						
35			A		1						
36			A		1						
37			A		1						
38			A		1						
39			A		1						
40			A		1						



Instrument Model & s/n:	ESP-1 s/n: 03027	
Detector Model & s/n:	43-5 s/n: 88087	
Calibration Date:	2/10/97	
Efficiency A (Alpha):	0.13	cpm / dpm based on Th230
Detector Area:	50	CM2

	Background	Counts	Ct Time (min)	Rb	Date
Alpha	9-8-97	1	1	***	9-8-97

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HILBE. SSOCIATES, INC.
C. HALLAM

SURVEY # 718

SMEAR MEASURE...NT ANALYSIS REPORT

SAMPLE DATE: 9-8-97
ANALYSIS DATE:
LOCATION: BH PRAXAIR AREA 7A WALLS & CEILING

VERIFICATION

RADIATION MEASUREMENT: Alpha and Beta-gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	WO AA	9-8-97 ~~WALL~~ WEST WALL	A	0						+/-		
1	↓	↓	BG	53						+/-		
2	XO AA	WEST WALL	A	0						+/-		
2	↓	↓	BG	60						+/-		
3	YO AA	WEST WALL	A	1						+/-		
3	↓	↓	BG	90						+/-		
4	WO AA	SOUTH WALL	A	0						+/-		
4	↓	↓	BG	64						+/-		
5	Z1 AA	NORTH WALL	A	0						+/-		
5	↓	↓	BG	68						+/-		
6	X4 AA	EAST WALL	A	1						+/-		
6	↓	↓	BG	39						+/-		
7	Y2	CEILING	A	0						+/-		
7	↓	↓	BG	73						+/-		
8			A							+/-		
8			BG							+/-		
9			A							+/-		
9			BG							+/-		
10			A							+/-		
10			BG							+/-		
11			A							+/-		
11			BG							+/-		
12			A							+/-		
12			BG							+/-		
13			A							+/-		
13			BG							+/-		
14			A							+/-		
14			BG							+/-		
15			A							+/-		
15			BG							+/-		
16			A							+/-		
16			BG							+/-		
17			A							+/-		
17			BG							+/-		
18			A							+/-		
18			BG							+/-		
19			A							+/-		
19			BG							+/-		
20			A							+/-		
20			BG							+/-		

Instrument Model & s/n: 91234
Detector Model & s/n:
Calibration Date:
Efficiency BG (Beta/Gamma): cpm / dpm based on S/Y90
Efficiency A (Alpha): cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha				
Beta-Gamma				

HILBE. .SSOCIATES, INC.

C. HALLAM SURVEY # 719

SMEAR MEASURE...NT ANALYSIS REPORT

VERIFICATION

SAMPLE DATE: 9-8-97
ANALYSIS DATE: 9-8-97
LOCATION: PRAXAIR BLDG 14 AREA 7G WALLS & CEILING & FLOOR

RADIATION MEASUREMENT: Alpha and Beta-gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	Z7 AA	NORTH WALL (0-1 meter)	A	0						+/-		
1	↓	↓	BG	67						+/-		
2	Z7 BB	NORTH WALL (1-2 meter)	A	0						+/-		
2	↓	↓	BG	65						+/-		
3	Z8 AA	NORTH WALL (0-1 meter)	A	0						+/-		
3	↓	↓	BG	53						+/-		
4	BR6 AA	WEST WALL (0-1 meter)	A	0						+/-		
4	↓	↓	BG	60						+/-		
5	BB7 AA	EAST WALL (0-1 meter)	A	0						+/-		
5	↓	↓	BG	57						+/-		
6	AA6	CEILING	A	0						+/-		
6	↓	↓	BG	54						+/-		
7	W6	FLOOR	A	0						+/-		
7	↓		BG	66						+/-		
8	W8		A	0						+/-		
8	~~W8~~ ↓		BG	68						+/-		
9	X7		A	0						+/-		
9	↓		BG	59						+/-		
10	Y6		A	0						+/-		
10	↓		BG	74						+/-		
11	Y8		A	1						+/-		
11	↓		BG	58						+/-		
12	Z7		A	0						+/-		
12	↓		BG	78						+/-		
13	AA6		A	0						+/-		
13	↓		BG	79						+/-		
14	CC6		A	0						+/-		
14	↓		BG	63						+/-		
15			A							+/-		
15			BG							+/-		
16			A							+/-		
16			BG							+/-		
17			A							+/-		
17			BG							+/-		
18			A							+/-		
18			BG							+/-		
19			A							+/-		
19			BG							+/-		
20			A							+/-		
20			BG							+/-		

Instrument Model & s/n:	91234 / Ludlum 2929	
Detector Model & s/n:	43-10-1 / 85270	
Calibration Date:	Due 2/98	
Efficiency BG (Beta/Gamma):	.28	cpm / dpm based on S/Y90
Efficiency A (Alpha):	.33	cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha	147	100		
Beta-Gamma	43174	100		

HILBE. SSOCIATES, INC. SURVEY # 722 SMEAR MEASURE...NT ANALYSIS REPORT

O'HANLAN

VERIFICATION

SAMPLE DATE: 9-9-97
ANALYSIS DATE:
LOCATION: PRAXAIR BLDG 14 SMALL HALLWAY ~~10~~ 9-9-97 FLOOR, WALLS, CEILING

RADIATION MEASUREMENT: Alpha and Beta-gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	U0	FLOOR	A	0						+/-		
1	↓	↓	BG	63						+/-		
2	U2		A	0						+/-		
2	↓		BG	64						+/-		
3	U4		A	2						+/-		
3	↓		BG	54						+/-		
4	U6		A	0						+/-		
4	↓		BG	61						+/-		
5	U8		A	0						+/-		
5	↓		BG	72						+/-		
6	V4		A	0						+/-		
6	↓		BG	53						+/-		
7	V5		A	0						+/-		
7	↓		BG	59						+/-		
8	V7		A	0						+/-		
8	↓		BG	58						+/-		
9	W0		A	0						+/-		
9	↓		BG	54						+/-		
10	W6		A	0						+/-		
10	↓		BG	49						+/-		
11	W8		A	1						+/-		
11	↓		BG	66						+/-		
12	U5 AA	SOUTH WALL (0-1 meter)	A	2						+/-		
12	↓		BG	68						+/-		
13	W6 AA	NORTHWALL (0-1 meter)	A	0						+/-		
13	↓		BG	56						+/-		
14	V8 AA	EAST WALL (0-1 meter)	A	0						+/-		
14	↓	↓	BG	43						+/-		
15	U5	CEILING	A	0						+/-		
15	↓	↓	BG	53						+/-		
16	X4 AA	WEST WALL (0-1 meter)	A	1						+/-		
16	↓	↓	BG	60						+/-		
17	Z5 AA	EAST WALL (0-1 meter)	A	0						+/-		
17	↓	↓	BG	38						+/-		
18	BB4 AA	WEST WALL (0-1 meter)	A	0						+/-		
18	↓	↓	BG	63						+/-		
19			A							+/-		
19			BG							+/-		
20			A							+/-		
20			BG							+/-		

Instrument Model & s/n: 9124
Detector Model & s/n:
Calibration Date:
Efficiency BG (Beta/Gamma): cpm / dpm based on S/Y90
Efficiency A (Alpha): cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha				
Beta-Gamma				

ION TECHNOLOGY, INC. SURVEY # 727 C. HALLAM.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9-9-97 VERIFICATION 1ST FL

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY SMALL HALLWAYS

Bldg. 14, Final Survey SMALL HALLWAY FLOOR

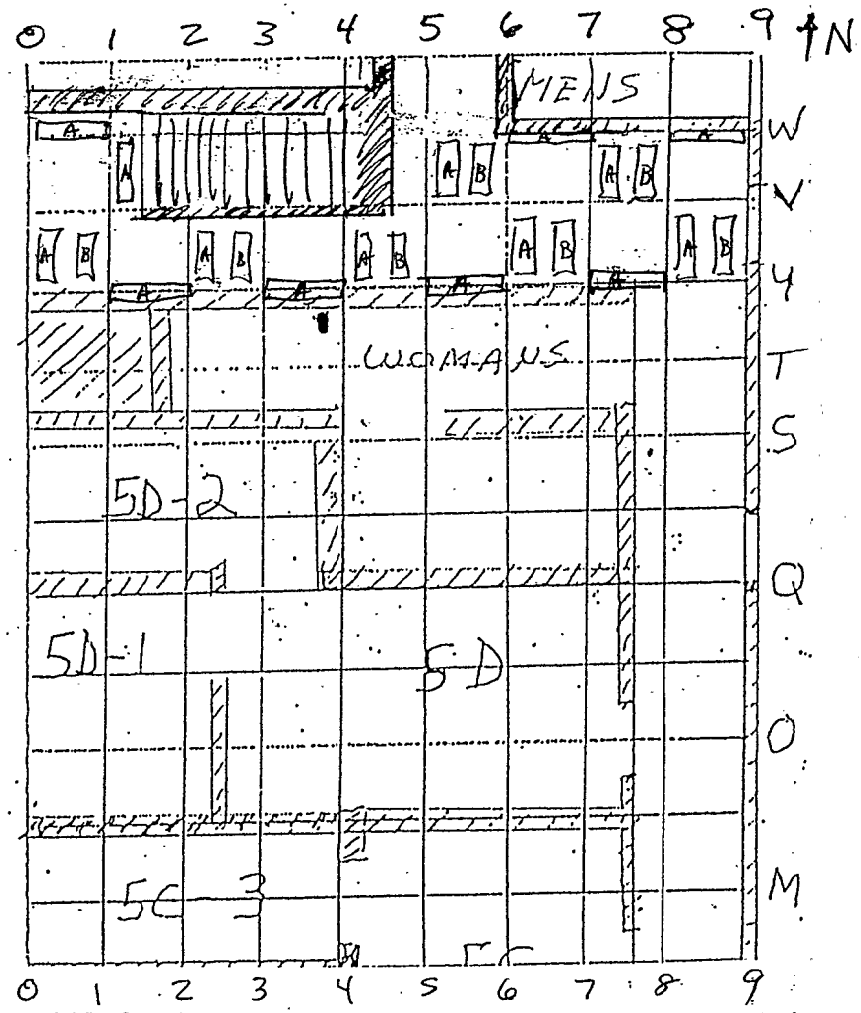
RADIATION MEASUREMENT: BETA GAMMA

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	W0 A	FLOOR	1364		1						
2	B		1365		1						
3	W2 A		1393		1						
4	B		9-24 1514 1511		1						
5	W4 A		1539		1						
6	B		1543		1						
7	W6 A		3913		1						
8	B		2166		1						
9	W8 A		1625		1						
10	B		1575		1						
11	V1 A		1390		1						
12	V5 A		1781		1						
13	B		1816		1						
14	V7 A		1888		1						
15	B		1911		1						
16	W6 A		1919		1						
17	W8 A		1648		1						
18	W0 A	FLOOR	1434		1						
19	T1 A		1385		1						
20	T3 A		1350		1						
21	T5 A		1368		1						
22	T7 A	FLOOR	1435		1						
* 23	T3 A	FLOOR (DUPLICATE)	1346		1						
* 24	T7 A	FLOOR (DUPLICATE)	1425		1						
25					1						
26					1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						

* = DUPLICATE



A B = DETECTOR ORIENTATION FOR GRID

Instrument Model & s/n: L2221/J/78168
Detector Model & s/n: L43-37
Calibration Date: 2-7-7
Efficiency: 0.21
Detector Area: 425
cpm / dpm based on CM2

Background	Counts	CI Time (min)	Rb	Date
BETA GAMMA	11317	10	1132	9-9-97

ION TECHNOLOGY, INC. SURVEY # 728

C. HALLAM

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

VERIFICATION

SAMPLE DATE: 9-9-97

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

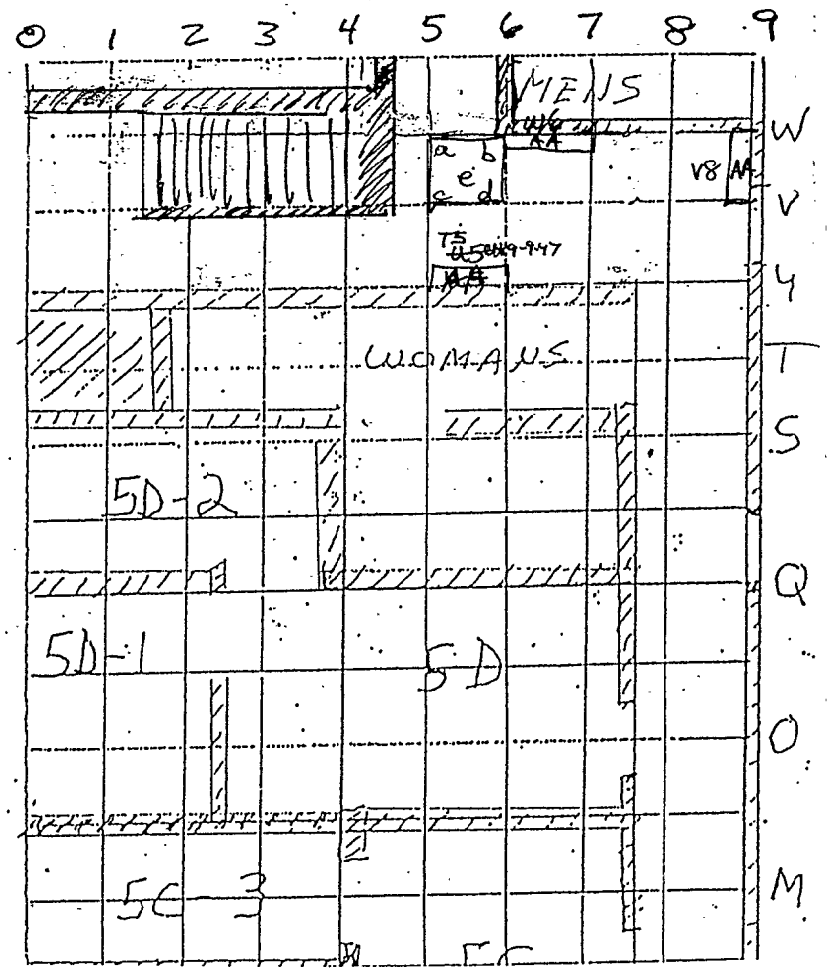
Bldg. 14, Final Survey SMALL HALL WALLS & CEILING

RADIATION MEASUREMENT:

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	U5/AA a	SOUTH WALL (0-1 meter)	BETA GAMMA	60 79	1						
2	b			54 68	1						
3	c			66 107	1						
4	d			59 49	1						
5	e			74 76	1						
6	V8/AA a	EAST WALL (0-1 meter)		79	1						
7	b			68	1						
8	c			107	1						
9	d			49	1						
10	e			76	1						
11	W6/AA a	NORTH WALL (0-1 meter)		62	1						
12	b			58	1						
13	c			68	1						
14	d			59	1						
15	e			70	1						
16	V5 a	CEILING		52	1						
17	b			62	1						
18	c			71	1						
19	d			64	1						
20	e			63	1						
* 21	V5 e	CEILING (DUPLICATE)	BETA GAMMA	67	1						
22					1						
23					1						
24					1						
25					1						
26					1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						



NORTH/UP

a b c d = SURVEY POINT ORIENTATION * = DUPLICATE

Instrument Model & s/n: L2221/D/86313

Detector Model & s/n: L44-9/D/91740

Calibration Date: 5-12-97

Efficiency: 0.19

Detector Area: 15.5

cpm / dpm based on Sr-90

CM2

Background	Counts	Ct Time (min)	Rb	Date
BETA GAMMA	613	10	64	9-9-97

ION TECHNOLOGY, INC. SURVEY # 729

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

CitHALLAM

SAMPLE DATE: 9-9-97

VERIFICATION D

RADIATION MEASUREMENT: BETA GAMMA

ANALYSIS DATE:

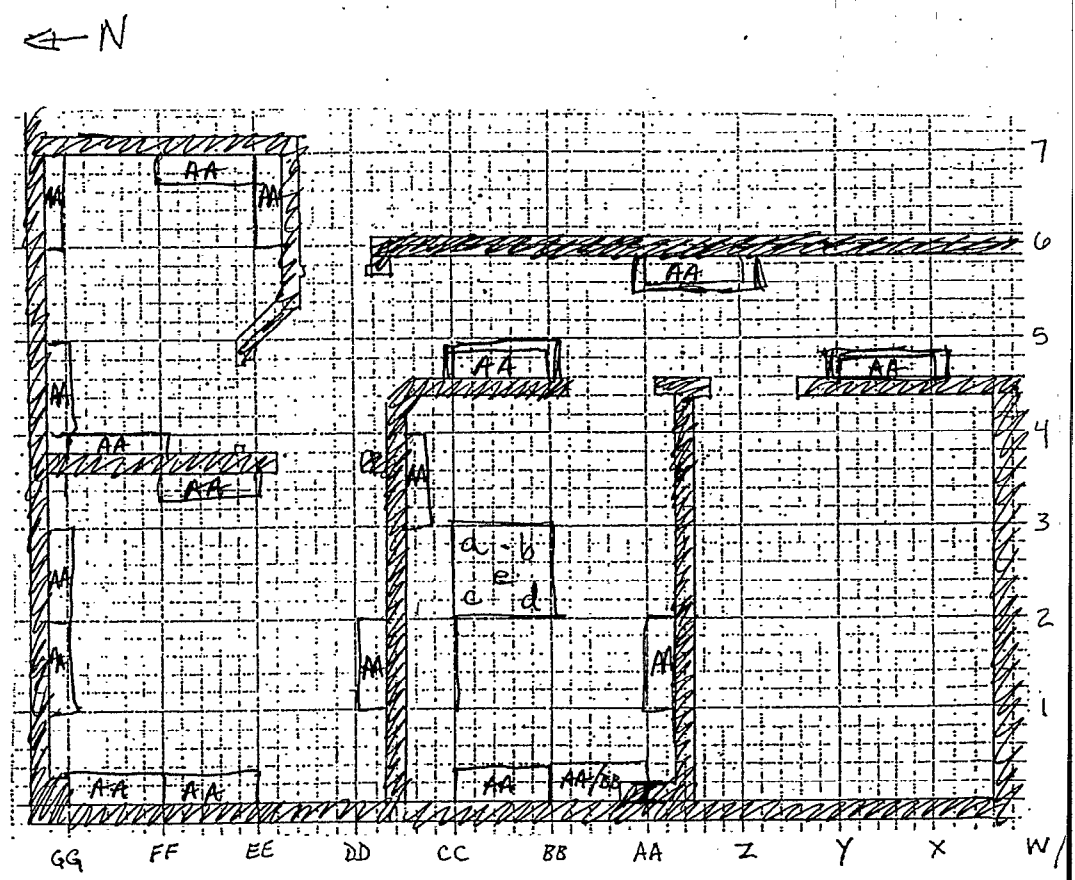
RESULTS REPORTED UNITS:

LOCATION: Praxair, Tonawanda, NY

MEASUREMENT TYPE: Direct Scaler Measurements

Bldg. 14, Final Survey SMALL HALLWAY - WALLS

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	X4/AA a	WEST WALL (0-1 meter)	BG	81	1						
2	b			68	1						
3	c			77	1						
4	d			72	1						
5	e			59	1						
6	Z5/AA a	EAST WALL (0-1 meter)		62	1						
7	b			64	1						
8	c			66	1						
9	d			70	1						
10	e			70	1						
11	BB6/AA a	WEST WALL (0-1 meter)		72	1						
12	b			67	1						
13	c			60	1						
14	d			58	1						
15	e			63	1						
* 16	BB6/AA e	WEST WALL (0-1 meter) DUPLICATE		67	1						
17					1						
18					1						
19					1						
20					1						
21					1						
22					1						
23					1						
24					1						
25					1						
26					1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						



Instrument Model & s/n: L2221/D/86313

Detector Model & s/n: L44-9/D/91740

Calibration Date: 8-12-97

Efficiency: 0.19 cpm / dpm based on Sr/Y90

Detector Area: 15.5 CM2

Background	Counts	Ct Time (min)	Rb	Date
BG	643	10	64	9-9-97

ION TECHNOLOGY, INC. SURVEY #730 C. HALLAM

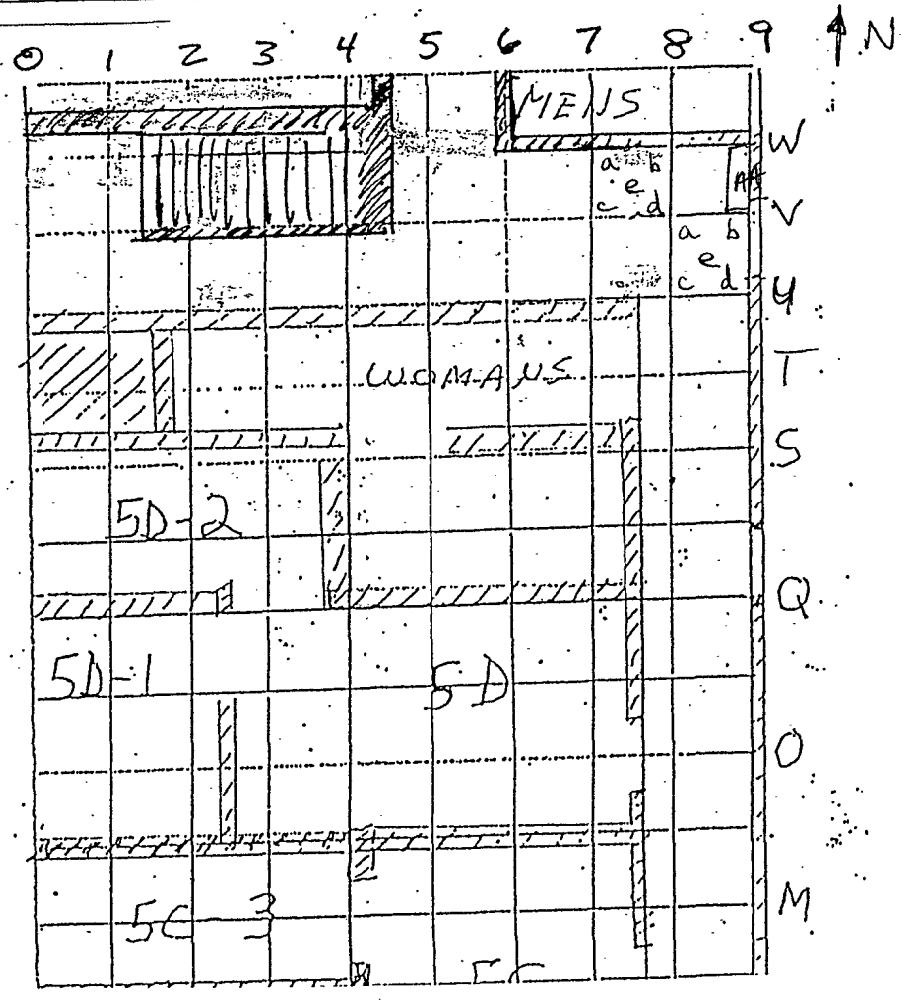
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9-9-97
ANALYSIS DATE:
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey OF SMALL HALL WAY FLOOR & WALLS

VERIFICATION

RADIATION MEASUREMENT: Alpha
RESULTS REPORTED UNITS: DPM per 100cm2
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	W8 a	FLOOR	A	0	1						
2	b		A	1	1						
3	c		A	1	1						
4	d		A	0	1						
5	e		A	2	1						
6	V7 a		A	3	1						
7	b		A	1	1						
8	c		A	3	1						
9	d		A	5	1						
10	e		A	5	1						
* 11	V7 e	FLOOR (DUPLICATE)	A	4	1						
12	V8 a	EAST WALL (0-1 meter)	A	1	1						
13	b		A	2	1						
14	c		A	1	1						
15	d		A	0	1						
16	e		A	2	1						
17			A		1						
18			A		1						
19			A		1						
20			A		1						
21			A		1						
22			A		1						
23			A		1						
24			A		1						
25			A		1						
26			A		1						
27			A		1						
28			A		1						
29			A		1						
30			A		1						
31			A		1						
32			A		1						
33			A		1						
34			A		1						
35			A		1						
36			A		1						
37			A		1						
38			A		1						
39			A		1						
40			A		1						



* = DUPLICATE up/N ↑ | a c e b d | = SURVEY POINT ORIENTATION

Instrument Model & s/n:	ESP-1 s/n: 03027	
Detector Model & s/n:	43-5 s/n: 88087	
Calibration Date:	2/10/97	
Efficiency A (Alpha): 0.12		cpm / dpm based on Th230
Detector Area:	50	CM2

Background	Counts	Ct Time (min)	Rb	Date
Alpha	1	1	***	9-9-97

A_BLANK.XLS

ION TECHNOLOGY, INC. SURVEY # 731

C. HALLAM

SAMPLE DATE: 9-9-97

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey AREA 7B

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

VERIFICATION

WALLS & CEILING

RADIATION MEASUREMENT: BETA GAMMA

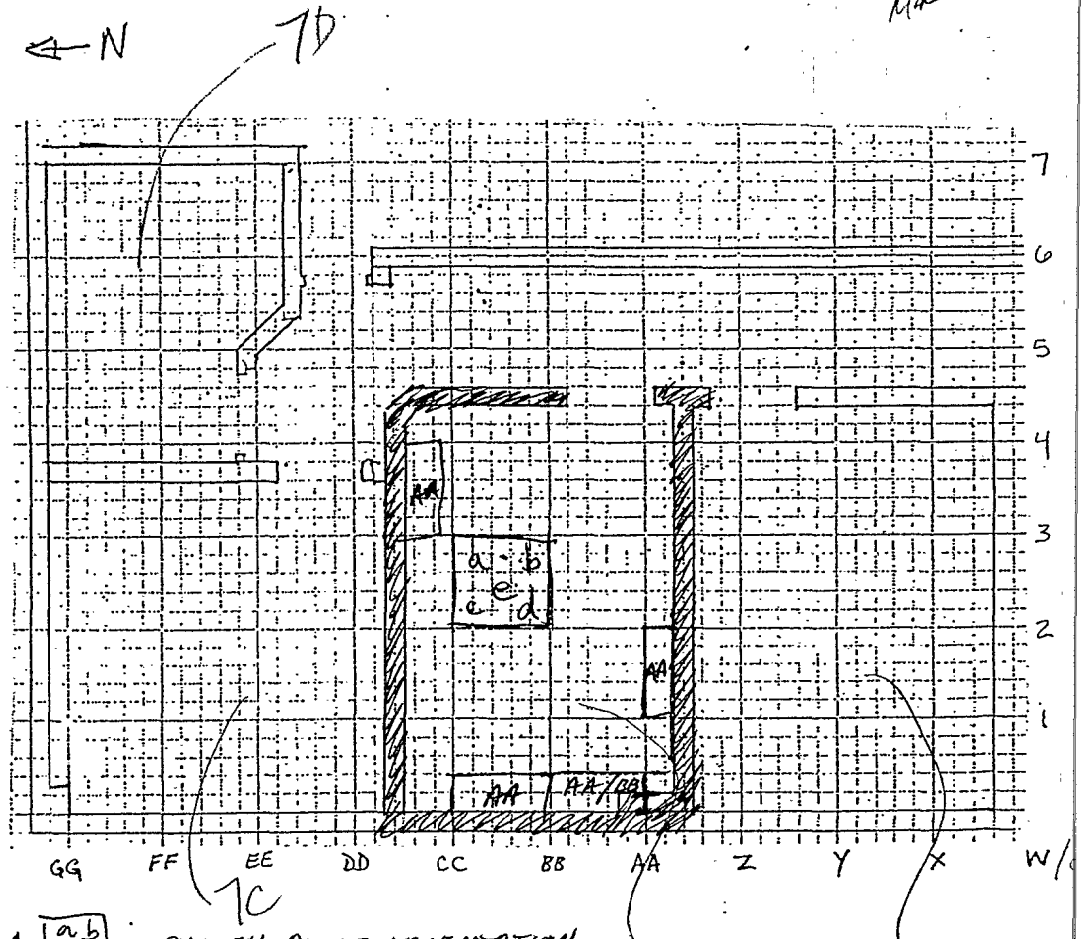
RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

7/11/97 MK

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	Z1/AA a	SOUTH WALL (0-1 meter)	BG	61	1						
2	b			74	1						
3	c			59	1						
4	d			72	1						
5	e			70	1						
6	AA0/AA a	WEST WALL (0-1m) COLUMN		50	1						
7	b			70	1						
8	c	COLUMN		52	1						
9	d			72	1						
10	e			67	1						
11	AA0/BB a	WEST WALL (1-2m) COLUMN		58	1						
12	b			81	1						
13	c	COLUMN		49	1						
14	d			79	1						
15	e			78	1						
16	BB0/AA a	WEST WALL (0-1m)		77	1						
17	b			80	1						
18	c			92	1						
19	d			84	1						
20	e			69	1						
* 21	BB0/AA e	WEST WALL (0-1m) DUP		67	1						
22	CC3/AA a	NORTH WALL (0-1m)		74	1						
23	b			80	1						
24	c			85	1						
25	d			82	1						
26	e			80	1						
27	BB2 a	CEILING		54	1						
28	b			61	1						
29	c			63	1						
30	d			70	1						
31	e			65	1						
* 32	BB2 e	CEILING (DUPLICATE)		69	1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						

* = DUPLICATE



UP a b / c d = SURVEY POINT ORIENTATION FOR GRIDS ON WALL

Instrument Model & s/n:	L2221/D/86313
Detector Model & s/n:	L44-9/D/91740
Calibration Date:	8-12-97
Efficiency:	0.19 cpm / dpm based on Sr/90
Detector Area:	15.5 CM2

Background	Counts	Ct Time (min)	Rb	Date
BG	643	10	64	9-9-97

C. Hallan -

ION TECHNOLOGY, INC. SURVEY # 732 DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9-9-97 VERIFICATION 7D

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey AREA 7D WALLS/1ST FLOOR OFFICES

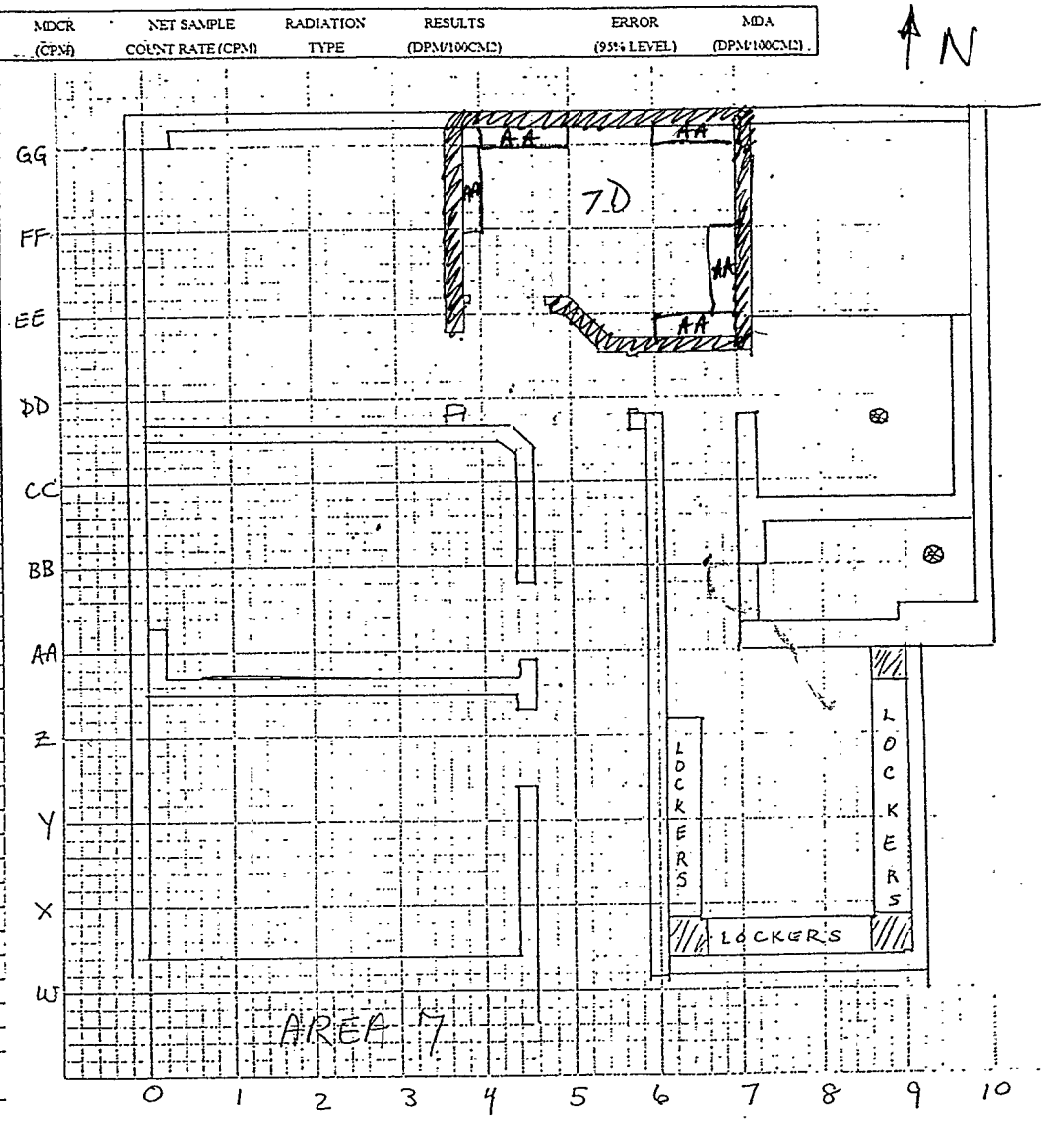
RADIATION MEASUREMENT:

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE#	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	DD6/AA a	SOUTH WALL (0-1meter)	BG	59	1						
2	b			61	1						
3	c			56	1						
4	d			74	1						
5	e			79	1						
6	EE6/AA a	EAST WALL (0-1meter)		61	1						
7	b			58	1						
8	c			74	1						
9	d			67	1						
10	e			65	1						
11	FF3/AA a	WEST WALL (0-1 meter)		89	1						
12	b			82	1						
13	c			79	1						
14	d			62	1						
15	e			68	1						
16	GG4/AA a	NORTH WALL (0-1 meter)		81	1						
17	b			67	1						
18	c			79	1						
19	d			102	1						
20	e			78	1						
21	GG6/AA a	NORTH WALL (0-1 meter)		73	1						
22	b			87	1						
23	c			113	1						
24	d			109	1						
25	e			81	1						
* 26	GG6/AA e	NORTH WALL (0-1m) - DUP.		74	1						
* 27	GG4/AA e	NORTH WALL (0-1m) - DUP		83	1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						

* = DUPLICATE up ↑ [a b / c d] = SURVEY POINT ORIENTATION



Instrument Model & s/n: E2221 / D/86313

Detector Model & s/n: L44-9 / D/91740

Calibration Date: 8-12-97

Efficiency ~~A (Alpha)~~: 0.19 cpm / dpm based on

Detector Area: 15.5 CM2

Background	Counts	Ct Time (min)	Rb	Date
BG	643	10	64	9-9-97

A_BLANKXLS

ION TECHNOLOGY, INC. SURVEY # 784

C. HALLAM

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

VERIFICATION

SAMPLE DATE: 9-10-97

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

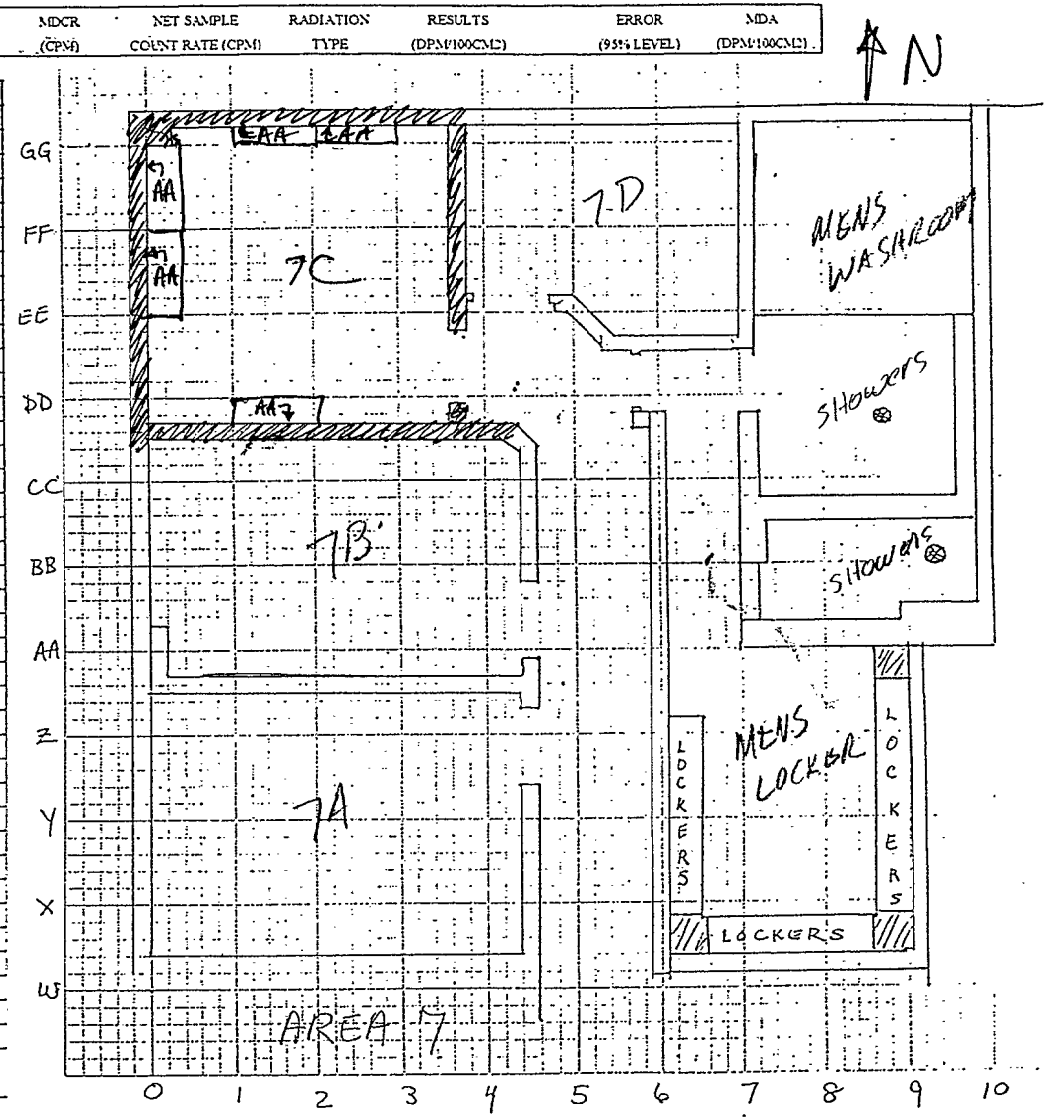
Bldg. 14, Final Survey AREA 7C WALLS / 1ST FLOOR OFFICES

RADIATION MEASUREMENT: BETA GAMMA

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	CC1/AA a	SOUTH WALL (0-1 meter)	BG	56	1						
2	b			66	1						
3	c			65	1						
4	d			78	1						
5	e			48	1						
6	EE0/AA a	WEST WALL (0-1 m)		101	1						
7	b			77	1						
8	c			101	1						
9	d			86	1						
10	e			72	1						
11	FF0/AA a	WEST WALL (0-1 m)		93	1						
12	b			67	1						
13	c			73	1						
14	d			78	1						
15	e			79	1						
16	GG1/AA a	NORTH WALL (0-1 m)		74	1						
17	b			78	1						
18	c			99	1						
19	d			101	1						
20	e			82	1						
21	GG2/AA a	NORTH WALL (0-1 m)		79	1						
22	b			64	1						
23	c			90	1						
24	d			114	1						
25	e			68	1						
* 26	GG2/AA e	NORTH WALL (0-1 m) - DUP		77	1						
* 27	GG1/AA e	NORTH WALL (0-1 m) DUP		84	1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						



up ↑ [a b / c d] = SURVEY POINT ORIENTATION

Instrument Model & s/n: L2221 / D / 86313

Detector Model & s/n: LLL-9 / 91740

Calibration Date: 8-12-97

Efficiency ~~A (Alpha)~~: 0.18 cpm / dpm based on

Detector Area: 15.5 CM2

Background	Counts	Ct Time (min)	Rb	Date
BETA GAMMA	630	10	63	9-10-97

A_BLANK.XLS

ION TECHNOLOGY, INC. SURVEY # 750

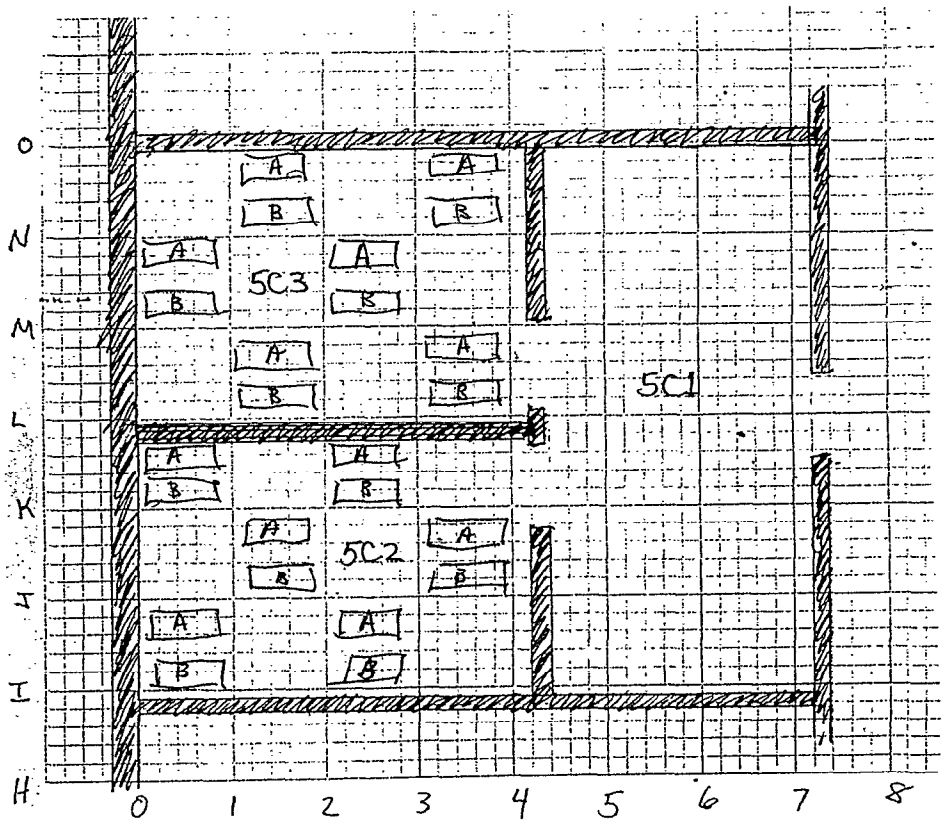
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

VERIFICATION

SAMPLE DATE: ~~9-10-97~~ 9-10-97
ANALYSIS DATE:
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey OF B14 AREA 5C2 & 5C3 FLOORS

RADIATION MEASUREMENT: ~~BETA~~ GAMMA
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	I0 A	FLOOR	BG	1366	1						
2	↓ B			1364	1						
3	I2 A			1387	1						
4	↓ B			1396	1						
5	J1 A			1334	1						
6	↓ B			1345	1						
7	J3 A			1363 1562	1						
8	↓ B			1364 1510	1						
9	K0 A			1363	1						
10	↓ B			1364	1						
11	K2 A			1437	1						
12	↓ B			1392	1						
13	L1 A			1354	1						
14	↓ B			1279	1						
15	L3 A			1545	1						
16	↓ B			1504	1						
17	M0 A			1281	1						
18	↓ B			1295	1						
19	M2 A			1475	1						
20	↓ B			1610	1						
21	N1 A			1277	1						
22	↓ B			1244	1						
23	N3 A			1251	1						
24	↓ B			1303	1						
* 25	N3 B	FLOOR (DUPLICATE)	BG	1337	1						
* 26	M2 B	FLOOR (DUPLICATE)	BG	1595	1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						



= PROBE ORIENTATION FOR GRID

* = DUPLICATE

a b c d

* = DUPLICATE

Instrument Model & s/n: L2221 / J / 78163
Detector Model & s/n: L43-37 / J / 124940
Calibration Date: 2/97
Efficiency ~~A (Alpha)~~: 0.22 cpm / dpm based on
Detector Area: 425 CM2

Background	Counts	Ct Time (min)	Rb	Date
BG	11038	10	1104	9-10-97

ION TECHNOLOGY, INC. SURVEY # 751

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

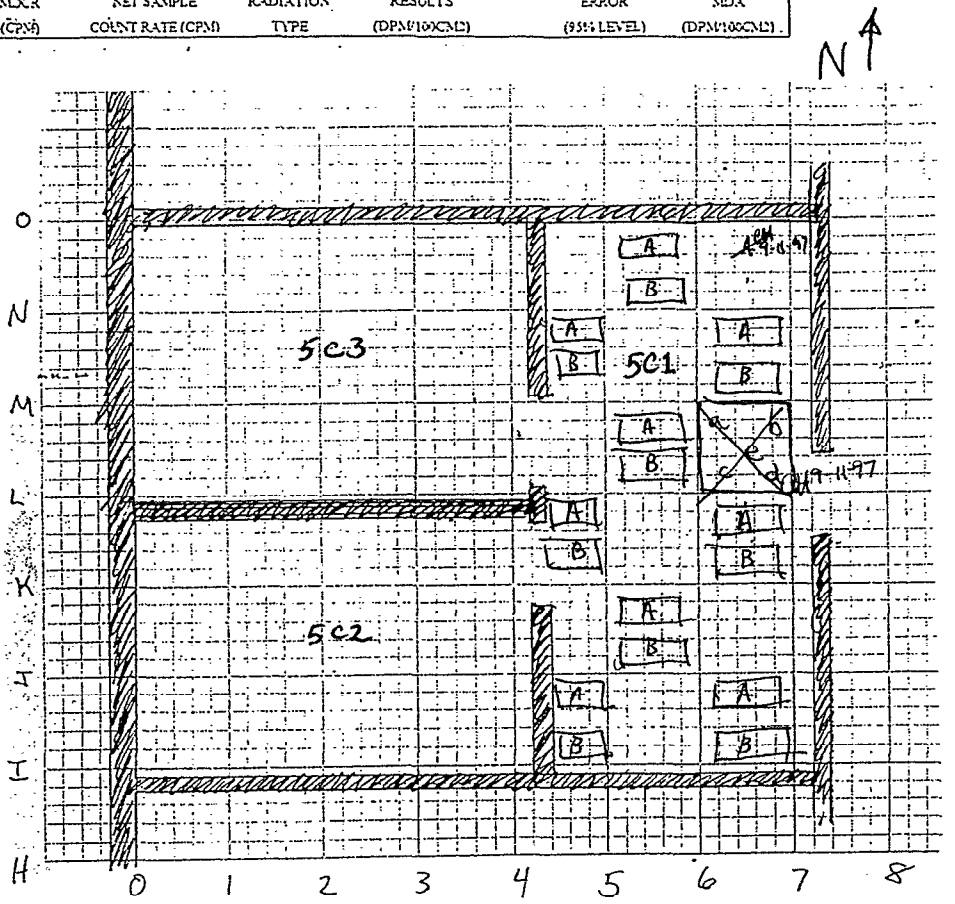
C. HALLAM
SAMPLE DATE: 9-11-97
ANALYSIS DATE:
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey OF AREA 5C1 FLOOR (1ST FLOOR OFFICES)

VERIFICATION

RADIATION MEASUREMENT: ~~BETA GAMMA~~
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	I4	FLOOR	BG	1954	1						
2	↓			2045	1						
3	I6			1939	1						
4	↓			1926	1						
5	J5			1524	1						
6	↓			1562	1						
7	K4			1427	1						
8	↓			1452	1						
9	K6			1766	1						
10	↓			1876	1						
11	L5			1453	1						
12	↓			1534	1						
13	M4			1454	1						
14	↓			1416	1						
15	M6			1797	1						
16	↓			1688	1						
17	N5			1565	1						
18	↓	FLOOR		1564	1						
* 19	N5 B	FLOOR (DUPLICATE)		1608	1						
20					1						
21					1						
22					1						
23					1						
24					1						
25					1						
26					1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						

* = DUPLICATE



Instrument Model & s/n: L2221/J/78163
Detector Model & s/n: L43-37/J/124940
Calibration Date: 2-7-97
Efficiency ~~A (Alpha)~~: BG
Detector Area: 425 CM2
cpm / dpm based on:

Background	Counts	Ct Time (min)	Rb	Date
BG	9490	10	949	9-11-97

ION TECHNOLOGY, INC. SURVEY # 757 DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

C. HALLAM

SAMPLE DATE: 9-15-97

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey OF AREA 5C FLOOR & WALLS (1ST FLOOR OFFICES)

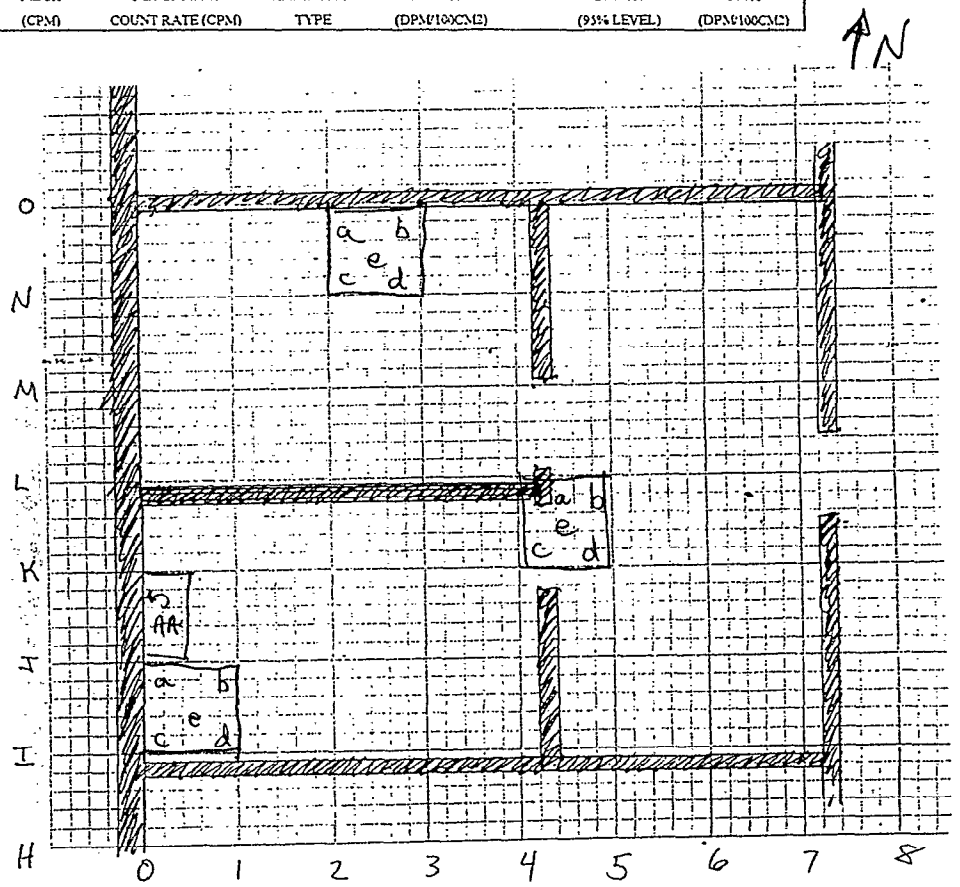
VERIFICATION

RADIATION MEASUREMENT: Alpha

RESULTS REPORTED UNITS: DPM per 100cm2

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	T0 a	FLOOR	A	1	1						
2	b		A	2	1						
3	c		A	0	1						
4	d		A	2	1						
5	e		A	2	1						
6	K4 a	FLOOR	A	4	1						
7	b		A	2	1						
8	c		A	3	1						
9	d		A	3	1						
10	e		A	2	1						
11	N3 a	FLOOR	A	1	1						
12	b		A	2	1						
13	c		A	3	1						
14	d		A	2	1						
15	e		A	4	1						
16	T0/AA a	WEST WALL (0-1 meter)	A	2	1						
17	b		A	1	1						
18	c		A	1	1						
19	d		A	2	1						
20	e	DWG 9-11-97	A	1	1						
* 21	T0/AA e	WEST WALL (0-1 m)	A	1	1						
22		— DUPLICATE —	A		1						
23			A		1						
24			A		1						
25			A		1						
26			A		1						
27			A		1						
28			A		1						
29			A		1						
30			A		1						
31			A		1						
32			A		1						
33			A		1						
34			A		1						
35			A		1						
36			A		1						
37			A		1						
38			A		1						
39			A		1						
40			A		1						



up North = SURVEY POINT ORIENTATION

Instrument Model & s/n:	ESP-1 s/n: 03027
Detector Model & s/n:	43-5 s/n: 88087
Calibration Date:	2/10/97
Efficiency A (Alpha):	0.12 cpm / dpm based on Th230
Detector Area:	50 CM2

Background	Counts	Ct Time (min)	Rb	Date
Alpha	0	1	***	9-15-97

ION TECHNOLOGY, INC. SURVEY # 766

Cittallam

SAMPLE DATE: 9-15-97

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey OF AREA 5C

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

VERIFICATION

WALLS ~~& CEILING~~ 9-15-97

RADIATION MEASUREMENT: BETA GAMMA

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	I0/AA a	WEST WALL (0-1 meter)	BG	57 107 9-15-97	1						
2	b	5C		64 130 9-15-97	1						
3	c			83	1						
4	d			99	1						
5	e			61	1						
6	J0/AA a	WEST WALL (0-1m)		80	1						
7	b			97	1						
8	c			126	1						
9	d			85	1						
10	e			69	1						
11	K2/AA a	NORTH WALL (0-1m)		62	1						
12	b			49	1						
13	c			57	1						
14	d			58	1						
15	e			42	1						
16	I7/AA a	EAST WALL (0-1m)		71	1						
17	b			73	1						
18	c			48	1						
19	d			53	1						
20	e			57	1						
* 21	I7/AA e	EAST WALL (0-1m) - DUPLICATE		61	1						
22	N0/AA a	NORTH WALL (0-1m)		44	1						
23	b			37	1						
24	c			74	1						
25	d			65	1						
26	e			52	1						
27	L0/AA a	WEST WALL (0-1m)		75	1						
28	b			101	1						
29	c			86	1						
30	d			57	1						
31	e			68	1						
32	N0/AA a	WEST WALL (0-1m)		56	1						
33	b			65	1						
34	c			97	1						
35	d			127	1						
36	e			53	1						
37	N1/AA a	NORTH WALL (0-1m)		48	1						
38	b			55	1						
39	c			33	1						
40	d			58	1						
41	e			60							
* 42	N1/AA e	NORTH WALL (0-1m) - DUPLICATE		58							

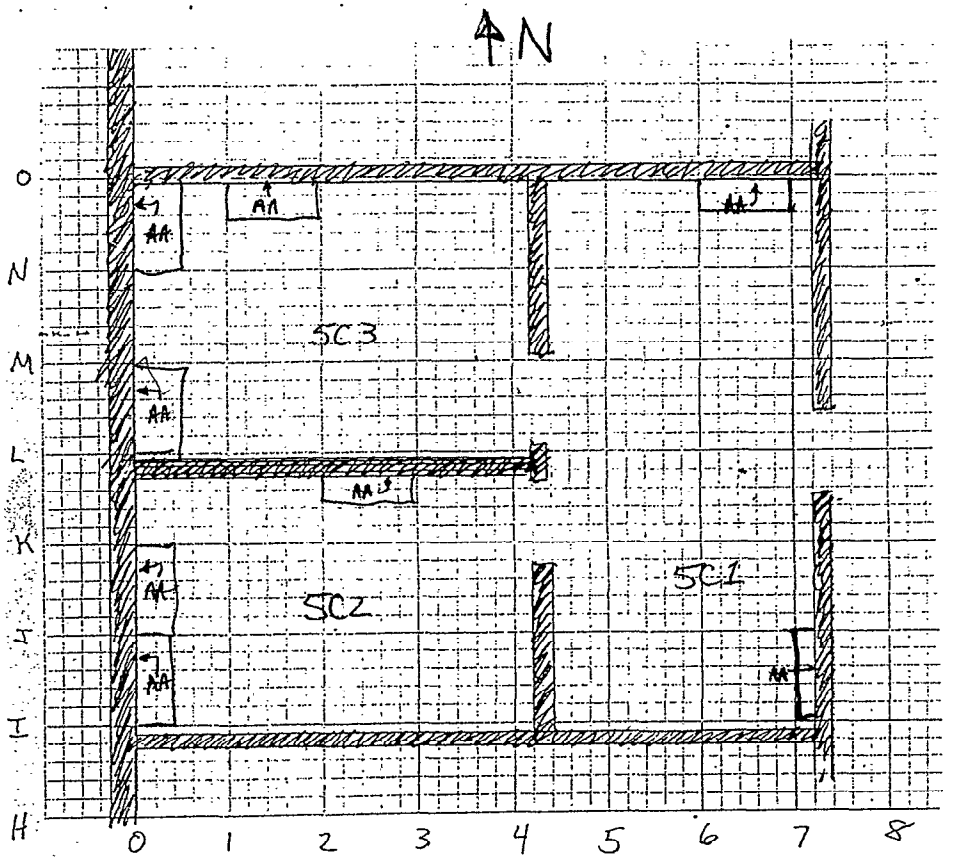
Instrument Model & s/n: L2221 / B / 86308

Detector Model & s/n: L44-9 / 018267

Calibration Date: 2-7-97

Efficiency ~~A (Alpha)~~ 0.21 cpm / dpm based on

Detector Area: 15.5 CM2



↑ up [a b / c e d] = SURVEY PT. ORIENTATION FOR GRID

* = DUPLICATE

Background	Counts	Ct Time (min)	Rb	Date
BG	531	10	53	9-15-97

ION TECHNOLOGY, INC. SURVEY # 775

C. HALLAM

SAMPLE DATE: 9-15-97

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey SMALL HALL FLOOR

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

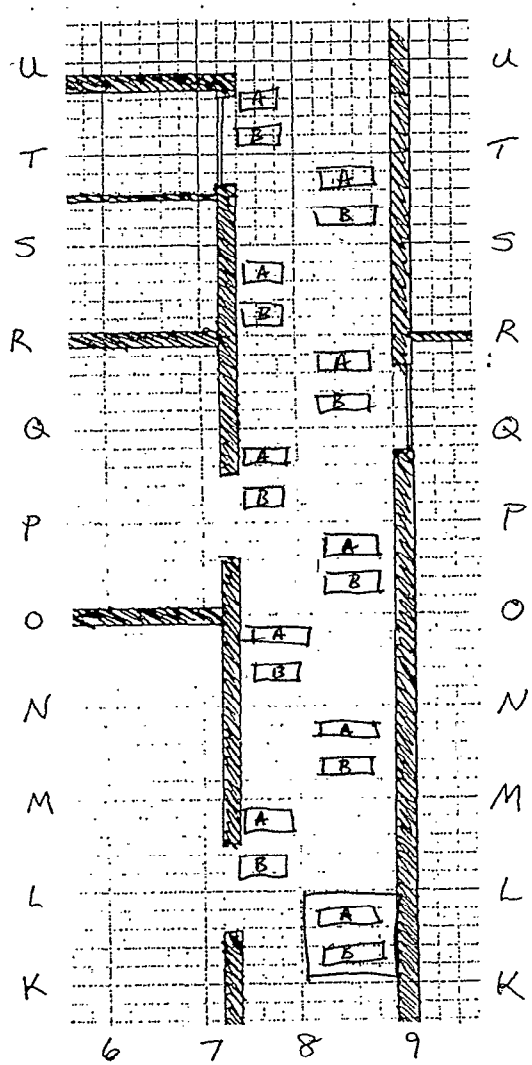
VERIFICATION SMALL HALLWAY

RADIATION MEASUREMENT: BG.

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	K8 A	FLOOR	BG	1717	1						
2	B			1558	1						
3	L7 A			1379	1						
4	B			1439	1						
5	M8 A			1637	1						
6	B			1591	1						
7	N7 A			1417	1						
8	B			1454	1						
9	O8 A			1537	1						
10	B			1480	1						
11	P7 A			1367	1						
12	B			1381	1						
13	Q8 A			1499	1						
14	B			1514	1						
15	R7 A			1318	1						
16	B			1450	1						
17	S8 A			1365	1						
18	B			1382	1						
19	T7 A			1326	1						
20	B			1400	1						
* 21	T7 B	(DUPLICATE)		1395	1						
22					1						
23					1						
24					1						
25					1						
26					1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						



Instrument Model & s/n: L2221/J/78163 (1) FLOOR MONITOR

Detector Model & s/n: 43-37/J/124940

Calibration Date: 2-7-97

Efficiency ~~Alpha~~: 0.22 cpm / dpm based on

Detector Area: 425 CM2

Background	Counts	CI Time (min)	Rb	Date
BETA GAMMA	10379	10	1038	9-15-97

ION TECHNOLOGY, INC. SURVEY # 776

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

C. HALLAM

SAMPLE DATE: 9-16-97

ANALYSIS DATE:

VERIFICATION

LOCATION: Praxair, Tonawanda, NY

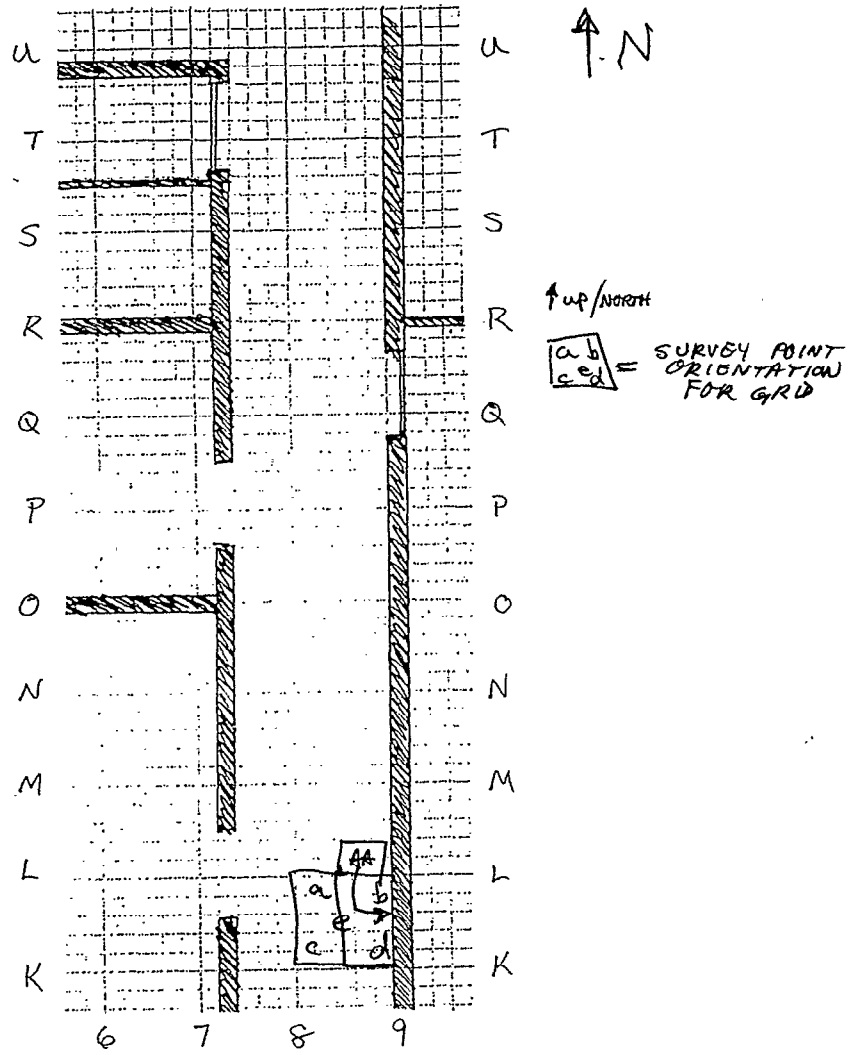
Bldg. 14, Final Survey OF SMALL HALL WALLS & FLOOR

RADIATION MEASUREMENT: Alpha

RESULTS REPORTED UNITS: DPM per 100cm2

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	KB a	FLOOR	A	3	1						
2	b		A	1	1						
3	c		A	4	1						
4	d		A	2	1						
5	e		A	3	1						
6	KB/AA a	EAST WALL (0-1 meter)	A	2	1						
7	b		A	1	1						
8	c		A	1	1						
9	d		A	2	1						
10	e		A	1	1						
* 11	KB/AA e	DUPLICATE	A	2	1						
12			A		1						
13			A		1						
14			A		1						
15			A		1						
16			A		1						
17			A		1						
18			A		1						
19			A		1						
20			A		1						
21			A		1						
22			A		1						
23			A		1						
24			A		1						
25			A		1						
26			A		1						
27			A		1						
28			A		1						
29			A		1						
30			A		1						
31			A		1						
32			A		1						
33			A		1						
34			A		1						
35			A		1						
36			A		1						
37			A		1						
38			A		1						
39			A		1						
40			A		1						



Instrument Model & s/n:	ESP-1 s/n: 03027	
Detector Model & s/n:	43-5 s/n: 88087	
Calibration Date:	2/10/97	
Efficiency A (Alpha):	9-16-97 ~~0.12~~ 0.13	cpm / dpm based on Th230
Detector Area:	50	CM2

Background	Counts	Ct Time (min)	Rb	Date
Alpha	~~0~~ 1	1	###	9-16-97

9-16-97

A_BLANK.XLS

ION TECHNOLOGY, INC. SURVEY # 777

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

C. HALLAM

SAMPLE DATE: 9-16-97

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey OF AREA 5D 5D1 FLOORS

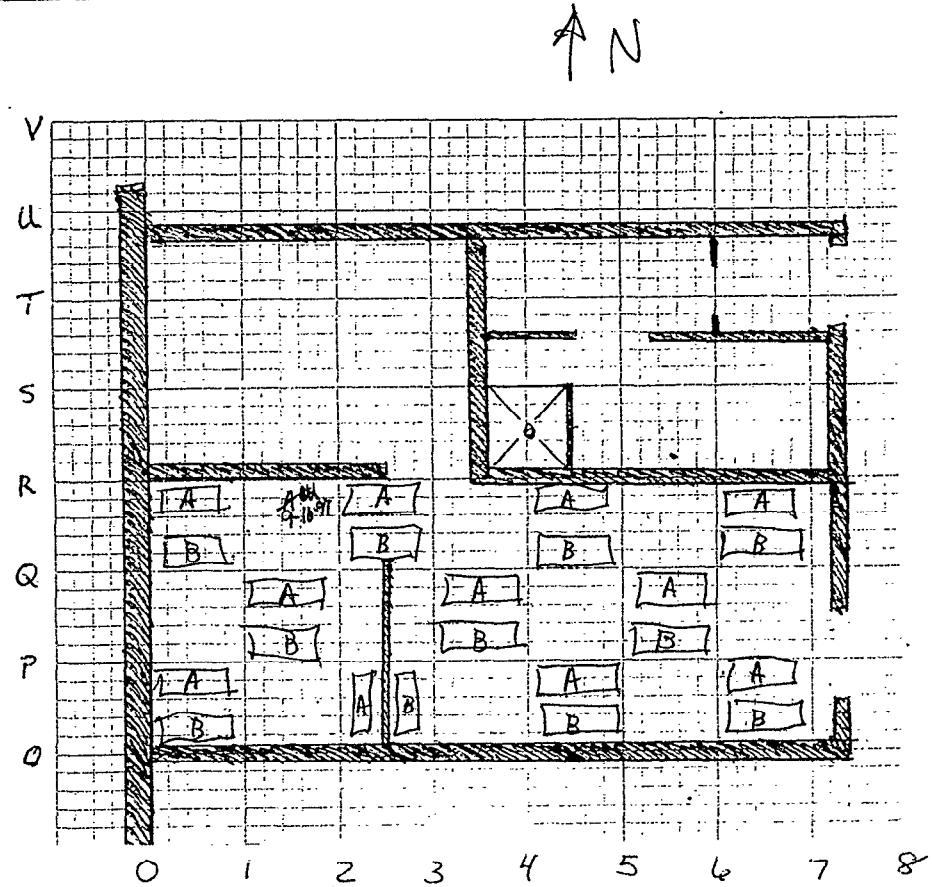
VERIFICATION

RADIATION MEASUREMENT: BG

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	01 A	FLOOR	BG	1344	1						
2	~~02~~ B			1345	1						
3	02 A			1323	1						
4	B			1430	1						
5	04 A			1692	1						
6	B			1493	1						
7	06 A			2120	1						
8	B			1870	1						
9	P1 A			1410	1						
10	B			1318	1						
11	P3 A			1536	1						
12	B			1781	1						
13	P5 A			1745	1						
14	B			1586	1						
15	Q0 A			1416	1						
16	B			1416	1						
17	Q2 A			1298	1						
18	B			1395	1						
19	Q4 A			1591	1						
20	B			1587	1						
* 21	~~Q4 B~~ Q4-B	-DUP-		1527	1						
22	Q6 A			1807	1						
23	B			1913	1						
* 24	Q6 B			1914	1						
25					1						
26					1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						



A B = DETECTOR ORIENTATION FOR GRID

~~1074 9-16-97~~

~~5 5370 9-16-97~~

Instrument Model & s/n: L2221 / J / 78163

Detector Model & s/n: 43.37 / J / 124940

Calibration Date: 2-7-97

Efficiency ~~A (Alpha)~~ 0.20 cpm / dpm based on

Detector Area: 425 CM2

Background	Counts	Ct Time (min)	Rb	Date
BG	5370	5	1074	9-16-97

A_BLANK.XLS

ION TECHNOLOGY, INC. SURVEY # 778

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

C. HALLAM

SAMPLE DATE: 9-16-97

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey OF AREA 5D, 5D1 WALLS

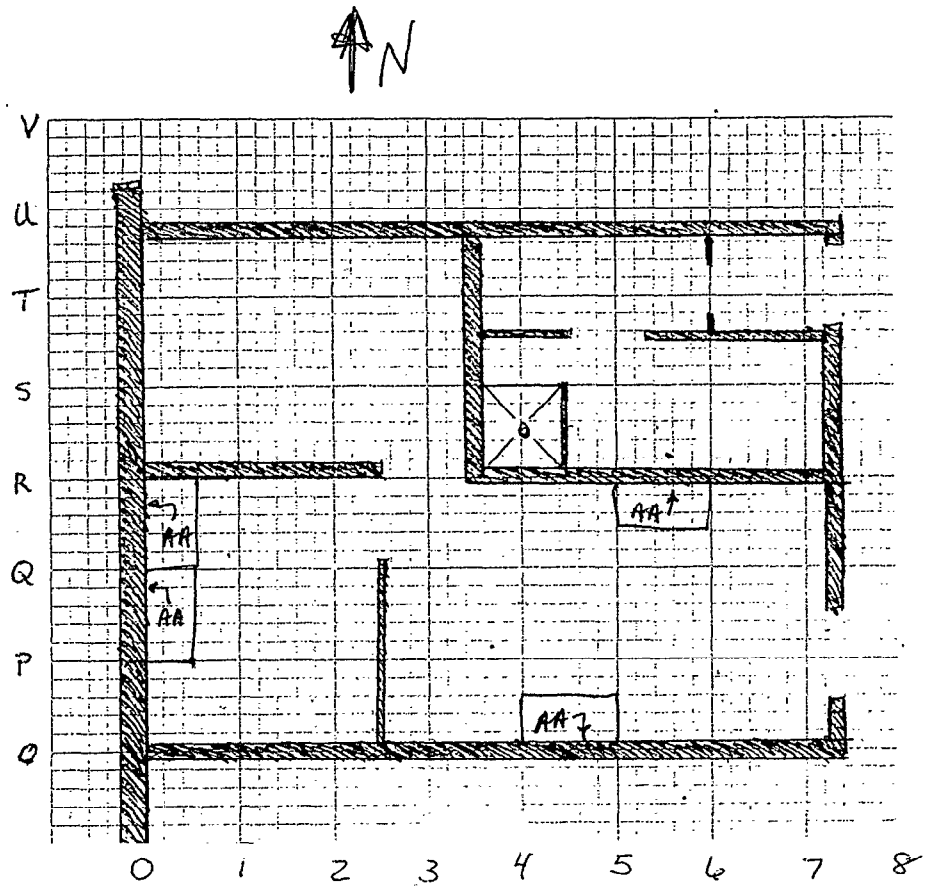
VERIFICATION

RADIATION MEASUREMENT: BG

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	04/AA a	SOUTH WALL (0-1 meter)	BG	62	1						
2	b			67	1						
3	c			~~78~~ 70 9-16-97	1						
4	d			72	1						
5	e			70	1						
6	P0/AA a	WEST WALL (0-1 m)		62	1						
7	b			69	1						
8	c			74	1						
9	d			118	1						
10	e			72	1						
11	Q0/AA a	WEST WALL (0-1 m)		67	1						
12	b			91	1						
13	c			87	1						
14	d			76	1						
15	e			64	1						
16	Q5/AA a	NORTH WALL (0-1 m)		51	1						
17	b			60	1						
18	c			66	1						
19	d			57	1						
20	e			59	1						
* 21	Q5/AA e	NORTH WALL (0-1 m) DUPLICATE		49	1						
22					1						
23					1						
24					1						
25					1						
26					1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						



Instrument Model & s/n: L2221 / P / 86313

Detector Model & s/n: L44-9

Calibration Date: 8-12-97

Efficiency ~~A (Alpha)~~: BG 0.18 cpm / dpm based on

Detector Area: 15.5 CM2

Background	Counts	Ct Time (min)	Rb	Date
BETA GAMMA	641	10	64	9-16-97

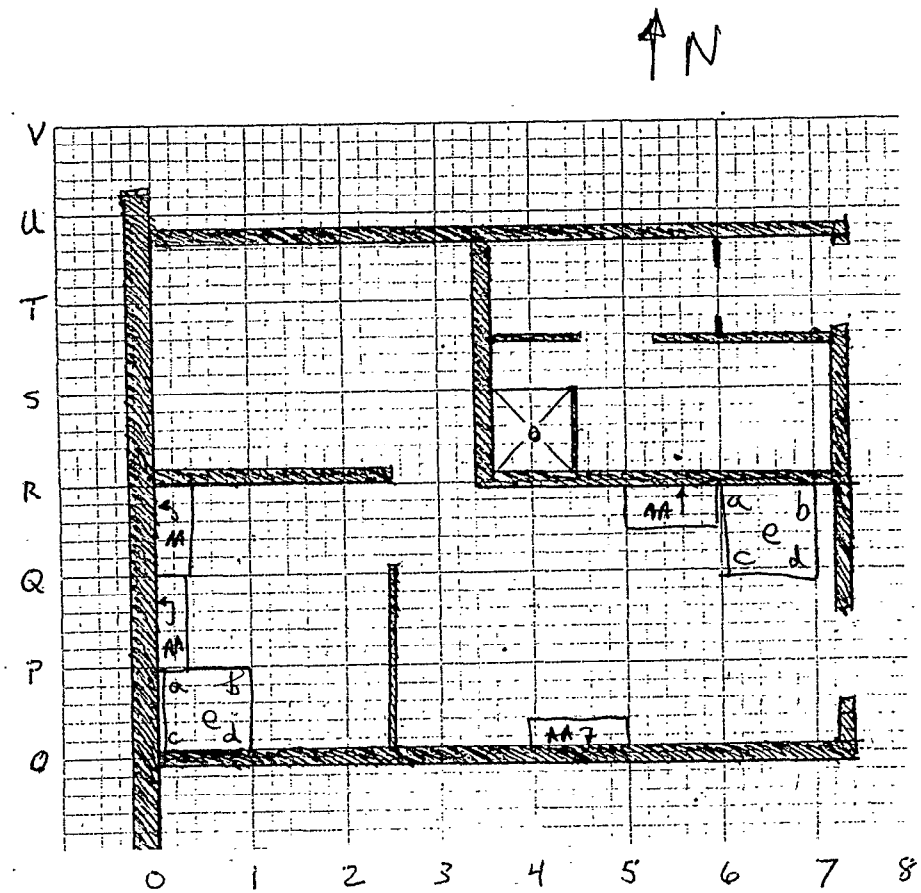
ION TECHNOLOGY, INC. SURVEY # 779
C. HALLAM
SAMPLE DATE: 9-16-97
ANALYSIS DATE:
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey OF AREA 5D, 5D1 WALLS & FLOOR

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

VERIFICATION

RADIATION MEASUREMENT: Alpha
RESULTS REPORTED UNITS: DPM per 100cm2
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	QQ a	FLOOR	A	4	1						
2	b		A	0	1						
3	c		A	3	1						
4	d		A	2	1						
5	e		A	1	1						
6	Q 6 a		A	2	1						
7	b		A	~~8~~ 4	1						
8	c		A	0	1						
9	d		A	6	1						
10	e		A	2	1						
11	PO/AA a	WEST WALL (0-1 meter)	A	3	1						
12	b		A	2	1						
13	c		A	0	1						
14	d		A	1	1						
15	e		A	1	1						
* 16	PO/AC	WEST WALL (0-1 meter) -DUPLICATE	A	1	1						
17			A		1						
18			A		1						
19			A		1						
20			A		1						
21			A		1						
22			A		1						
23			A		1						
24			A		1						
25			A		1						
26			A		1						
27			A		1						
28			A		1						
29			A		1						
30			A		1						
31			A		1						
32			A		1						
33			A		1						
34			A		1						
35			A		1						
36			A		1						
37			A		1						
38			A		1						
39			A		1						
40			A		1						



UP/NORTH [a b / c e d] = SURVEY PT ORIENTATION FOR GRID

Instrument Model & s/n:	ESP-1 s/n: 03027
Detector Model & s/n:	43-5 s/n: 88087
Calibration Date:	2/10/97
Efficiency A (Alpha):	0.13 cpm / dpm based on Th230
Detector Area:	50 CM2

Background	Counts	Ct Time (min)	Rb	Date
Alpha	1	1	###	9-16-97

HILBE. ASSOCIATES, INC. SURVEY # 781

SMEAR MEASUREMENT ANALYSIS REPORT

C. HALLAM

SAMPLE DATE: 9-16-97

ANALYSIS DATE:

LOCATION: B14 AREA 5D & 5D1 FLOOR & WALLS

VERIFICATION

RADIATION MEASUREMENT: Alpha and Beta-gamma

RESULTS REPORTED UNITS: dpm per 100cm2

MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	00 A	FLOOR	A	0						+/-		
1	↓ B		BG	63						+/-		
2	02 A		A	0						+/-		
2	↓ B		BG	63						+/-		
3	04 A		A	0						+/-		
3	↓ B		BG	51						+/-		
4	06		A	0						+/-		
4	↓		BG	71						+/-		
5	P1		A	0						+/-		
5	↓		BG	77						+/-		
6	P3		A	1						+/-		
6	↓		BG	59						+/-		
7	P5		A	1						+/-		
7	↓		BG	76						+/-		
8	Q0		A	1						+/-		
8	↓		BG	53						+/-		
9	Q2		A	0						+/-		
9	↓		BG	66						+/-		
10	Q4		A	1						+/-		
10	↓		BG	46						+/-		
11	Q6		A	0						+/-		
11	↓		BG	62						+/-		
12	04/AA	SOUTH WALL - (0-1 meter)	A	0						+/-		
12	↓	↓	BG	72						+/-		
13	P0/AA	WEST WALL (0-1m)	A	1						+/-		
13	↓	↓	BG	76						+/-		
14	Q0/AA	WEST WALL (0-1m)	A	1						+/-		
14	↓	↓	BG	76						+/-		
15	Q5/AA	NORTH WALL (0-1m)	A	0						+/-		
15	↓	↓	BG	71						+/-		
16			A							+/-		
16			BG							+/-		
17			A							+/-		
17			BG							+/-		
18			A							+/-		
18			BG							+/-		
19			A							+/-		
19			BG							+/-		
20			A							+/-		
20			BG							+/-		

Instrument Model & s/n: 2929 / 91234

Detector Model & s/n: 43-10-1 / 085270

Calibration Date: 2-7-97

Efficiency BG (Beta/Gamma): 0.29 ~~126/700~~ 0.19 cpm / dpm based on S/Y90

Efficiency A (Alpha): 0.33 ~~43304~~ 62 cpm / dpm based on Th230

	Background	Counts	Ct Time (min)	Rb	Date
Alpha	0.19	136	700		9-17-97
Beta-Gamma	62	43304	700		9-17-97

ENCL-C1.XLS

HILBE ASSOCIATES, INC. SURVEY # 782

SMEAR MEASUREMENT ANALYSIS REPORT

C. HALLAM 9-16-97

SAMPLE DATE:

ANALYSIS DATE:

VERIFICATION SMALL HALLWAY

LOCATION: PRAXAIR B14 (SMALL HALL) GRIDS K-8 T

RADIATION MEASUREMENT: Alpha and Beta-gamma

RESULTS REPORTED UNITS: dpm per 100cm2

MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	K8	FLOOR	A	0	1					+/-		
1	↓		BG	72	1					+/-		
2	L7		A	0	1					+/-		
2	↓		BG	63	1					+/-		
3	M8		A	0	1					+/-		
3	↓		BG	62	1					+/-		
4	N7		A	2	1					+/-		
4	↓		BG	62	1					+/-		
5	O8		A	1	1					+/-		
5	↓		BG	71	1					+/-		
6	P7		A	0	1					+/-		
6	↓		BG	79	1					+/-		
7	Q8		A	1	1					+/-		
7	↓		BG	73	1					+/-		
8	R7		A	0	1					+/-		
8	↓		BG	73	1					+/-		
9	S8		A	0	1					+/-		
9	↓		BG	63	1					+/-		
10	T7		A	0	1					+/-		
10	↓		BG	41	1					+/-		
11	K8/AA	~~WEST~~ EAST WALL (0-1 meter) 9-16-97	A	0	1					+/-		
11	↓		BG	59	1					+/-		
12	M8/AA		A	0						+/-		
12	↓		BG	71						+/-		
13	O8/AA		A	1						+/-		
13	↓		BG	69						+/-		
14	S8/AA		A	1						+/-		
14	↓		BG	69						+/-		
15	N7/AA	~~EAST~~ WEST WALL (0-1 meter) 9-16-97	A	0						+/-		
15	↓		BG	66						+/-		
16	R7/AA		A	0						+/-		
16	↓		BG	61						+/-		
17	R8/AA	~~EAST~~ WALL (0-1 m)	A	0						+/-		
17	↓		BG	63						+/-		
18			A							+/-		
18			BG							+/-		
19			A							+/-		
19			BG							+/-		
20			A							+/-		
20			BG							+/-		

Instrument Model & s/n: 2929/91234

Detector Model & s/n: 43-10-1/085270

Calibration Date: 2-7-97

Efficiency BG (Beta/Gamma): 0.33 ~~0.29~~ 0.29 136/700 0.19 cpm / dpm based on S/Y90

Efficiency A (Alpha): 0.33 43304/700 62 cpm / dpm based on Th230

	Background	Counts	Ct Time (min)	Rb	Date
Alpha	0.19	136	700		9-17-97
Beta-Gamma	62	43304	700		9-17-97

ENCL-C1.XLS

HILBE. SSOCIATES, INC. SURVEY # 787 SMEAR MEASURE...NT ANALYSIS REPORT

C. RALCAM

SAMPLE DATE: 9-18-97

ANALYSIS DATE:

LOCATION: B14 AREA SA FLOOR

VERIFICATION

RADIATION MEASUREMENT: Alpha and Beta-gamma

RESULTS REPORTED UNITS: dpm per 100cm2

MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	B1	FLOOR	A	0						+/-		
1	↓		BG	61						+/-		
2	B3		A	0						+/-		
2	↓		BG	50						+/-		
3	B5		A	0						+/-		
3	↓		BG	52						+/-		
4	C0		A	0						+/-		
4	↓		BG	74						+/-		
5	C2		A	1						+/-		
5	↓		BG	51						+/-		
6	C4		A	1						+/-		
6	↓		BG	62						+/-		
7	C6		A	1						+/-		
7	↓		BG	70						+/-		
8	D1		A	0						+/-		
8	↓		BG	68						+/-		
9	D3		A	0						+/-		
9	↓		BG	56						+/-		
10	D5		A	0						+/-		
10	↓		BG	57						+/-		
11	E0		A	0						+/-		
11	↓		BG	56						+/-		
12	E2		A	1						+/-		
12	↓		BG	42						+/-		
13	E4		A	0						+/-		
13	↓		BG	49						+/-		
14	E6		A	1						+/-		
14	↓	↓	BG	49						+/-		
15			A							+/-		
15			BG							+/-		
16			A							+/-		
16			BG							+/-		
17			A							+/-		
17			BG							+/-		
18			A							+/-		
18			BG							+/-		
19			A							+/-		
19			BG							+/-		
20			A							+/-		
20			BG							+/-		

Instrument Model & s/n: L2929

Detector Model & s/n: 085270

Calibration Date: 2/7/97

Efficiency BG (Beta/Gamma): .37 cpm / dpm based on S/Y90

Efficiency A (Alpha): .28 cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha	.11/.09	1		9/18/97
Beta-Gamma				

HILBE. SSOCIATES, INC. SURVEY # 788

SMEAR MEASURE...NT ANALYSIS REPORT

C. HALLAM
SAMPLE DATE: 9-18-97
ANALYSIS DATE:
LOCATION: B14 AREA 5A WALLS

VERIFICATION

RADIATION MEASUREMENT: Alpha and Beta-gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	9-18-97 ~~C1~~ B3/AA	SOUTH WALL (0-1 meter)	A	0						+/-		
1	↓	↓	BG	65						+/-		
2	9-18-97 ~~C3~~ B5/BB	SOUTH WALL (1-2m)	A	2						+/-		
2	↓	↓	BG	55						+/-		
3	9-18-97 ~~C5~~ C0/AA	WEST WALL (0-1m)	A	0						+/-		
3	↓	↓	BG	63						+/-		
4	C7/AA	EAST WALL (0-1m)	A	0						+/-		
4	↓	↓	BG	49						+/-		
5	D0/AA	WEST WALL (0-1m)	A	0						+/-		
5	↓	↓	BG	44						+/-		
6	E0/AA	WEST WALL (0-1m)	A	0						+/-		
6	↓	↓	BG	51						+/-		
7	E4/AA	NORTH WALL (0-1m)	A	0						+/-		
7	↓	↓	BG	56						+/-		
8			A							+/-		
8			BG							+/-		
9			A							+/-		
9			BG							+/-		
10			A							+/-		
10			BG							+/-		
11			A							+/-		
11			BG							+/-		
12			A							+/-		
12			BG							+/-		
13			A							+/-		
13			BG							+/-		
14			A							+/-		
14			BG							+/-		
15			A							+/-		
15			BG							+/-		
16			A							+/-		
16			BG							+/-		
17			A							+/-		
17			BG							+/-		
18			A							+/-		
18			BG							+/-		
19			A							+/-		
19			BG							+/-		
20			A							+/-		
20			BG							+/-		

α 131 700
41310 700

Instrument Model & s/n: L2929
Detector Model & s/n: 085270
Calibration Date: 08/07/97
Efficiency BG (Beta/Gamma): .32 cpm / dpm based on S/Y90
Efficiency A (Alpha): .28 cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha	19	1		9/18/97
Beta-Gamma	59			

ENCL-C1.XLS

HILBE. SSOCIATES, INC. SURVEY # 789 SMEAR MEASURE...NT ANALYSIS REPORT

C. HALLAM

SAMPLE DATE: 9-18-97 VERIFICATION

ANALYSIS DATE:

LOCATION: B14 AREA 5B FLOOR

RADIATION MEASUREMENT: Alpha and Beta-gamma

RESULTS REPORTED UNITS: dpm per 100cm2

MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	F1	FLOOR	A	0						+/-		
1	↓		BG	52						+/-		
2	F3		A	0						+/-		
2	↓		BG	72						+/-		
3	F5		A	0						+/-		
3	↓		BG	64						+/-		
4	G0		A	0						+/-		
4	↓		BG	68						+/-		
5	G2		A	0						+/-		
5	↓		BG	59						+/-		
6	G4		A	0						+/-		
6	↓		BG	68						+/-		
7	G6		A	0						+/-		
7	↓		BG	59						+/-		
8	H1		A	0						+/-		
8	↓		BG	50						+/-		
9	H3		A	0						+/-		
9	↓		BG	54						+/-		
10	H5		A	0						+/-		
10	↓	↓	BG	64						+/-		
11			A							+/-		
11			BG							+/-		
12			A							+/-		
12			BG							+/-		
13			A							+/-		
13			BG							+/-		
14			A							+/-		
14			BG							+/-		
15			A							+/-		
15			BG							+/-		
16			A							+/-		
16			BG							+/-		
17			A							+/-		
17			BG							+/-		
18			A							+/-		
18			BG							+/-		
19			A							+/-		
19			BG							+/-		
20			A							+/-		
20			BG							+/-		

Instrument Model & s/n: L 2929

Detector Model & s/n: 085270

Calibration Date: 2/7/97

Efficiency BG (Beta/Gamma): .32 cpm / dpm based on S/Y90

Efficiency A (Alpha): .28 cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha	14	1	9/18/97	
Beta-Gamma	29			

5a, b, c, d

NOLOGY, INC. SURVEY #802

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

VERIFICATION

APLE DATE: 9-18-97

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey OF AREA 5A FLOOR

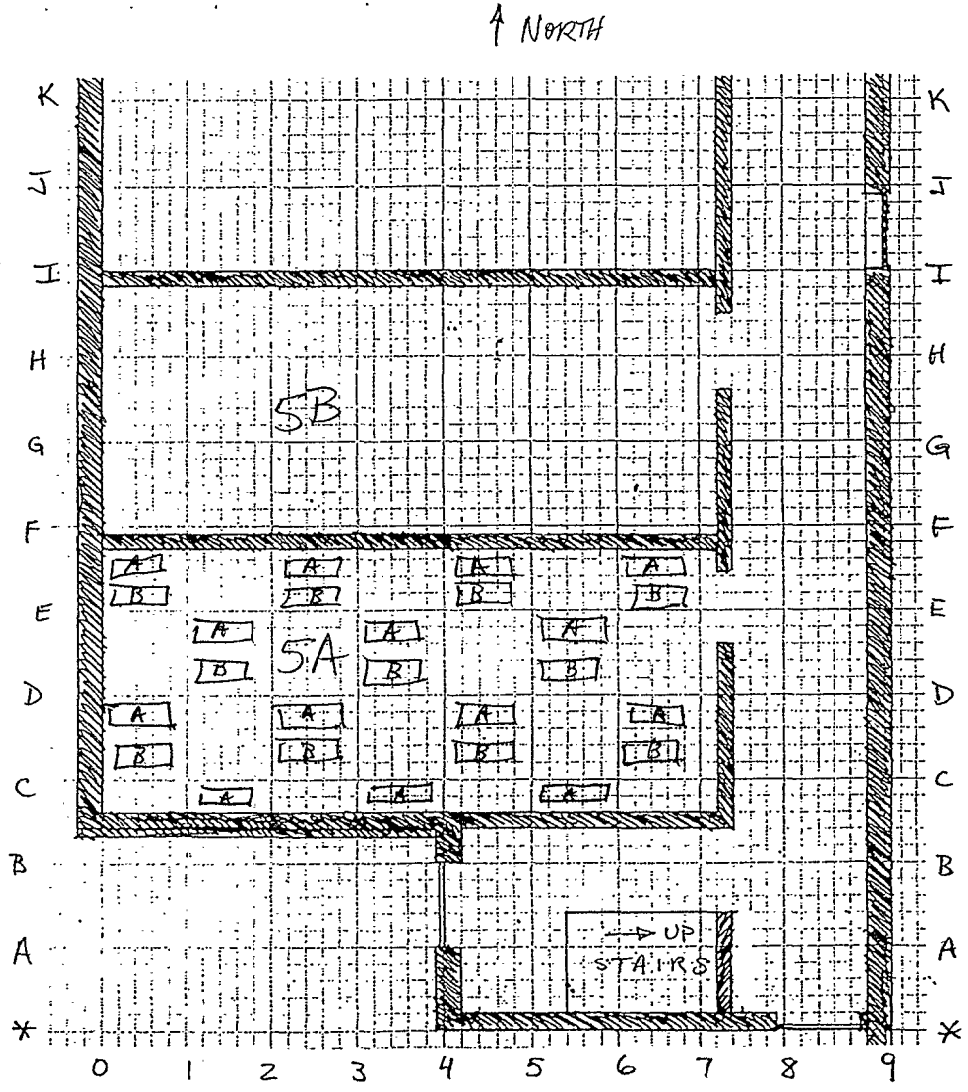
RADIATION MEASUREMENT: BETA GAMMA

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	B1 A	FLOOR	BG	1372	1						
2	B3 A			1408	1						
3	B5 A			1285	1						
4	C0 A			1369	1						
5	↓ B			1455	1						
6	C2 A			1379	1						
7	↓ B			1402	1						
8	C4 A			2461	1						
9	↓ B			1995	1						
10	C6 A			2106	1						
11	↓ B			2359	1						
12	D1 A			1263	1						
13	↓ B			1268	1						
14	D3 A			1743	1						
15	↓ B			1933	1						
16	D5 A			2142	1						
17	↓ B			2449	1						
18	E0 A			1411	1						
19	↓ B			1432	1						
20	E2 A			~~1762~~ 1567	1						
21	↓ B			1330	1						
22	E4 A			2365	1						
23	↓ B			1846	1						
24	E6 A			2226	1						
25	↓ B			1692	1						
* 26	E2 B	FLOOR - (DUPLICATE)		1359	1						
* 27	E6 B	FLOOR - (DUPLICATE)		1714	1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						

* = DUPLICATE [A] [B] = SURVEY PT. ORIENTATION



Instrument Model & s/n: L2221/J/78163

Detector Model & s/n: 43-37/J/124940

Calibration Date: 2-7-97

Efficiency ~~(Alpha)~~: 0.19 cpm / dpm based on

Detector Area: 425 CM2

Background	Counts	Ct Time (min)	Rb	Date
BG	11042	10	1104	9-18-97

ION TECHNOLOGY, INC. SURVEY #803 DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

C. HALLAM

SAMPLE DATE: 9-18-97 VERIFICATION

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey OF AREA 5A WALLS

RADIATION MEASUREMENT: BETA GAMMA

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

	SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
	1	CO/AA a	WEST WALL (0-1 meter)	BG	67	1						
	2	b			74	1						
	3	c			90	1						
	4	d			87	1						
	5	e			101	1						
	6	DO/AA a			79	1						
	7	b			64	1						
	8	c			93	1						
	9	d			84	1						
	10	e			61	1						
	11	EO/AA a			76	1						
	12	b			86	1						
	13	c			102	1						
	14	d			79	1						
	15	e			70	1						
	16	E4/AA a	NORTH WALL (0-1 meter)		48	1						
	17	b			66	1						
	18	c			77	1						
	19	d			66	1						
	20	e			45	1						
*	21	E4/AA e	-DUPLICATE-		61	1						
	22	B2/AA a	SOUTH WALL (0-1 m)		51	1						
	23	b			62	1						
	24	c			70	1						
	25	d			102	1						
	26	e			63	1						
	27	B5/BB a	SOUTH WALL (1-2 meter)		46	1						
	28	b			60	1						
	29	c			58	1						
	30	d			45	1						
	31	e			57	1						
	32	C7/AA a	EAST WALL (0-1 m)		68	1						
	33	b			53	1						
	34	c			44	1						
	35	d			64	1						
	36	e			49	1						
*	37	C7/AA e	-DUPLICATE (0-1m)		39	1						
	38					1						
	39					1						
	40					1						

* = DUPLICATE up | a b c e d | = SURVEY POINT ORIENTATION

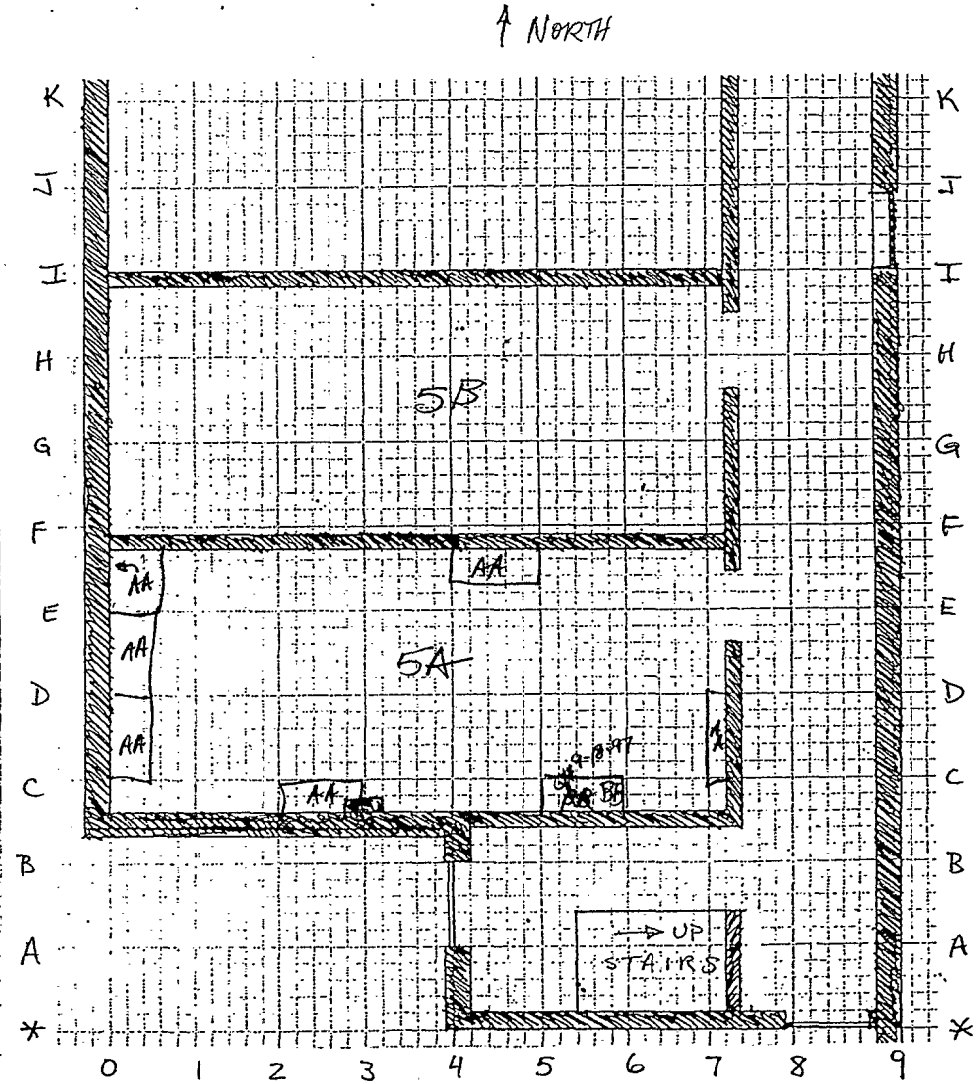
Instrument Model & s/n: L2221 / D / 86313

Detector Model & s/n: L44-9 / D / 86313

Calibration Date: 8-12-97

Efficiency A (Alpha): 0.18 cpm / dpm based on

Detector Area: 15.9 CM2



Background	Counts	CT Time (min)	Rb	Date
BETA GAMMA	621	10	62	9-18-97

ION TECHNOLOGY, INC. SURVEY #804

C. HALLAM

SAMPLE DATE: 9-18-97

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey AREA 5A FLOOR & AREA 5B FLOOR & WALLS

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

VERIFICATION

RADIATION MEASUREMENT: Alpha

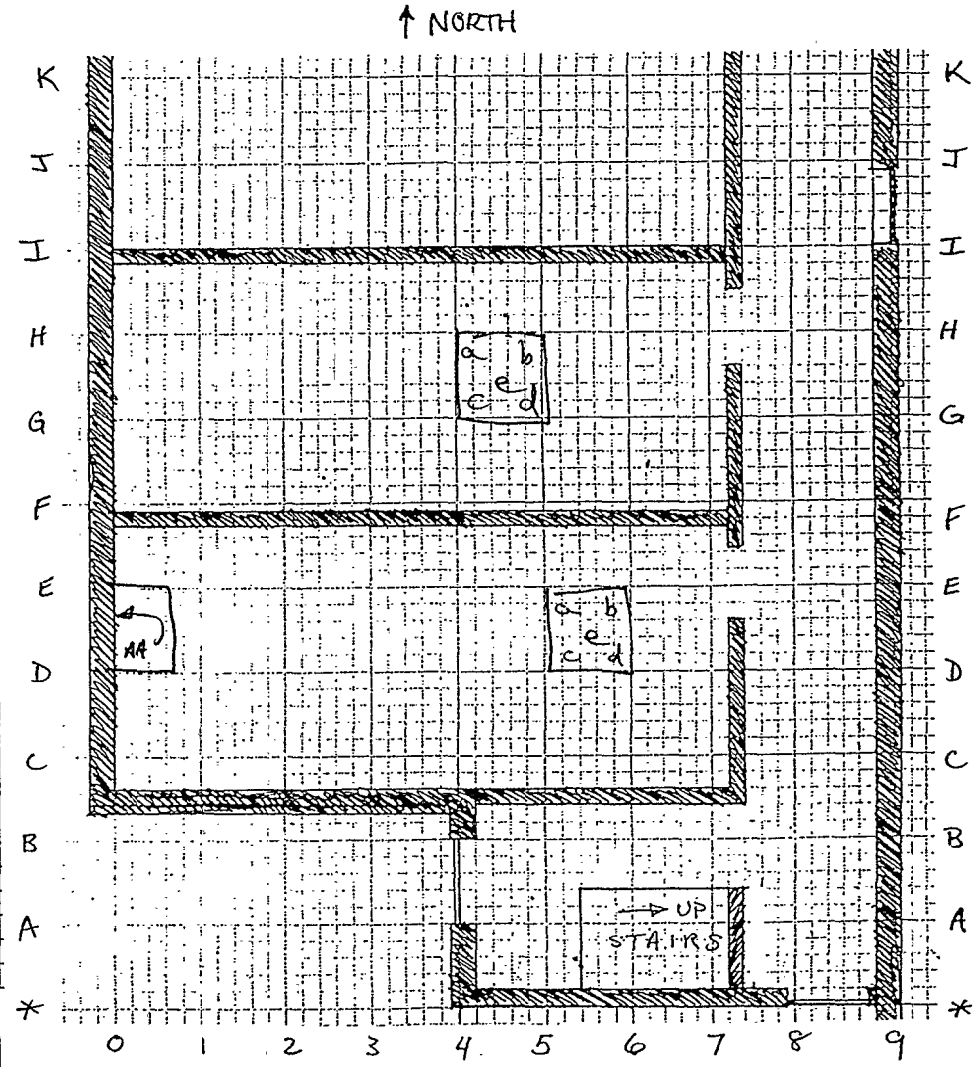
RESULTS REPORTED UNITS: DPM per 100cm2

MEASUREMENT TYPE: Direct Scaler Measurements

	SAMPLE #	LOCATION CODE		LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
	1	G4	a	FLOOR (5B)	A	4	1						
	2		b		A	2	1						
	3		c		A	1	1						
	4		d		A	2	1						
	5		e		A	7	1						
*	6	G4	e	FLOOR (5B) (DUPLICATE)	A	3	1						
	7	D5	a	FLOOR (5A)	A	3	1						
	8		b		A	4	1						
	9		c		A	8	1						
	10		d		A	6	1						
	11		e		A	5	1						
	12	C0	a	FLOOR (5A)	A	0	1						
	13		b		A	5	1						
	14		c		A	2	1						
	15		d		A	4	1						
	16		e		A	0	1						
	17	D0/AA	a	WEST WALL (0-1 meter)	A	0	1						
	18		b		A	2	1						
	19		c		A	1	1						
	20		d		A	0	1						
	21		e		A	1	1						
	22				A		1						
	23				A		1						
	24				A		1						
	25				A		1						
	26				A		1						
	27				A		1						
	28				A		1						
	29				A		1						
	30				A		1						
	31				A		1						
	32				A		1						
	33				A		1						
	34				A		1						
	35				A		1						
	36				A		1						
	37				A		1						
	38				A		1						
	39				A		1						
	40				A		1						

* = DUPLICATE

UP ↑ N [a b c e d] = SURVEY POINT ORIENTATION



Instrument Model & s/n:	ESP-1 s/n: 03027
Detector Model & s/n:	43-5 s/n: 88087
Calibration Date:	2/10/97
Efficiency A (Alpha):	0.12 cpm / dpm based on Th230
Detector Area:	50 CM2

Background	Counts	Ct Time (min)	Rb	Date
Alpha	0	1	***	9-18-97

ION TECHNOLOGY, INC. SURVEY # 805 DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

C. OHALLAM

SAMPLE DATE: 9-18-97 VERIFICATION

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

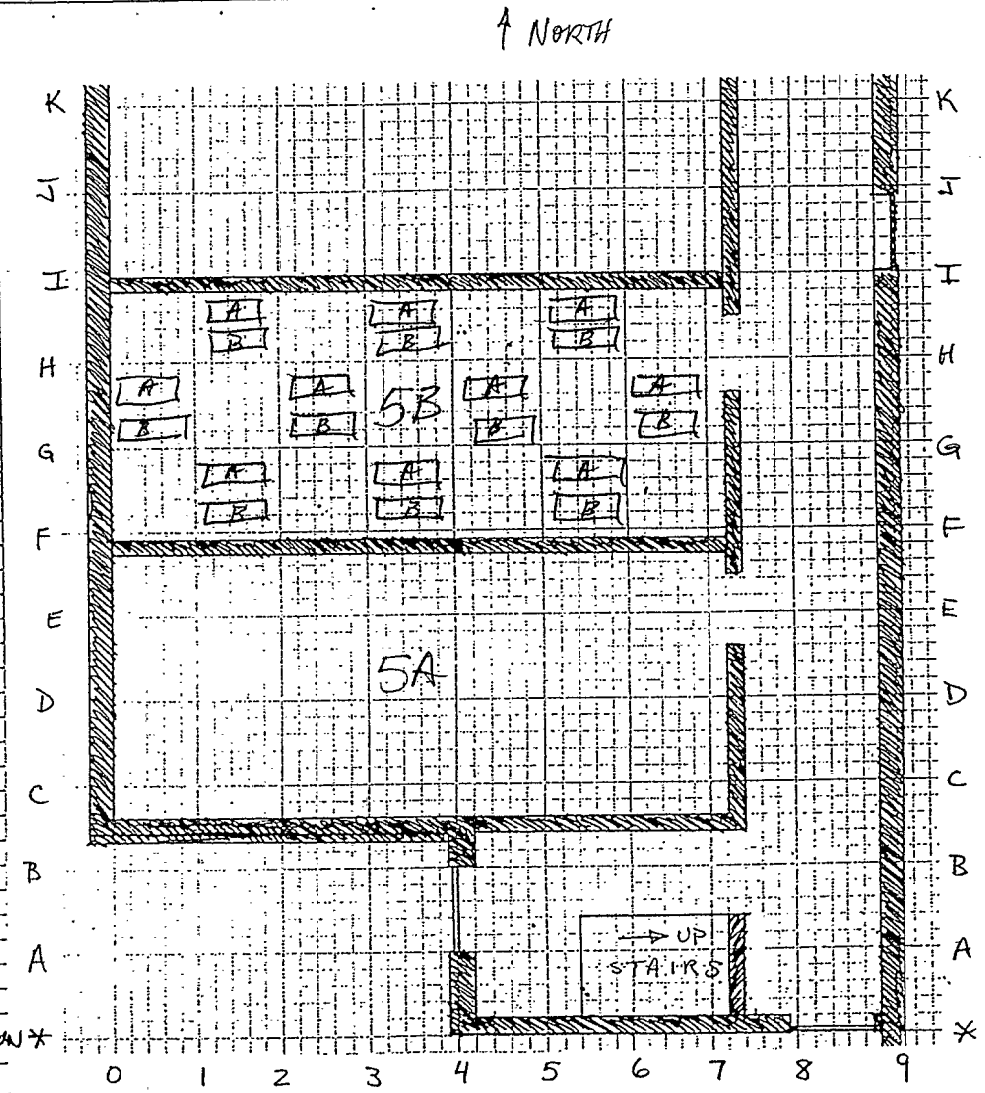
Bldg. 14, Final Survey OF AREA 5B FLOOR

RADIATION MEASUREMENT: BETA GAMMA

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	F1 A	FLOOR	BG	1204	1						
2	↓ B			1314	1						
3	F3 A			1641	1						
4	↓ B			1623	1						
5	F5 A			2032	1						
6	↓ B			2066	1						
7	G0 A			1282	1						
8	↓ B			1270	1						
9	G2 A			1304	1						
10	↓ B			1245	1						
11	G4 A			1596	1						
12	↓ B			1638	1						
13	G6 A			1472	1						
14	↓ B			1790	1						
15	H1 A			1283	1						
16	↓ B			1281	1						
17	H3 A			1446	1						
18	↓ B			1638	1						
19	H5 A			1504	1						
20	↓ B			1827	1						
* 21	H5 B	FLOOR (DUPLICATE)		1779	1						
22					1						
23					1						
24					1						
25					1						
26					1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						



* = DUPLICATE [A] [B] = SURVEY POINT ORIENTATION

Instrument Model & s/n: LR221/J/78163

Detector Model & s/n: 143-37/J/124940

Calibration Date: 2-7-97

Efficiency A (Alpha): 0.19 cpm / dpm based on

Detector Area: 425 CM2

Background	Counts	C1 Time (min)	Rb	Date
BETA GAMMA	11042	10	1104	9-18-97

A_BLANK.XLS

ION TECHNOLOGY, INC. SURVEY #807

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

C. HALLAM

SAMPLE DATE: 9-18-97

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey OF SMALL HALL

VERIFICATION

WALLS – GRIDS K THRU T

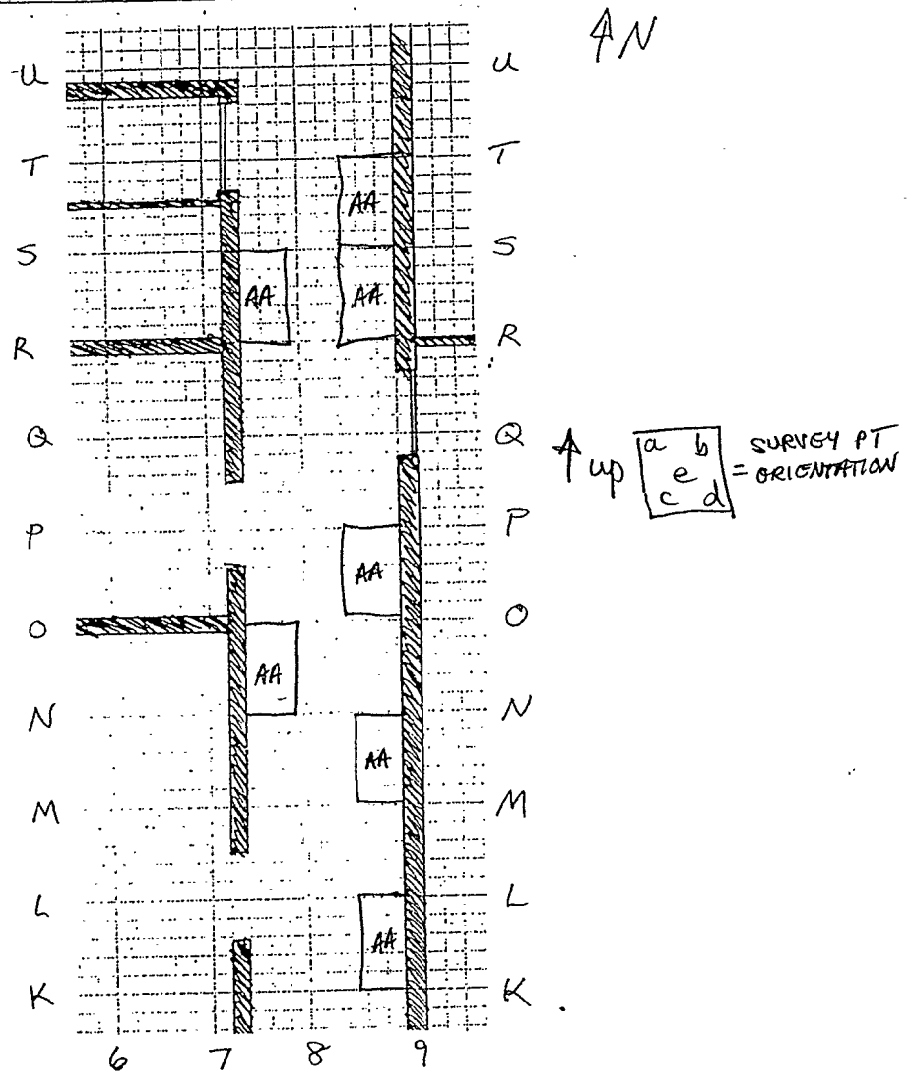
RADIATION MEASUREMENT: BETA GAMMA

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	K8/AA a	EAST WALL (0-1 meter)	BG	64	1						
2	b			84	1						
3	c			97	1						
4	d			78	1						
5	e			81	1						
6	M8/AA a	EAST WALL (0-1 m)		78	1						
7	b			85	1						
8	c			72	1						
9	d			56	1						
10	e			113	1						
11	N7/AA a	WEST WALL (0-1 m)		47	1						
12	b			49	1						
13	c			60	1						
14	d			70	1						
15	e			60	1						
16	O8/AA a	EAST WALL (0-1 m)		89	1						
17	b			94	1						
18	c			80	1						
19	d			108	1						
20	e			104	1						
* 21	O8/AA e	EAST WALL (0-1 m)		101	1						
22	P7/AA a	WEST WALL (0-1 m)		52	1						
23	b			61	1						
24	c			67	1						
25	d			64	1						
26	e			56	1						
27	R8/AA a	EAST WALL (0-1 m)		88	1						
28	b			91	1						
29	c			72	1						
30	d			76	1						
31	e			99	1						
32	S8/AA a	EAST WALL (0-1 m)		73	1						
33	b			75	1						
34	c			58	1						
35	d			79	1						
36	e			90	1						
* 37	S8/AA e	EAST WALL (0-1 m)		90	1						
38					1						
39					1						
40					1						

* = DUPLICATE



Instrument Model & s/n:	L2221/D/86313
Detector Model & s/n:	~~L2221/D/86313~~ L44-9/D/86313
Calibration Date:	8-12-97
Efficiency ~~A (Alpha)~~:	0.18 cpm / dpm based on
Detector Area:	15.5 CM2

Background	Counts	C1 Time (min)	Rb	Date
BETA GAMMA	621	10	62	9-18-97

A_BLANKXLS

LADIES RM

4060

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9-15-97
ANALYSIS DATE: 1ST Floor Verification Floor
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey LADIES ROOM

A B C D E

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)		RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	T-5	Floor	A	B γ	69							
2			B		71							
3			C		67							
4			D		60							
5			E		66							
6												
7	T-7	Floor	A	B γ	60							
8			B		64							
9			C		61							
10			D		62							
11			E		72							
12												
13	T-7	Dup. Floor	E	B γ	68							
14												
15												
16	R-5	Floor	A	α	1							
17			B		0							
18			C		0							
19			D		1							
20			E		1							
21												
22												
23												
24												
25												
26												
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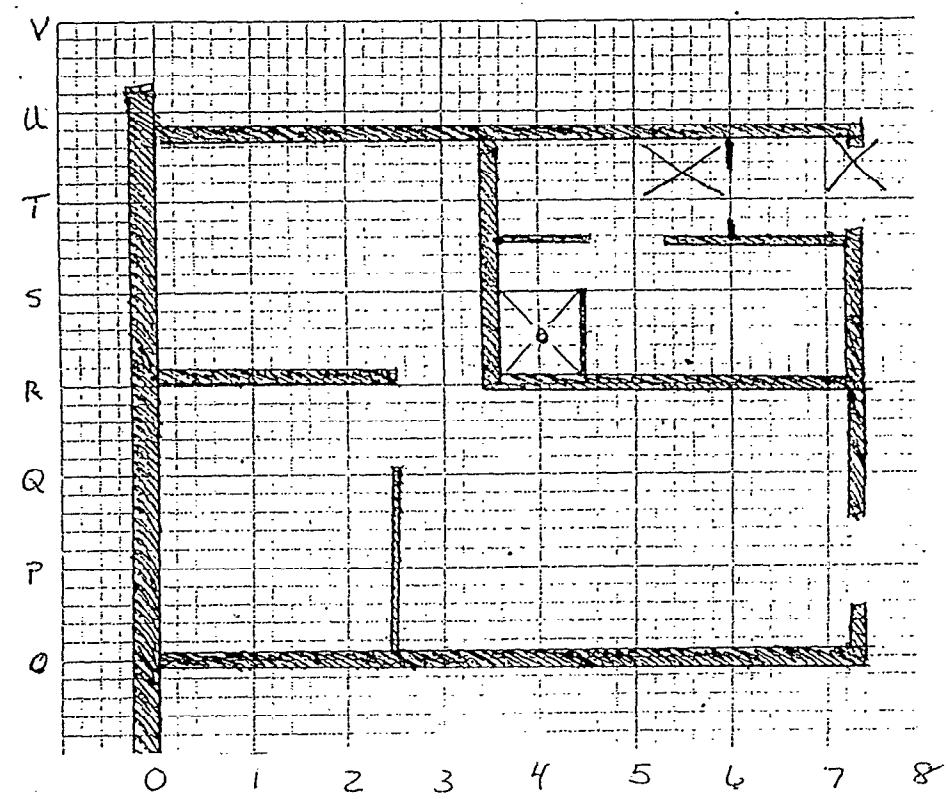
39												
40												



M. Bego

Instrument Model & s/n:	Ludlum 2221 "B"	ESP-1 "F"
Detector Model & s/n:	44-9	43-5
Calibration Date:		2-10-97
Efficiency A (Alpha):	2-7-97	cpm / dpm based on: .12
Detector Area:	15.5 BKG 61	CM2 50

BKG = 0

Background	Counts	Ct Time (min)	Rb	Date

LADIES RM

4061

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

ION TECHNOLOGY, INC.

SAMPLE DATE: 9-15-97 WALL LADIES RM WALLS

ANALYSIS DATE:

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Final Survey 1st Floor Verification

A B E C D

RADIATION MEASUREMENT:

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE#	LOCATION CODE	LOCATION DESCRIPTION(1)		RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	S-BB-7	WALL	A	Bγ	67							
2			B		63							
3			C		61							
4			D		71							
5			E		64							
6	T-AA-7											
7		WALL	A	Bγ	68							
8			B		59							
9			C		62							
10			D		67							
11			E		64							
12												
13	T-BB-5	WALL	A	Bγ	67							
14			B		74							
15			C		61							
16			D		57							
17			E		73							
18	//	/ / / / / / / /		/ / / /	/ / / /							
19	R-BB-4	DUP. WALL	E	Bγ	61							
20	S-BB-7	DUP WALL	E	Bγ	67							
21												
22												
23	T-AA-5	WALL	A	α	0							
24			B		0							
25			C		0							
26			D		2							
27			E		0							
28												
29												
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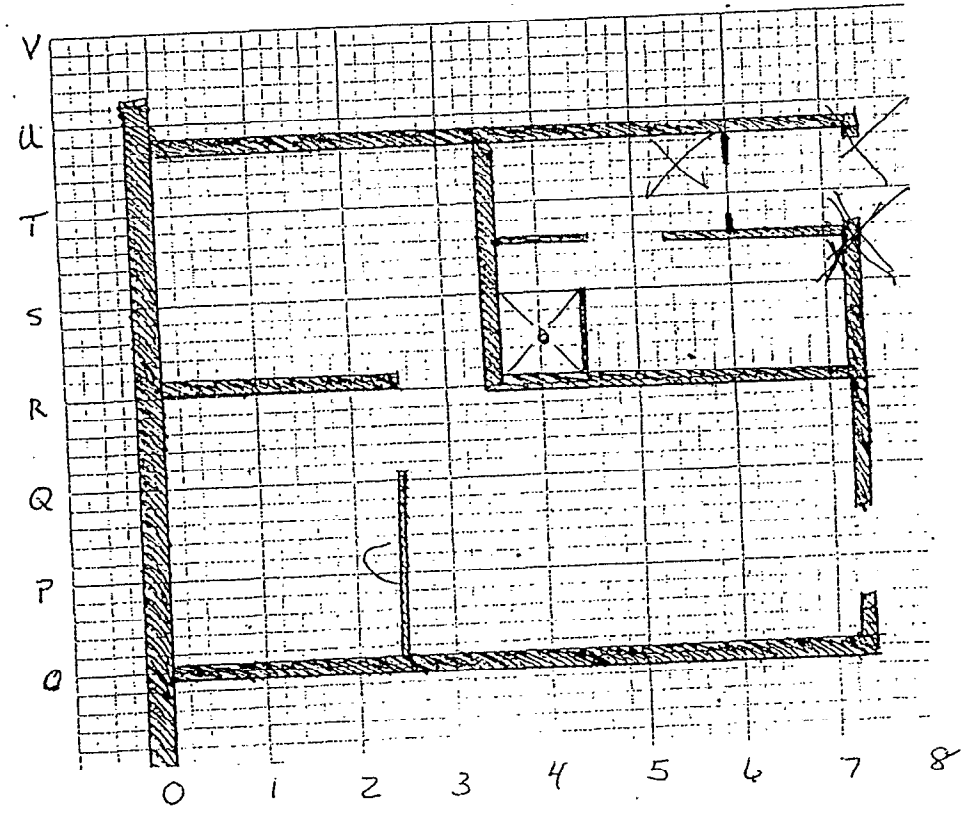
35												
36												
37												
38												
39												
40												



M. Zigo

Instrument Model & s/n:	2221 "B"	ESP-1 "F"	BKG 0
Detector Model & s/n:	44-9	43-5	
Calibration Date:	2-7-97 BKG 61	2-10-97	
Efficiency A (Alpha):	.21	cpm / dpm based on: .12	
Detector Area:	15.5	CM2 50	

Background	Counts	Ct Time (min)	Rb	Date

#4062

HILBERT ASSOCIATES INC
RADIOLOGICAL ENGINEERS

SMEAR MEASUREMENT ANALYSIS REPORT

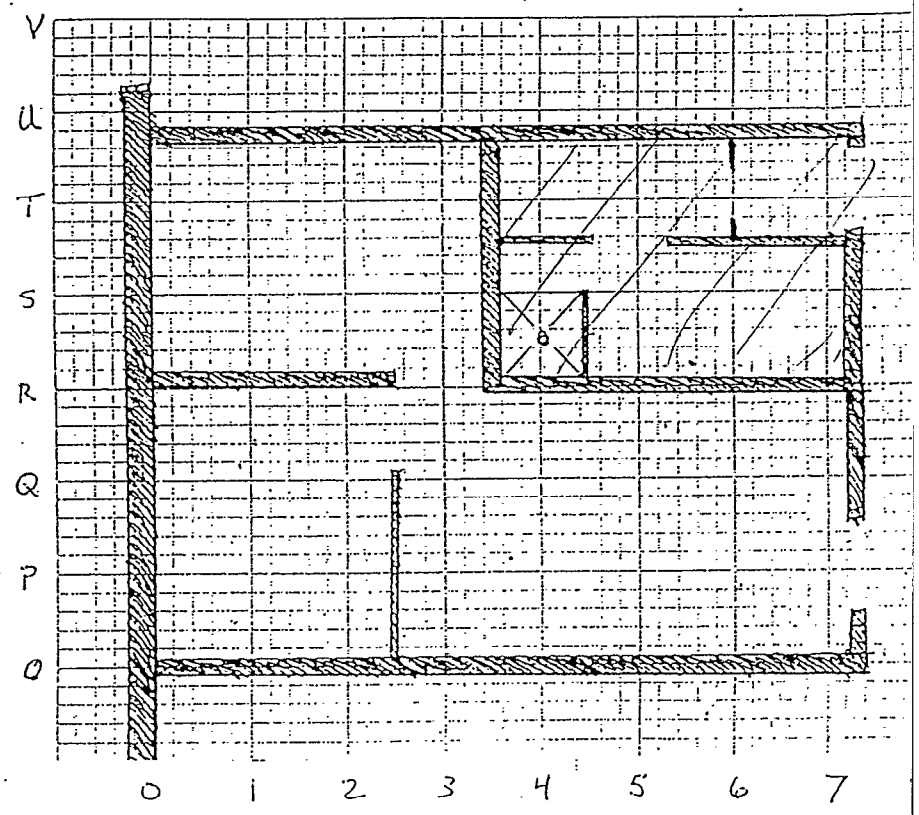
MIKE ZIGO

SAMPLE DATE: 9/17/97
ANALYSIS DATE: 9/17/97
LOCATION: 1ST FL OFFICES

LADIES RM FLOORS/WALLS

RADIATION MEASUREMENT: Alpha and Beta-gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)	ERROR (95% LEVEL)	MDA (PER 100CM2)
1	R-7	Floor LADIES RM	A	0	1						
1	R-7		BG	56	1						
2	S-6		A	0	1						
2	S-6		BG	83	1						
3	R-5		A	0	1						
3	R-5		BG	52	1						
4	S-4		A	3	1						
4	S-4		BG	66	1						
5	R-3		A	0	1						
5	R-3		BG	57	1						
6	T-3		A	0	1						
6	T-3		BG	63	1						
7	T-5		A	0	1						
7	T-5		BG	70	1						
8	T-7		A	0	1						
8	T-7		BG	64	1						
9			A		1						
9			BG								
10	T-AA-3	WALLS LADIES ROOM	A	0	1						
10	T-AA-3		BG	60	1						
11	S-BB-3		A	0	1						
11	S-BB-3		BG	61	1						
12	R-AA-3		A	0	1						
12	R-AA-3		BG	57	1						
13	R-BB-4		A	0	1						
13	R-BB-4		BG	62	1						
14	R-AA-5		A	0	1						
14	R-AA-5		BG	54	1						
15	R-BB-6		A	0	1						
15	R-BB-6		BG	82	1						
16	R-AA-7		A	0	1						
16	S-BB-7		BG	61	1						
17	S-BB-7		A	0	1						
17	T-AA-7		BG	73	1						
18	T-AA-7		A	0	1						
18	T-BB-5		BG	69	1						
19	T-BB-5		A	0	1						
19			BG	66	1						
20			A		1						
20			BG		1						



Instrument Model & s/n:	M.2929 s/n # 91234
Detector Model & s/n:	M.43-10-1 s/n # 085270
Calibration Date:	
Efficiency BG (Beta/Gamma):	.28 cpm / dpm based on
Efficiency A (Alpha):	.33 cpm / dpm based on

M. Zigo

Background	Counts	Ct Time (min)	Rb	Date
Alpha			###	

SMEAR_AB.XLS

1ST FL OFFICES
LADIES RM

4063

ION TECHNOLOGY, INC.

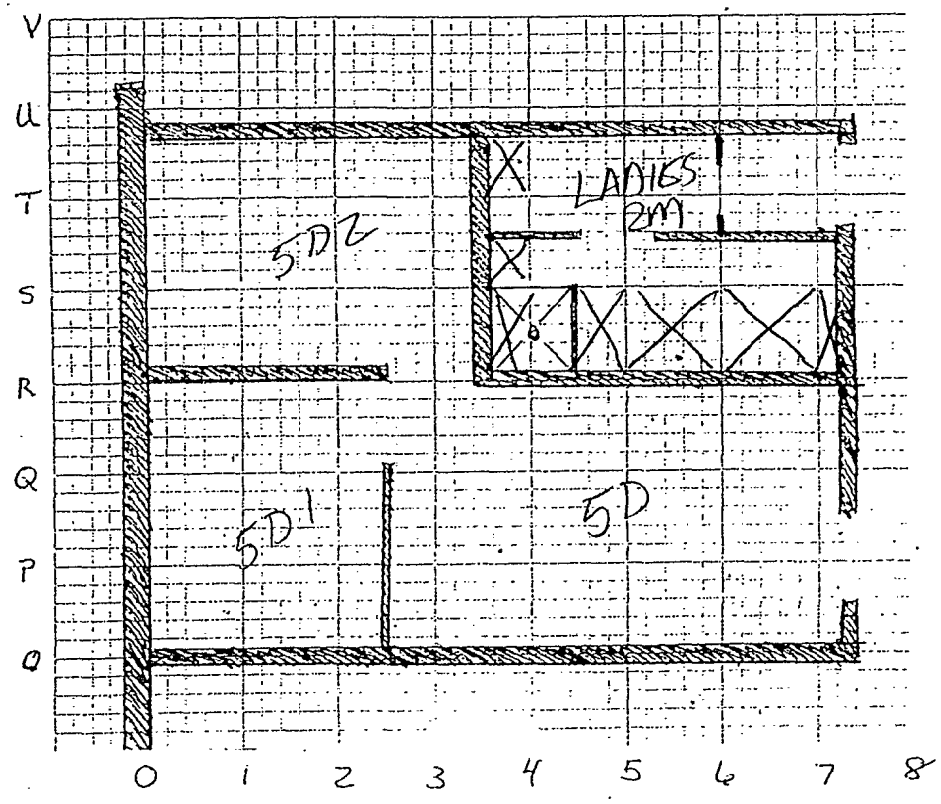
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9-15-97
ANALYSIS DATE: Verification 1st Floor offices.
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey WALLS LADIES RM

A B E C D

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)		RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	T-3-AA	WALL	A	Bγ	60	1						
2			B		64	1						
3			C		61	1						
4			D		51	1						
5			E		63	1						
6						1						
7	G-3 BB	WALL	A	Bγ	61	1						
8			B		67	1						
9			C		69	1						
10			D		64	1						
11			E		60	1						
12						1						
13	R-AA-D	WALL	A	Bγ	67	1						
14			B		71	1						
15			C		59	1						
16			D		63	1						
17			E		61	1						
18						1						
19	R-BB-4	WALL	A	Bγ	59	1						
20			B		57	1						
21			C		73	1						
22			D		69	1						
23			E		81	1						
24						1						
25	R-AA-5	WALL	A	Bγ	62	1						
26			B		57	1						
27			C		54	1						
28			D		59	1						
29			E		64	1						
30						1						
31	R-BB 6	A-WALL	A	Bγ	59	1						
32			B		56	1						
33			C		61	1						
34			D		66	1						
35			E		71	1						
36						1						
37	R-AA-7	WALL	A	Bγ	54	1						
38			B		67	1						
39			C		62	1						
40			D		67	1						
			E		58							



Instrument Model & s/n:	Ludlum 2221 "B"
Detector Model & s/n:	44-9
Calibration Date:	2-7-97 BKG=61
Efficiency A (Alpha):	cpm / dpm based on:
Detector Area:	15.5 CM2

Background	Count	Ct Time (min)	Rb	Date

Photain Bld-14 LADIES Rm

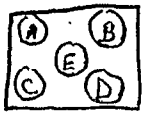
4064

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

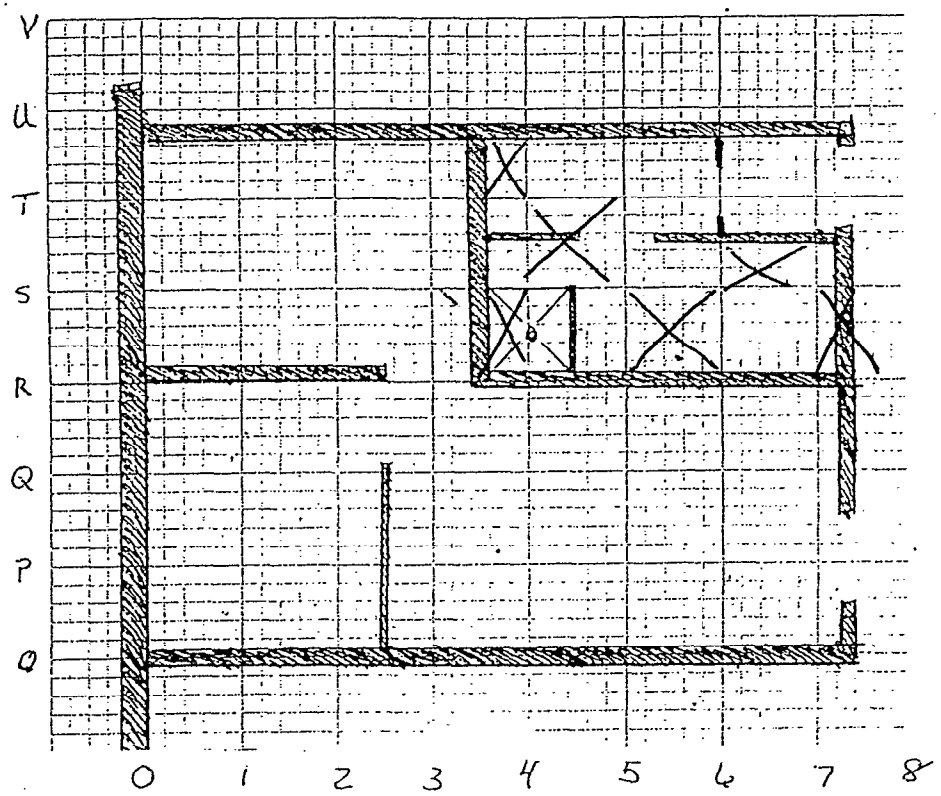
SAMPLE DATE: 9-15-97
ANALYSIS DATE: Floor Verification
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey 1 ST Floor Offices

LADIES ROOM



RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)		RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	R-7	Floor	A	Bγ	42							
2			B		56							
3			C		136							
4			D		163							
5			E		114							
6												
7	S-6	Floor	A	Bγ	77							
8			B		61							
9			C		63							
10			D		104							
11			E		87							
12												
13	R-5	Floor	A	B.γ.	156							
14			B		67							
15			C		52							
16			D		138							
17			E		64							
18												
19	S-4	Floor	A	Bγ	56							
20			B		62							
21			C		67							
22			D		61							
23			E		60							
24												
25	R-3	Floor	A	Bγ	54							
26			B		67							
27			C		56							
28			D		49							
29			E		54							
30												
31	T-3	Floor	A	Bγ	41							
32			B		67							
33			C		67							
34			D		63							
35			E		86							
36												
37	S-4	Dup	E	Bγ	63							
38												
39												
40												



M. Trigo

Instrument Model & s/n: Ludlum 2221 "B"
Detector Model & s/n: 44-9
Calibration Date: 2-7-97
Efficiency A (Alpha): BKG = 21
Detector Area: 15-5
cpm / dpm based on: CM2

Background	Counts	Ct Time (min)	Rb	Date

4065

ION TECHNOLOGY, INC.

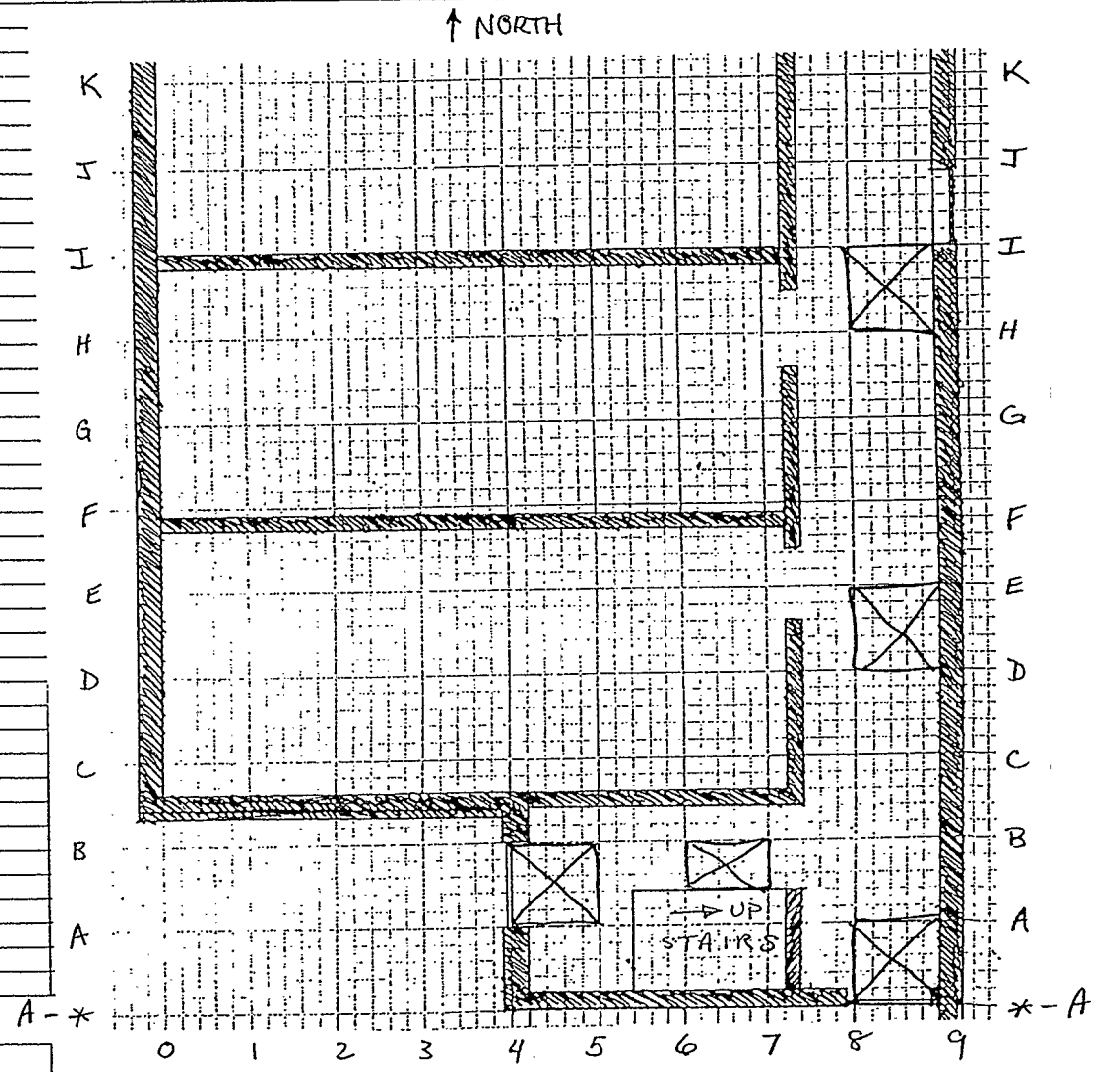
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

Tech: SmallRidge

SAMPLE DATE: 9/18/97
ANALYSIS DATE:
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey SM. OFFICE hallway VERIF FLOOR

RADIATION MEASUREMENT: Alpha
RESULTS REPORTED UNITS: DPM per 100cm2
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	A 5	Sm OFFICE hall way	A	3	1						
2		FLOOR	A	2	1						
3			A	4	1						
4			A	7	1						
5			A	5	1						
6	A-7	Sm OFFICE hallway	A	2	1						
7			A	2	1						
8			A	4	1						
9			A	3	1						
10			A	1	1						
11	D-9	Sm OFFICE hallway	A	2	1						
12			A	3	1						
13			A	7	1						
14			A	4	1						
15			A	4	1						
16	H-9	Sm OFFICE hallway	A	6	1						
17			A	2	1						
18			A	4	1						
19			A	1	1						
20			A	3	1						
21	H-9	DUP	A	3	1						
22			A	1	1						
23			A	1	1						
24			A	1	1						
25			A	2	1						
26	-A-9	SM OFFICE HALL	A	3	1						
27			A	3	1						
28			A	4	1						
29			A	6	1						
30			A	4	1						
31			A		1						
32			A		1						
33			A		1						
34			A		1						
35			A		1						
36			A		1						
37			A		1						
38			A		1						
39			A		1						
40			A		1						



Instrument Model & s/n: ESP-1 'F'	ESP-1 s/n: 03027		
Detector Model & s/n: 43-5 'F'	43-5 s/n: 88087		
Calibration Date: Due 2-98	2/10/97		
Efficiency A (Alpha):		cpm / dpm based on Th230	
Detector Area:	50	CM2	

Background	Counts	Ct Time (min)	Rb	Date
Alpha	0	1 MIN	***	

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ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

4066

SAMPLE DATE: 9/18/97 RANDY VERIFICATION

ANALYSIS DATE:

LOCATION: Hallway Praxair, Tonawanda, NY

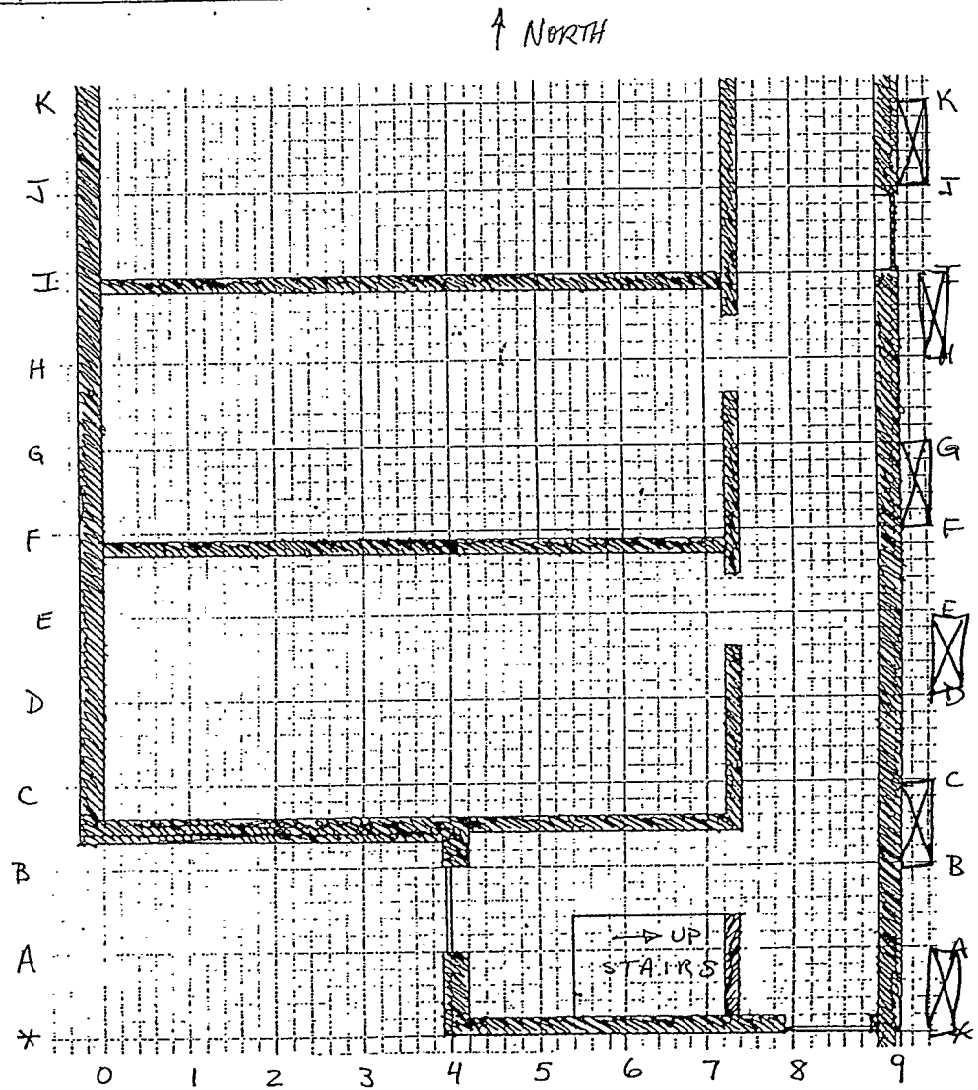
Bldg. 14, Final Survey SMALL OFFICE HALLWAY EAST WALL"

RADIATION MEASUREMENT:

RESULTS REPORTED UNITS:

MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE#	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	A9 BB	Sm OFFICE hallway EAST wall	β γ	35	1						
2				50	1						
3				78	1						
4				111	1						
5				80	1						
6	B9 AA			89	1						
7				75	1						
8				80	1						
9				67	1						
10				55	1						
11	D9 BB			87	1						
12				67	1						
13				79	1						
14				94	1						
15				86	1						
16	F9 AA			70	1						
17				71	1						
18				89	1						
19				67	1						
20				71	1						
21	H9 BB			78	1						
22				80	1						
23				81	1						
24				75	1						
25				68	1						
26	J9 AA			72	1						
27				56	1						
28				78	1						
29				87	1						
30				74	1						
31	F9 AA	DUP		79	1						
32				81	1						
33				87	1						
34				72	1						
35				77	1						
36					1						
37					1						
38					1						
39					1						
40					1						



Instrument Model & s/n: 2221 'B'

Detector Model & s/n: 44-9

Calibration Date: Due 2/98

Efficiency A (Alpha):

Detector Area: 50 cm² 155 cm2

cpm / dpm based on

Background	Counts	CI Time (min)	Eb	Date
60		1MIN		

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4067

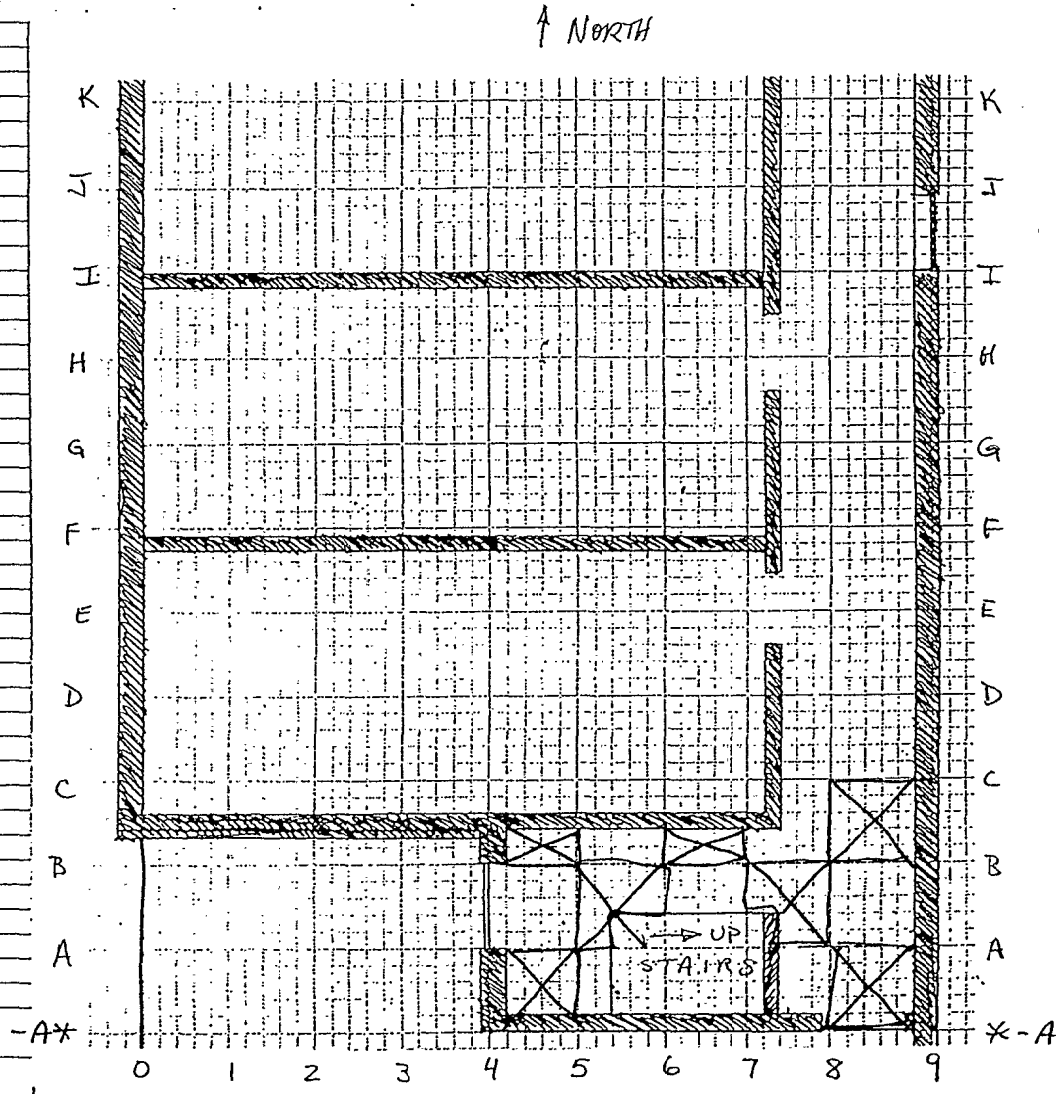
ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9/18/97 Randy Smallridge/Nee
ANALYSIS DATE:
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey Sm OFFICE hALLWAY VERIF FLOOR

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	-A 5	Sm OFFICE hallWAY	BT	70	1						
2				77	1						
3				91	1						
4				79	1						
5				125	1						
6	A6	Sm OFFICE hallWAY		114	1						
7				119	1						
8				165	1						
9				120	1						
10				112	1						
11	B-5	Sm OFFICE hALLWAY		62	1						
12				61	1						
13				92	1						
14				130	1						
15				83	1						
16	B-7	SMALL OFFICE hALLWAY		82	1						
17				60	1						
18				56	1						
19				108	1						
20				99	1						
21	B-7	DUP		80	1						
22				73	1						
23				50	1						
24				100	1						
25				106	1						
26	-A9	Sm OFFICE hallWAY		113	1						
27				64	1						
28				90	1						
29				84	1						
30				133	1						
31	A-8	Sm OFFICE hallWAY		72	1						
32				86	1						
33				111	1						
34				77	1						
35				72	1						
36	B-9	SMALL OFFICE hALLWAY		71	1						
37				124	1						
38				64	1						
39				137	1						
40				86	1						



Instrument Model & s/n:	2221 'B'
Detector Model & s/n:	44-9 - 8267
Calibration Date:	DUE 2/98
Efficiency A (Alpha):	.20
Detector Area:	50 15.5

cpm / dpm based on: CM2

Background	Counts	CI Time (min)	Rb	Date
60		1 MIN		

ION TECHNOLOGY, INC.

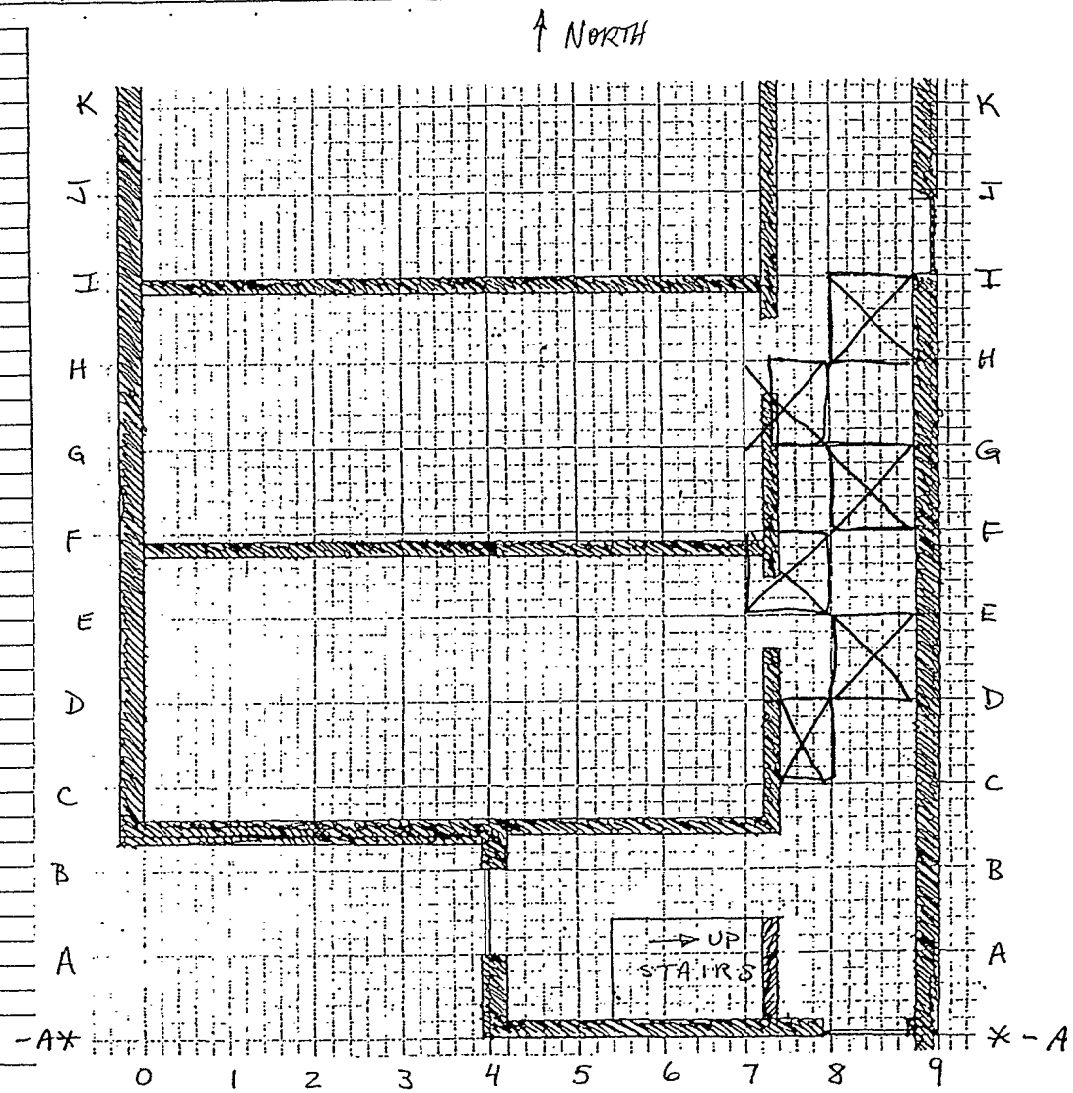
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

4068

SAMPLE DATE: 9/18/97
ANALYSIS DATE: Randy Smallridge/Mk
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey Sm OFFICE HALLWAY (VERIF FLOOR)

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	C-8	Sm OFFICE hallway	B	55	1						
2				65	1						
3				59	1						
4				80	1						
5				68	1						
6	C-8	DUP		51	1						
7				75	1						
8				69	1						
9				85	1						
10				71	1						
11	D-9	Sm OFFICE hallway		59	1						
12				57	1						
13				86	1						
14				79	1						
15				106	1						
16	E-8	Sm OFFICE hallway		51	1						
17				62	1						
18				73	1						
19				114	1						
20				56	1						
21	F-9	Sm OFFICE Hallway		62	1						
22				130	1						
23				72	1						
24				97	1						
25				72	1						
26	G-8	Sm OFFICE hallway		50	1						
27				54	1						
28				100	1						
29				86	1						
30				89	1						
31	G-8	DUP		53	1						
32				62	1						
33				101	1						
34				74	1						
35				94	1						
36	H-9	Sm OFFICE hallway		80	1						
37				86	1						
38				92	1						
39				72	1						
40				73	1						



Instrument Model & s/n: 2221 1 B
Detector Model & s/n: 44-9 / 8267
Calibration Date: Due 2/98
Efficiency A (Alpha): .20
Detector Area: ~~50~~ 15.5
cpm / dpm based on: CM2

Background	Counts	C1 Time (min)	Rb	Date
60		1 MIN		

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

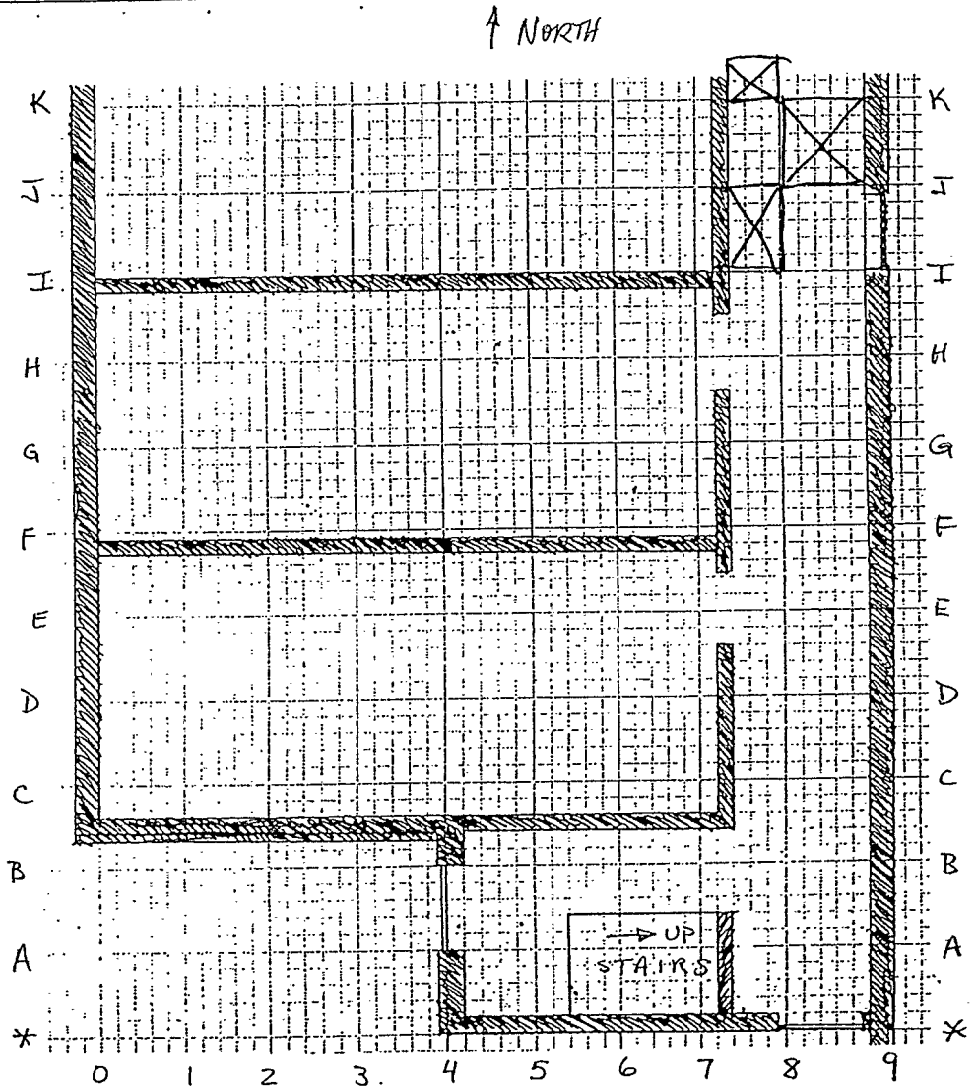
4069

SAMPLE DATE: 9/15/97
ANALYSIS DATE:
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey Sm OFFICE hallway (Veri F Floor)

Randy Swallinger/McLaughlin

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	I-8	Sm OFFICE hallway	$\beta\gamma$	45	1						
2				64	1						
3				48	1						
4				66	1						
5				79	1						
6	J-9	Sm OFFICE hallway		73	1						
7				66	1						
8				90	1						
9				82	1						
10				88	1						
11	K-8	Sm OFFICE hallway		76	1						
12				57	1						
13				68	1						
14				45	1						
15				56	1						
16					1						
17					1						
18					1						
19					1						
20					1						
21					1						
22					1						
23					1						
24					1						
25					1						
26					1						
27					1						
28					1						
29					1						
30					1						
31					1						
32					1						
33					1						
34					1						
35					1						
36					1						
37					1						
38					1						
39					1						
40					1						



Instrument Model & s/n: 2221 'B'
Detector Model & s/n: 44-9-8267
Calibration Date: Aug 2/98
Efficiency A (Alpha): .20
Detector Area: 50 15.5
cpm / dpm based on: CM2

Background	Counts	Ct Time (min)	Rb	Date
	60	1 min		

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ION TECHNOLOGY, INC. M. Zigo

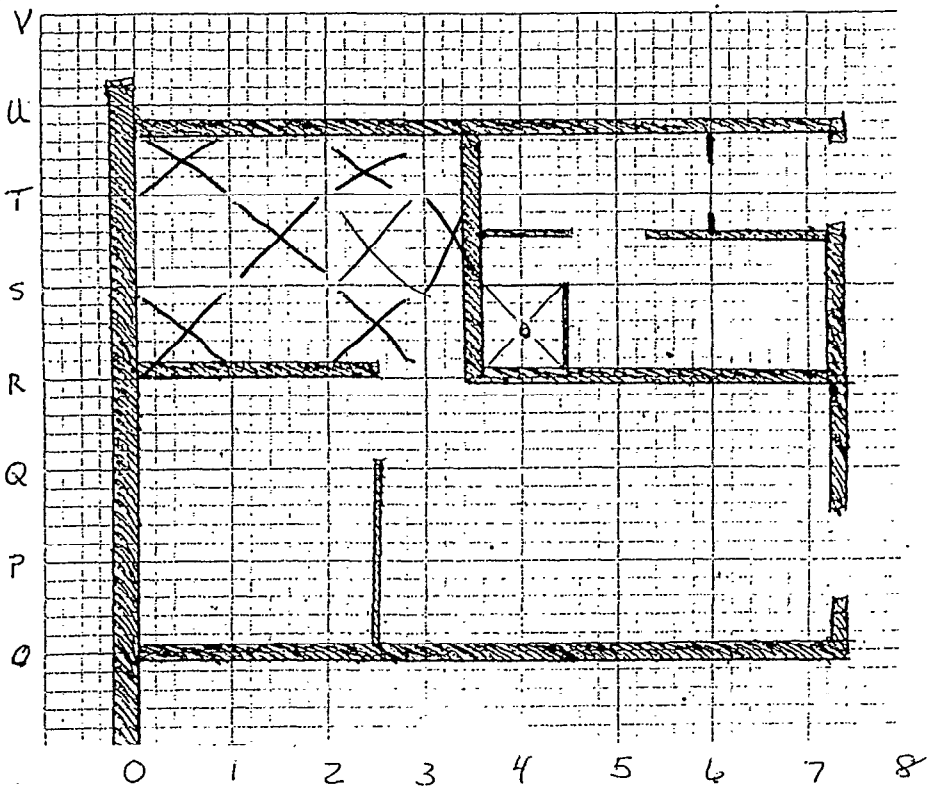
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

4070

SAMPLE DATE: 9-15-97
ANALYSIS DATE: Verification of 1ST Floor effluent
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey Floor RM - 5P-2

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)		RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	R-0	Floor	A	BY	64	1						
2			B		66	1						
3			C		62	1						
4			D		56	1						
5			E		64	1						
6						1						
7	T-0	Floor	A	BY	54	1						
8			B		52	1						
9			C		61	1						
10			D		58	1						
11			E		54	1						
12						1						
13	S-1	Floor	A	BY	55	1						
14			B		63	1						
15			C		71	1						
16			D		53	1						
17			E		56	1						
18						1						
19	R-2	Floor	A	BY	75	1						
20			B		68	1						
21			C		64	1						
22			D		71	1						
23			E		61	1						
24						1						
25	T-2	Floor	A	BY	57	1						
26			B		63	1						
27			C		66	1						
28			D		59	1						
29			E		54	1						
30						1						
31	S-3	Floor	A	BY	63	1						
32			B		67	1						
33			C		62	1						
34			D		59	1						
35			E		67	1						
36						1						
37	S-2	Floor	A	α	2	1						
38			B		0	1						
39			C		1	1						
40			D		0	1						
			E		0							



Instrument Model & s/n: Ludlum 2221 "B" / ESP-1 "F" BKG=0
Detector Model & s/n: 44-9 / 47-5
Calibration Date: 2-7-97 / 2-1-97
Efficiency ~~A (Alpha)~~ BY: .21 / cpm / dpm based on: Eff .12
BKG = 61
Detector Area: 15.5 / CM2 15.5 / 50 CM2
BY / α

Background	Counts	CI Time (min)	Rb	Date

ION TECHNOLOGY, INC. TM 3-90

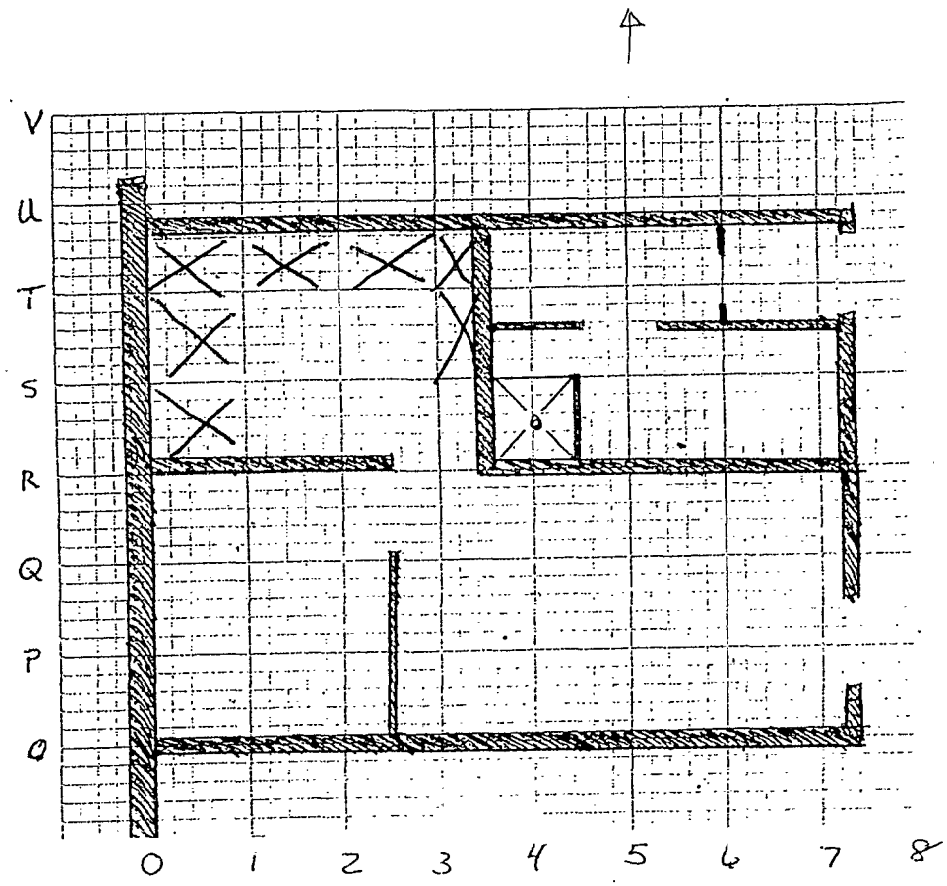
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

4071

SAMPLE DATE: 9-15-97
ANALYSIS DATE: Verification of 1st Floor Offices
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey ZWAILS RA 5-D-2

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)		RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	R-AA-0	WALL South	A	BY	77	1						
2			B		76	1						
3			C		72	1						
4			D		73	1						
5			E		62	1						
6						1						
7	S-BB-0	WALL West	A	BY	52	1						
8			B		54	1						
9			C		74	1						
10			D		91	1						
11			E		83	1						
12						1						
13	T-AA-0	WALL West	A	BY	56	1						
14			B		68	1						
15			C		85	1						
16			D		91	1						
17			E		86	1						
18						1						
19	T-BB-1	Wall North	A	BY	58	1						
20			B		47	1						
21			C		61	1						
22			D		56	1						
23			E		63	1						
24						1						
25	T-AA-2	WALL North	A	BY	73	1						
26			B		77	1						
27			C		69	1						
28			D		65	1						
29			E		63	1						
30						1						
31	T-BB-3	WALL EAST	A	BY	85	1						
32			B		82	1						
33			C		79	1						
34			D		54	1						
35			E		52	1						
36						1						
37	S-AA-3	WALL EAST	A	BY	48	1						
38			B		69	1						
39			C		73	1						
40			D		63	1						
			E		77							



Instrument Model & s/n: Ludlum 2221 "B"
Detector Model & s/n: 44-9
Calibration Date: 2-7-97 BKG = 61
Efficiency A (Alpha): .21 cpm / dpm based on
Detector Area: 15.5 CM² CM2

Background	Counts	Ct Time (min)	Rb	Date

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ION TECHNOLOGY, INC. TM 3-90

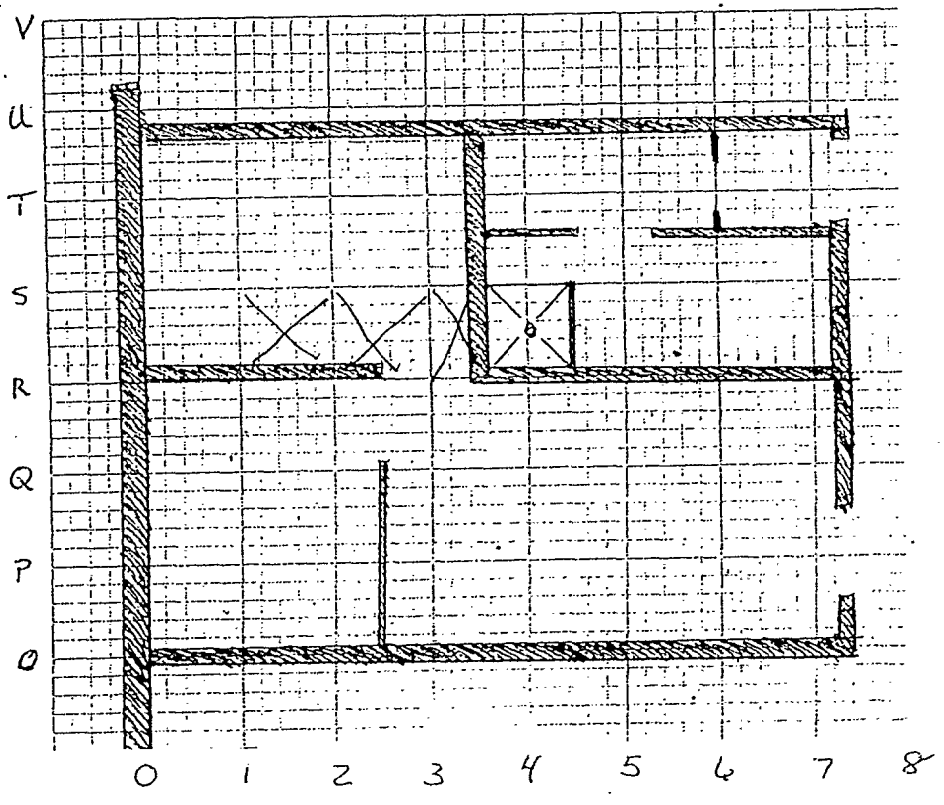
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

#4072

SAMPLE DATE: 9-15-97
ANALYSIS DATE: RM-5-D-2
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Final Survey 1st floor Verification WALLS

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)		RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	R-BB-3	WALL EAST	A	Bγ	59	1						
2			B		51	1						
3			C		54	1						
4			D		70	1						
5			E		67	1						
6						1						
7	R-AA-2	WALL South	A	Bγ	55	1						
8			B		64	1						
9			C		83	1						
10			D		59	1						
11			E		57	1						
12						1						
13	R-BB-1	WALL South	A	Bγ	54	1						
14			B		63	1						
15			C		66	1						
16			D		59	1						
17			E		57	1						
18						1						
19	R-2	DUP FLOOR	E	Bγ	63	1						
20	R-AA-0	DUP- WALL	E	Bγ	57	1						
21						1						
22						1						
23	R-BB-1	WALL South	A	α	1	1						
24			B		1	1						
25			C		0	1						
26			D		1	1						
27			E		2	1						
28						1						
29						1						
30						1						
31						1						
32						1						
33						1						
34						1						
35						1						
36						1						
37						1						
38						1						
39						1						
40						1						



Instrument Model & s/n:	Ludlum 2221 "B"	ESP-1 "F" BKG=0
Detector Model & s/n:	44-9	43-5
Calibration Date:	2-7-97 BKG=61	2-10-97
Efficiency A (Alpha):	.21	cpm / dpm based on:
Detector Area:	15.5 cm²	CM2 50

Background	Counts	Ct Time (min)	Rb	Date

4073

HILBERT ASSOCIATES INC
RADIOLOGICAL ENGINEERS

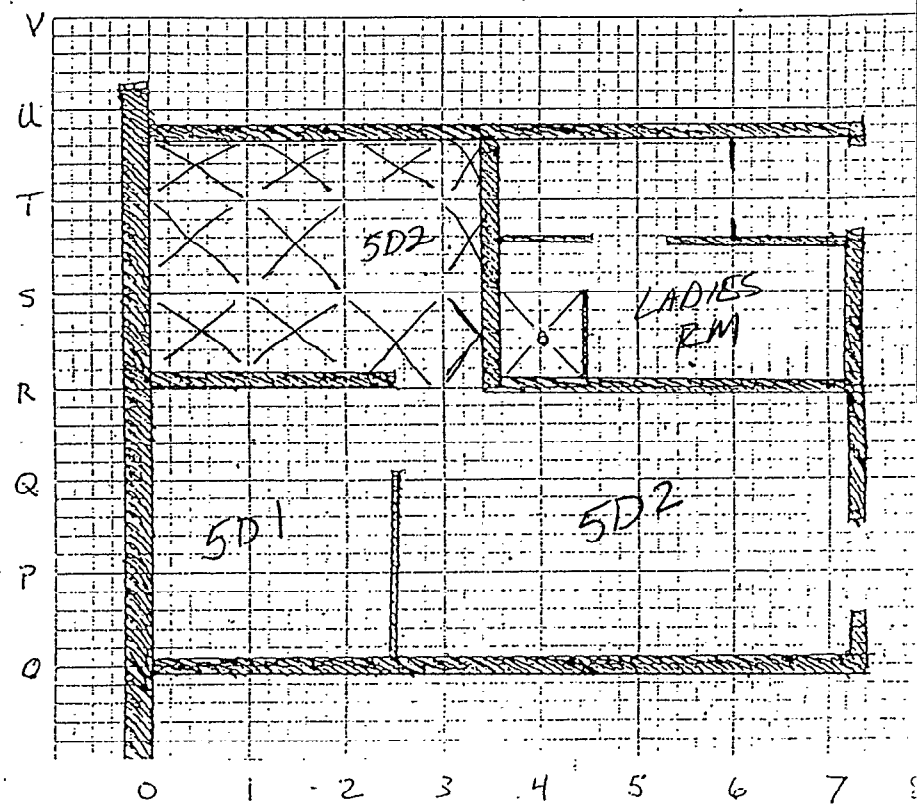
MIKE 2160

SMEAR MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9/17/97
ANALYSIS DATE: 9/17/97
LOCATION: 1ST FL OFFICES 5D2

RADIATION MEASUREMENT: Alpha and Beta-gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)	ERROR (95% LEVEL)	MDA (PER 100CM2)
1	R-0	FLOOR 5D2	A	1	1						
1	R-0		BG	59	1						
2	T-0		A	0	1						
2	T-0		BG	69	1						
3	S-1		A	0	1						
3	S-1		BG	62	1						
4	R-2		A	0	1						
4	R-2		BG	66	1						
5	T-2		A	0	1						
5	T-2		BG	46	1						
6	S-3		A	0	1						
6	S-3		BG	77	1						
7	S-2		A	0	1						
7	S-2		BG	66	1						
8			A		1						
8			BG		1						
9	R-AA-0	WALL 5D2	A	1	1						
9	R-AA-0		BG	58	1						
10	S-BB-0		A	0	1						
10	S-BB-0		BG	50	1						
11	T-AA-0		A	0	1						
11	T-AA-0		BG	68	1						
12	T-BB-1		A	0	1						
12	T-BB-1		BG	59	1						
13	T-AA-2		A	1	1						
13	T-AA-2		BG	58	1						
14	T-BB-3		A	0	1						
14	T-BB-3		BG	58	1						
15	S-AA-3		A	0	1						
15	S-AA-3		BG	48	1						
16	R-BB-3		A	2	1						
16	R-BB-3		BG	60	1						
17	R-BB-1		A	0	1						
17	R-BB-1		BG	67	1						
18	R-AA-2		A	0	1						
18	R-AA-2		BG	51	1						
19			A		1						
19			BG		1						
20			A		1						
20			BG		1						



Instrument Model & s/n:	M.2929 s/n 91234	
Detector Model & s/n:	M.43-10-1 s/n 085270	
Calibration Date:		
Efficiency BG (Beta/Gamma):	.28	cpm / dpm based on
Efficiency A (Alpha):	.33	cpm / dpm based on

M. 3190

Background	Counts	CT Time (min)	Rb	Date
Alpha			###	

SMEAR_AB.XLS

HILBE SSOCIATES, INC. SURVEY # #4074

C. NALLAM

SMEAR MEASURE...NT ANALYSIS REPORT

VERIFICATION

SAMPLE DATE: 9-16-97

ANALYSIS DATE:

LOCATION: B14 PRAXAIR 1ST FLOOR OFFICES AREAS 5C1, 5C2, 5C3 - FLOOR

RADIATION MEASUREMENT: Alpha and Beta-gamma

RESULTS REPORTED UNITS: dpm per 100cm2

MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	I0	FLOOR	A	0						+/-		
1	↓		BG	58						+/-		
2	I2		A	0						+/-		
2	↓		BG	54						+/-		
3	I4		A	1						+/-		
3	↓		BG	64						+/-		
4	I6		A	0						+/-		
4	↓		BG	73						+/-		
5	J1		A	0						+/-		
5	↓		BG	55						+/-		
6	J3		A	0						+/-		
6	↓		BG	56						+/-		
7	J5		A	1						+/-		
7	↓		BG	64						+/-		
8	K0		A	0						+/-		
8	↓		BG	71						+/-		
9	K2		A	0						+/-		
9	↓		BG	58						+/-		
10	K4		A	1						+/-		
10	↓		BG	47						+/-		
11	K6		A	1						+/-		
11	↓		BG	73						+/-		
12	L1		A	0						+/-		
12	↓		BG	69						+/-		
13	L3		A	0						+/-		
13	↓		BG	73						+/-		
14	L5		A	0						+/-		
14	↓		BG	62						+/-		
15	M0		A	1						+/-		
15	↓		BG	53						+/-		
16	M2		A	0						+/-		
16	↓		BG	66						+/-		
17	M4		A	1						+/-		
17	↓		BG	58						+/-		
18	M6		A	1						+/-		
18	↓		BG	70						+/-		
19	N1		A	0						+/-		
19	↓		BG	59						+/-		
20	N3		A	0						+/-		
20	↓		BG	63						+/-		
21	N5			2/64								
21	↓											

Instrument Model & s/n: #L 2929 91234

Detector Model & s/n: 85270

Calibration Date:

Efficiency BG (Beta/Gamma): .28 cpm / dpm based on S/Y90

Efficiency A (Alpha): .33 cpm / dpm based on Th230

chris H.

Background	Counts	Ct Time (min)	Rb	Date
Alpha				
Beta-Gamma		1		

ENCL-C1.XLS

HILBE ..SSOCIATES, INC.

SMEAR MEASURE..NT ANALYSIS REPORT

4075

SAMPLE DATE: 9/18/97

ANALYSIS DATE:

LOCATION: BLDG 14 1ST FLOOR OFFICE (HALLWAY / 5B) FLOOR & WALLS

VERIFICATION SMEARS

RADIATION MEASUREMENT: Alpha and Beta-gamma

RESULTS REPORTED UNITS: dpm per 100cm2

MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	-A5	1ST FLOOR OFFICE HALLWAY	A	2	1 MIN					+/-		
1	↓	FLOOR	BG	61						+/-		
2	A6		A	0						+/-		
2	↓		BG	63						+/-		
3	B5		A	0						+/-		
3	↓		BG	56						+/-		
4	B7		A	0						+/-		
4	↓		BG	46						+/-		
5	-A9		A	1						+/-		
5	↓		BG	72						+/-		
6	A8		A	2						+/-		
6	↓		BG	57						+/-		
7	B9		A	0						+/-		
7	↓		BG	53						+/-		
8	C8		A	0						+/-		
8	↓		BG	69						+/-		
9	D9		A	0						+/-		
9	↓		BG	70						+/-		
10	E8		A	1						+/-		
10	↓		BG	48						+/-		
11	F9		A	0						+/-		
11	↓		BG	60						+/-		
12	G-8		A	0						+/-		
12	↓		BG	58						+/-		
13	H-9		A	2						+/-		
13	↓		BG	61						+/-		
14	I-8		A	0						+/-		
14	↓		BG	60						+/-		
15	J9		A	1						+/-		
15	↓		BG	55						+/-		
16	K8		A	0						+/-		
16	↓		BG	47						+/-		
17	-A9 BB	1ST FLOOR OFFICE HALLWAY	A	0						+/-		
17	↓	WALLS	BG	50						+/-		
18	B9 AA		A	2						+/-		
18	↓		BG	61						+/-		
19	D9 BB		A	0						+/-		
19	↓		BG	65						+/-		
20	F9 AA		A	0						+/-		
20	↓		BG	51						+/-		

Instrument Model & s/n: 2929 / 91234
Detector Model & s/n: 43-10-1 / 35276
Calibration Date: Due 2/98
Efficiency BG (Beta/Gamma): .28 — cpm / dpm based on S/Y90
Efficiency A (Alpha): .32 — cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha	131	700		
Beta-Gamma	41310			

ION TECHNOLOGY, INC.

SMEAR MEASUREMENT ANALYSIS REPORT

4076

ANALYSIS DATE: 9/18/97
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Area 1ST FLOOR OFFICE Verification Survey

RADIATION MEASUREMENT: Alpha and Beta-gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
21	H9 BB	1ST FLOOR OFFICE HALLWAY	A	0	1 MIN			A			
21	↓	WALLS	BG	66				BG			
22	J9 AA		A	0				A			
22	↓	↓	BG	49				BG			
23	H1 AA	1ST FLOOR OFFICE RM 5B	A	0				A			
23	↓	(NORTH WALL)	BG	71				BG			
24	G2 BB		A	0				A			
24	↓		BG	58				BG			
25	H3 AA		A	1				A			
25	↓		BG	51				BG			
26	H5 AA		A	0				A			
26	↓		BG	59				BG			
27	G6 BB		A	0				A			
27	↓		BG	51				BG			
28	H7 AA		A	0				A			
28	↓	↓	BG	56				BG			
29	F1 AA	1ST FLOOR OFFICE RM 5B	A	0				A			
29	↓	(SOUTH WALL)	BG	54				BG			
30	G2 BB		A	1				A			
30	↓		BG	65				BG			
31	F3 AA		A	0				A			
31	↓		BG	72				BG			
32	F5 AA		A	0				A			
32	↓		BG	40				BG			
33	G6 BB		A	0				A			
33	↓		BG	62				BG			
34	F7 AA		A	1				A			
34	↓	↓	BG	77				BG			
35	F1 AA	1ST FLOOR OFFICE RM 5B	A	1				A			
35	↓	(EAST & WEST WALLS)	BG	53				BG			
36	G2 BB	(WEST)	A	0				A			
36	↓		BG	63				BG			
37	H1 AA		A	0				A			
37	↓	↓	BG	58				BG			
38	F7 AA	(EAST)	A	0				A			
38	↓		BG	65				BG			
39	G6 BB		A	0				A			
39	↓		BG	65				BG			
40	H7 AA		A	2				A			
40	↓	↓	BG	64	↓			BG			

Instrument Model & s/n: 2929 / 91234 — M.2929 s/n 91234
Detector Model & s/n: 43-10-1 / 85270 — M.43-10-1 s/n 085270
Calibration Date: Due 2/98 — 2/7/97
Efficiency BG (Beta/Gamma): .28 — cpm / dpm based on S/Y90
Efficiency A (Alpha): .32 — cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha	131	700		
Beta-Gamma	41310	700		

SWIPE.XLS

4077

Tech: SMALLRIDGE/MAC

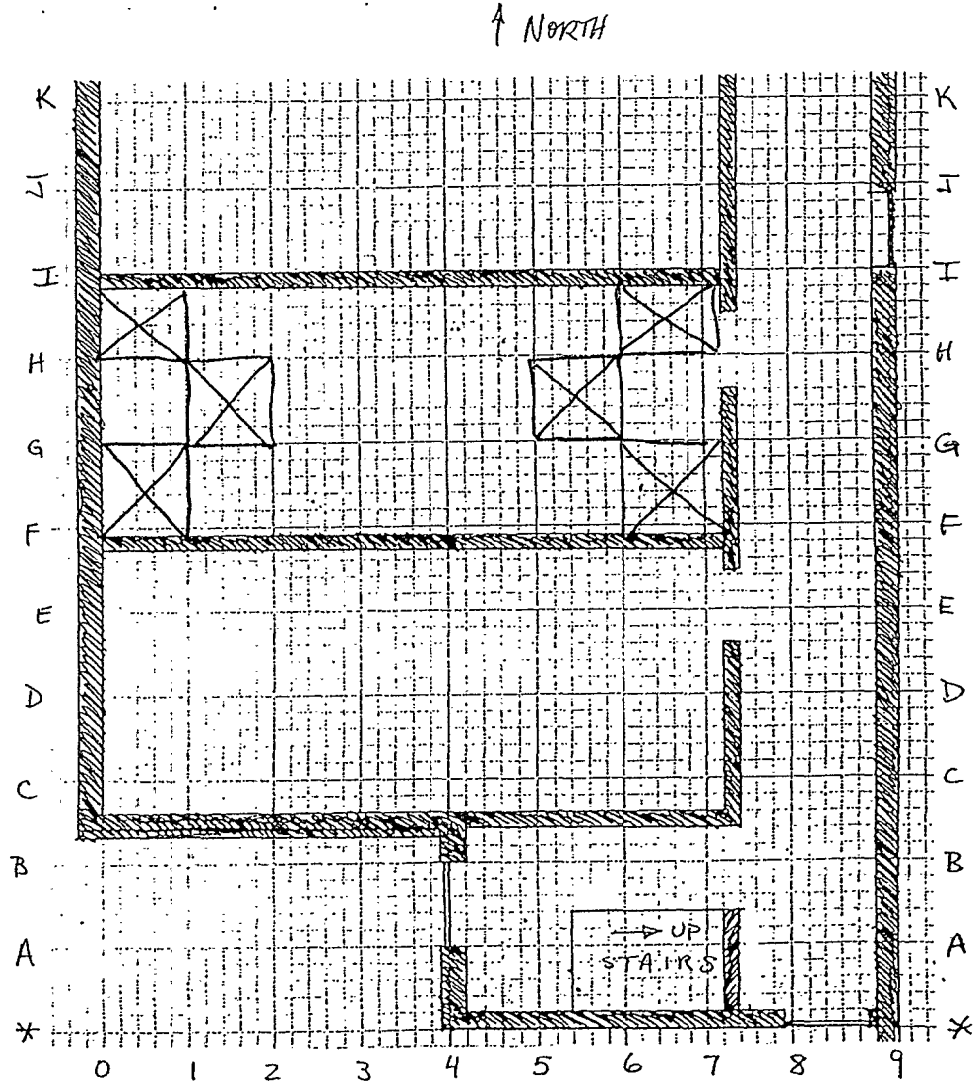
ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9/18/97
ANALYSIS DATE:
LOCATION: Rm 5B Picxcir, Tonawanda, NY
Bldg. 14, Final Survey SMALL OFFICE RM 5B VERIFICATION Survey EAST & West WALL

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	F1 AA	SM. OFFICE 5B WESTWALL	BY	56	1						
2				72	1						
3				51	1						
4				56	1						
5				50	1						
6	G2 BB			56	1						
7				57	1						
8				44	1						
9				45	1						
10				53	1						
11	H1 AA	(DOOR)		66	1						
12				36	1						
13				39	1						
14				35	1						
15				40	1						
16	F-7 AA			60	1						
17		SM. OFFICE 5B EASTWALL		56	1						
18				43	1						
19				96	1						
20				109	1						
21	G6 BB	(WINDOW)		76	1						
22				47	1						
23				59	1						
24				64	1						
25				54	1						
26	H7 AA			56	1						
27				79	1						
28				70	1						
29				83	1						
30				68	1						
31	H7 AA	DUP		66	1						
32				69	1						
33				88	1						
34				70	1						
35				71	1						
36					1						
37					1						
38					1						
39					1						
40					1						



Instrument Model & s/n:	2221 / B
Detector Model & s/n:	44-9
Calibration Date:	Due 2/98
Efficiency A (Alpha):	.20
Detector Area:	15.5

cpm / dpm based on CM2

Background	Counts	C1 Time (min)	Rb	Date
60		1 MIN		

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4078

ION TECHNOLOGY, INC.

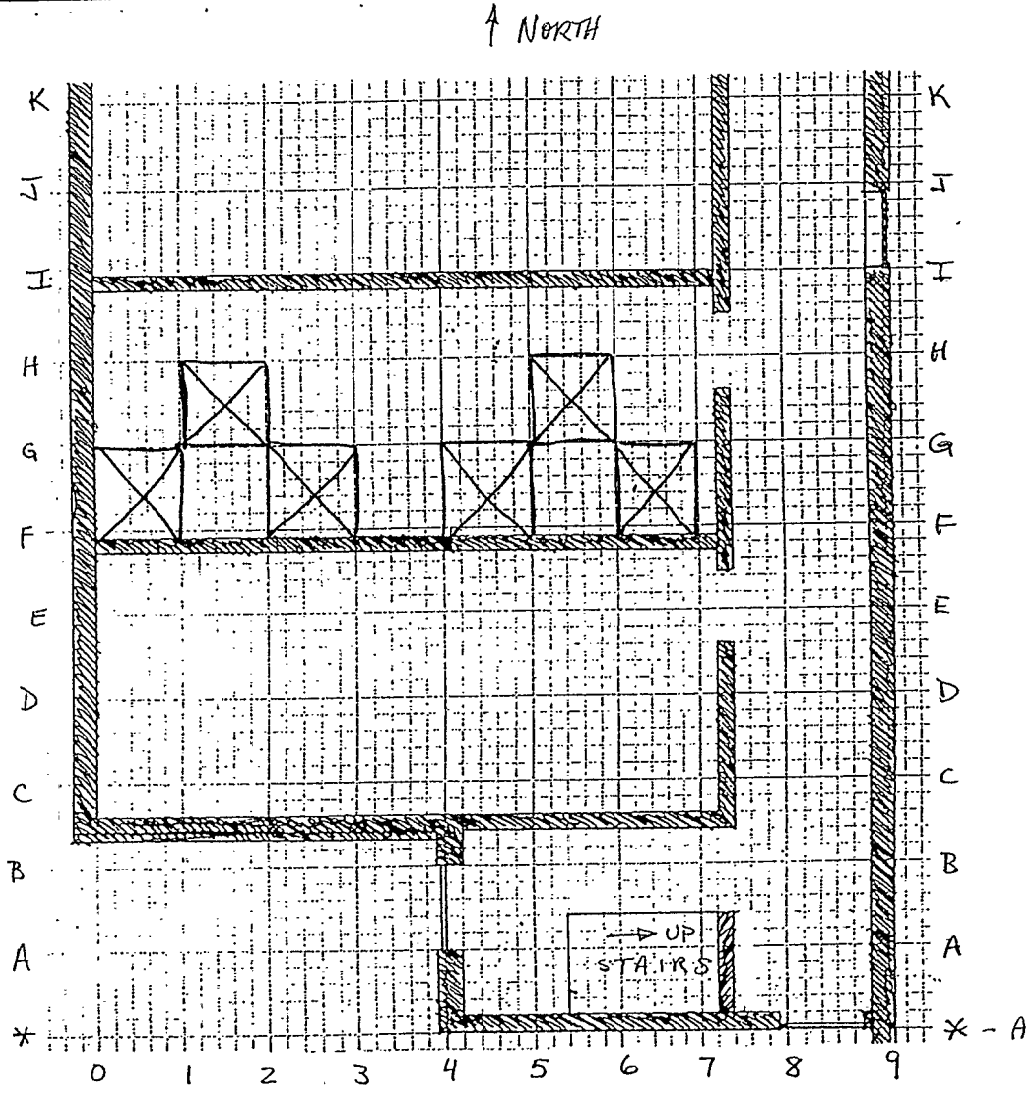
DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

Tech: SmallRidge/MK

SAMPLE DATE: 9/18/97
ANALYSIS DATE:
LOCATION: RM 5B Praxair, Tonawanda, NY
Bldg. 14, Final Survey Sm. office RM 5B South WALL (VERIFICATION)

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	F1 AA	Sm OFFICE 5B South WALL	BR	71	1						
2				68	1						
3				45	1						
4				66	1						
5				46	1						
6	G2 BB			78	1						
7				23	1						
8				50	1						
9				43	1						
10				65	1						
11	F3 AA			66	1						
12				50	1						
13				83	1						
14				56	1						
15				51	1						
16	F5 AA			55	1						
17				65	1						
18				76	1						
19				78	1						
20				56	1						
21	G6-BB			47	1						
22				44	1						
23				41	1						
24				56	1						
25				50	1						
26	F7-AA			47	1						
27				40	1						
28				43	1						
29				65	1						
30				46	1						
31	F7 AA	DUP		54	1						
32				68	1						
33				65	1						
34				83	1						
35				56	1						
36					1						
37					1						
38					1						
39					1						
40					1						



Instrument Model & s/n: 2221 / B
Detector Model & s/n: 44-9 / 8267
Calibration Date: Due 2/98
Efficiency A (Alpha): .20
Detector Area: 15.5 cpm / dpm based on CM2

Background	Counts	Ct Time (min)	Rb	Date
60		1 MIN		

4079

Tech: SMALLRIDGE/MK

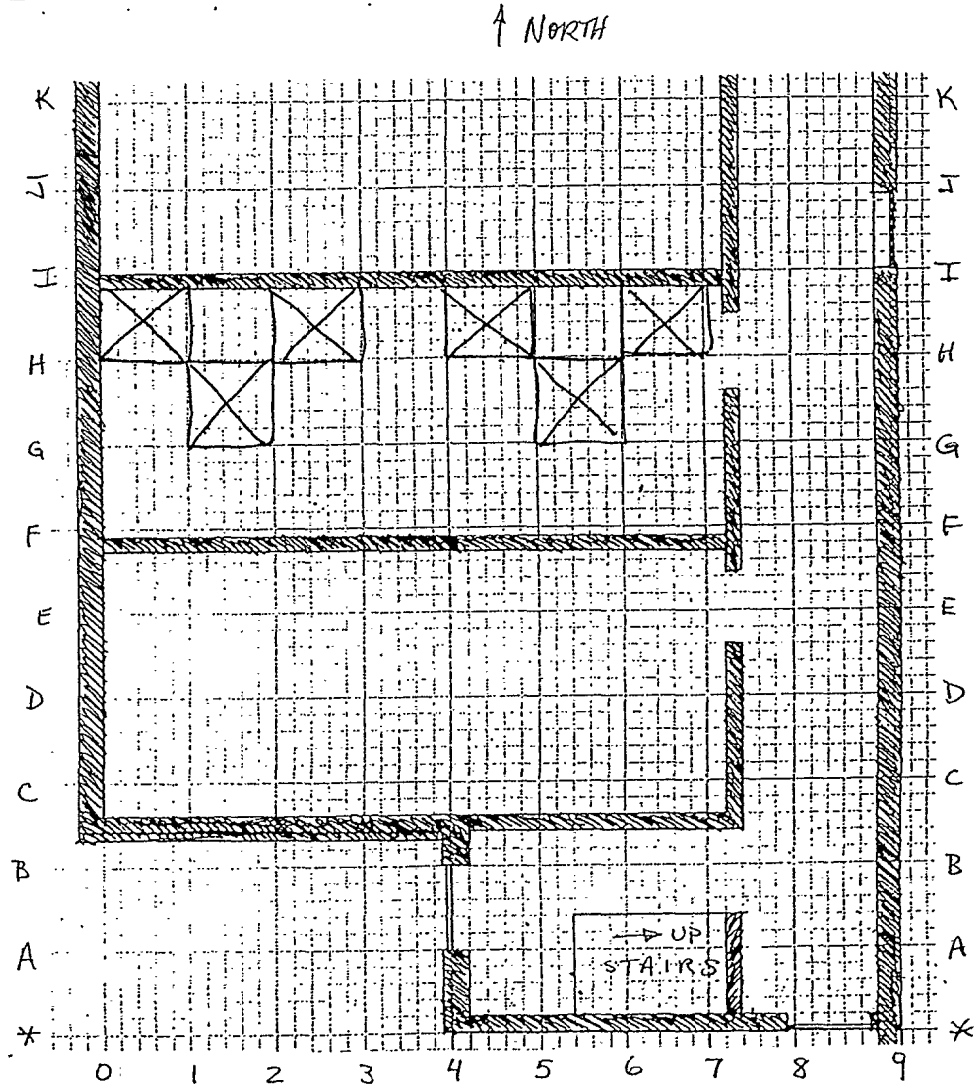
ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 9/18/97
ANALYSIS DATE:
LOCATION: RM 5B Plexcil, Tonowanda, NY
Bldg. 14, Final Survey SMAM OFFICE RM 5B VERIFICATION Survey (NORTHWALL)

RADIATION MEASUREMENT:
RESULTS REPORTED UNITS:
MEASUREMENT TYPE: Direct Scaler Measurements

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
1	H1 AA	Sm OFFICE 5B NORTHWALL	β γ	59	1						
2				50	1						
3				61	1						
4				49	1						
5				40	1						
6	G2 BB			52	1						
7				46	1						
8				61	1						
9				60	1						
10				59	1						
11	H3 AA			57	1						
12				54	1						
13				47	1						
14				45	1						
15				57	1						
16	H5 AA			60	1						
17				57	1						
18				56	1						
19				63	1						
20				39	1						
21	G6 BB			59	1						
22				60	1						
23				59	1						
24				76	1						
25				52	1						
26	H7 AA			83	1						
27				50	1						
28				59	1						
29				76	1						
30				59	1						
31	H7 AA	DUP		74	1						
32				60	1						
33				54	1						
34				56	1						
35				50	1						
36					1						
37					1						
38					1						
39					1						
40					1						



Instrument Model & s/n: 2221 / B
Detector Model & s/n: 44-9
Calibration Date: Due 2/98
Efficiency A (Alpha): .20
Detector Area: 15.5 cpm / dpm based on CM2

Background	Counts	Ct Time (min)	Rb	Date
60		1 MIN		

A_BLANK.XLS

SAMPLE DATE: 9-8-97
ANALYSIS DATE:
LOCATION: BM PRAXAIR AREA 7A : WALLS & CEILING

VERIFICATION

RADIATION MEASUREMENT: Alpha and Beta-gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: Removable Contamination

4080

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1)	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (PER 100CM2)		ERROR (95% LEVEL)	MDA (PER 100CM2)
1	WO AA	9-8-97 ~~WALL~~ WEST WALL	A	0						+/-		
1	↓	↓	BG	53						+/-		
2	XO AA	WEST WALL	A	0						+/-		
2	↓	↓	BG	60						+/-		
3	YO AA	WEST WALL	A	1						+/-		
3	↓	↓	BG	92						+/-		
4	WO AA	SOUTH WALL	A	0						+/-		
4	↓	↓	BG	64						+/-		
5	Z1 AA	NORTH WALL	A	0						+/-		
5	↓	↓	BG	68						+/-		
6	X4 AA	EAST WALL	A	1						+/-		
6	↓	↓	BG	29						+/-		
7	Y2	CEILING	A	0						+/-		
7	↓	↓	BG	93						+/-		
8			A							+/-		
8			BG							+/-		
9			A							+/-		
9			BG							+/-		
10			A							+/-		
10			BG							+/-		
11			A							+/-		
11			BG							+/-		
12			A							+/-		
12			BG							+/-		
13			A							+/-		
13			BG							+/-		
14			A							+/-		
14			BG							+/-		
15			A							+/-		
15			BG							+/-		
16			A							+/-		
16			BG							+/-		
17			A							+/-		
17			BG							+/-		
18			A							+/-		
18			BG							+/-		
19			A							+/-		
19			BG							+/-		
20			A							+/-		
20			BG							+/-		

Instrument Model & s/n: 41234
Detector Model & s/n:
Calibration Date:
Efficiency BG (Beta/Gamma): cpm / dpm based on S/Y90
Efficiency A (Alpha): cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha				
Beta-Gamma				

ENCL-C1.XLS

ION TECHNOLOGY, INC.

SMEAR MEASUREMENT ANALYSIS REPORT

4081

FLOORS

ANALYSIS DATE: 9/17/97 RS/MK South HALLWAY!

LOCATION: Praxair, Tonawanda, NY

Bldg. 14, Area Small Office Verification Survey

RADIATION MEASUREMENT: Alpha and Beta-gamma

RESULTS REPORTED UNITS: dpm per 100cm2

MEASUREMENT TYPE: Removable Contamination

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	RADIATION TYPE	GROSS SAMPLE (COUNTS)	COUNT TIME (MIN)	MDCR (CPM)	NET SAMPLE COUNT RATE (CPM)	RADIATION TYPE	RESULTS (DPM/100CM2)	ERROR (95% LEVEL)	MDA (DPM/100CM2)
	A5	FLOORS	A	1				A			
	↓		BG	59				BG			
	A7		A	0				A			
	↓		BG	58				BG			
	A9		A	1				A			
	↓		BG	60				BG			
	D9		A	0				A			
	↓		BG	59				BG			
	H9		A	0				A			
	↓		BG	46				BG			
	I9		A	1				A			
	↓		BG	59				BG			
	J9	DUP	A	0				A			
	↓		BG	60				BG			
			A					A			
			BG					BG			
			A					A			
			BG					BG			
			A					A			
			BG					BG			
			A					A			
			BG					BG			
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			A					A			
			BG					BG			
			A					A			
			BG					BG			

Instrument Model & s/n:	M.2929 s/n 91234	
Detector Model & s/n:	M.43-10-1 s/n 085270	
Calibration Date:	2/7/97	
Efficiency BG (Beta/Gamma):	.33	cpm / dpm based on S/Y90
Efficiency A (Alpha):	.29	cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha	.01	1		
Beta-Gamma	61	1		

SWIPE.XLS