APPENDIX C-7

VERIFICATION SURVEYS FOR CORRIDOR

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SAMPLE DATE:
LOCATION: PRAXAIR SITE
B-14 CORRIDOR
OVERHEAD VERIFICATION
CEILING & BEAMS
SURVEY # 607

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

	α	βγ
TOTAL BACKGROUND COUNTS	1	66
BACKGROUND COUNT TIME (MIN)	1 MIN.	
SAMPLE COUNT TIME (MIN)	1 MIN.	

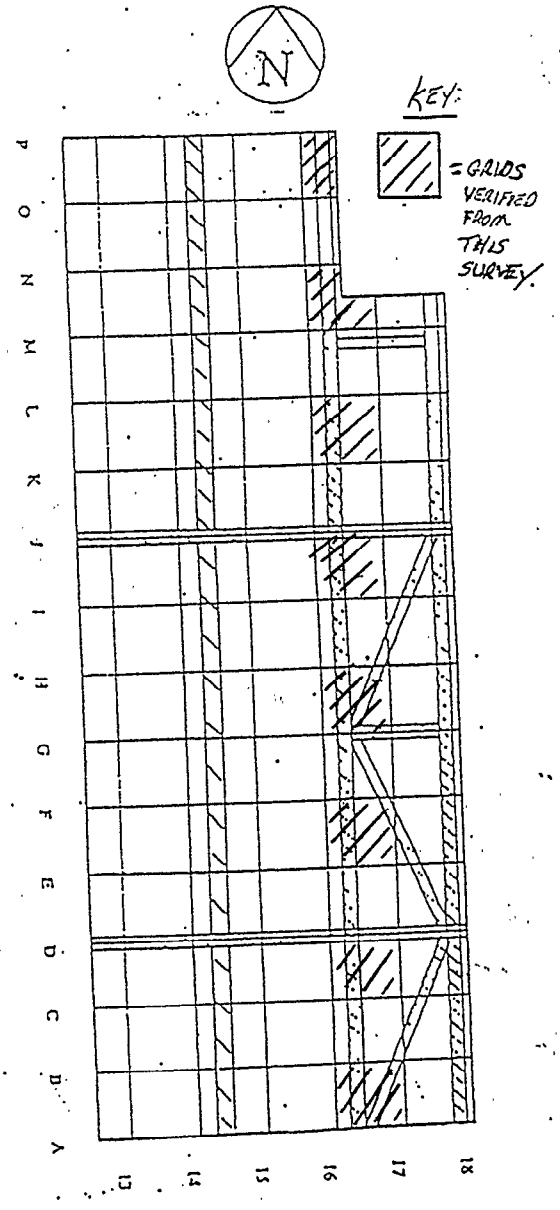
SAMPLE #	LOCATION CODE	α ALPHA Gross CTs	βγ Beta/Gamma Gross CTS	LOCATION DESCRIPTION
1	A-16 A		92	CEILING
2	B	N	168	I BEAM
3	C	A	84	CEILING
4	D		176	I BEAM
5	E		164	I BEAM
6	C-16 A	5	147	CEILING
7	B	3	83	ANGLE IRON
8	C	1	136	I BEAM
9	D	7	152	CEILING
10	E	2	129	I BEAM
11	E-16 A		91	I BEAM
12	B		183	CEILING
13	C	N	107	I BEAM
14	D	A	143	CEILING
15	E		125	I BEAM
16	G-16 A	5	132	CEILING
17	B	1	108	I BEAM
18	C	2	97	I BEAM
19	D	4	151	CEILING
20	E	5	160	CEILING
21	G-16 E	4	175	CEILING * D.U.P.
22	I-16 A		82	I BEAM
23	B		181	CEILING
24	C		93	I BEAM
25	D		166	CEILING
26	E		158	CEILING
27	K-16 A		77	I BEAM
28	B		157	CEILING
29	C	N	84	I BEAM
30	D	A	160	CEILING
31	E		79	I BEAM
32	M-16 A		124	I BEAM
33	B		153	CEILING
34	C		109	I BEAM
35	D		141	CEILING
36	E		106	I BEAM
37	O-16 A	6	189	CEILING
38	B	2	136	I BEAM
39	C	8	211	CEILING
40	D	2	155	I BEAM
41	E	3	182	CEILING
42	O-16 E	4	197	CEILING * D.U.P.

* NOTE: GRID PATTERN IS AS FOLLOWS; N ↑ A B E C D ↑ 1m ↓ ←1m→

PRAXAIR Building 14

Corridor

Ceiling



	βγ	α
Instrument Model & s/n:	(B) L2221 W/44-9	(F) ESP-1 W/43-5
Detector Model & s/n:		
Calibration Date:		
Efficiency	cpm / dpm based on S/Y90 = .20 EFF. βγ / .12 EFF. α	
Detector Area	cm2 = 15.5 cm² βγ / 50 cm² α	

7-31-97
William W. [signature]

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

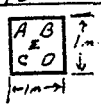
SAMPLE DATE:
LOCATION: PRAXAIR SITE
B-14 CORRIDOR
OVERHEAD VERIFICATION
CEILING & BEAMS
SURVEY #608

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

	α	βγ
TOTAL BACKGROUND COUNTS	1	66
BACKGROUND COUNT TIME (MIN)	1 min.	
SAMPLE COUNT TIME (MIN)	1 min.	

SAMPLE #	LOCATION CODE	α ALPHA Gross CTS	βγ Beta/Gamma Gross CTS	LOCATION DESCRIPTION
1	B-14 A		147	CEILING
2	B		111	I BEAM
3	C	N	158	CEILING
4	D	A	106	I BEAM
5	E		151	CEILING
6	D-14 A	4	162	CEILING
7	B	2	143	I BEAM
8	C	5	199	CEILING
9	D	1	134	I BEAM
10	E	4	168	CEILING
11	F-14 A		114	ANGLE IRON
12	B		133	CEILING
13	C		89	I BEAM
14	D		124	CEILING
15	E		77	I BEAM
16	H-14 A		186	CEILING
17	B		83	I BEAM
18	C	N	167	CEILING
19	D	A	92	I BEAM
20	~~F-14~~ E		194	CEILING
21	H-14 E		209	CEILING *D.U.P.
22	J-14 A		169	CEILING
23	B		138	I BEAM
24	C		156	CEILING
25	D		109	I BEAM
26	E		76	I BEAM
27	L-14 A	6	137	CEILING
28	B	2	88	I BEAM
29	C	3	144	CEILING
30	D	1	123	I BEAM
31	E	5	146	CEILING
32	N-14 A		75	I BEAM
33	B		148	CEILING
34	C	N	131	I BEAM
35	D	A	152	CEILING
36	E		86	I BEAM
37				
38				
39		N		
40			A	
41				
42	N-14 E		78	I BEAM *D.U.P.

*NOTE: GRID PATTERN IS AS FOLLOWS:



	βγ	α
Instrument Model & S/N:	(B) LB221 W/44-9	(F) ESP-1 W/43-5
Detector Model & S/N:		
Calibration Date:		
Efficiency	cpm / dpm based on Sr/90 = .20 EFF. βγ	.12 EFF. α
Detector Area	cm2 = 15.5 cm² βγ	50 cm² α

7-31-97
William W.

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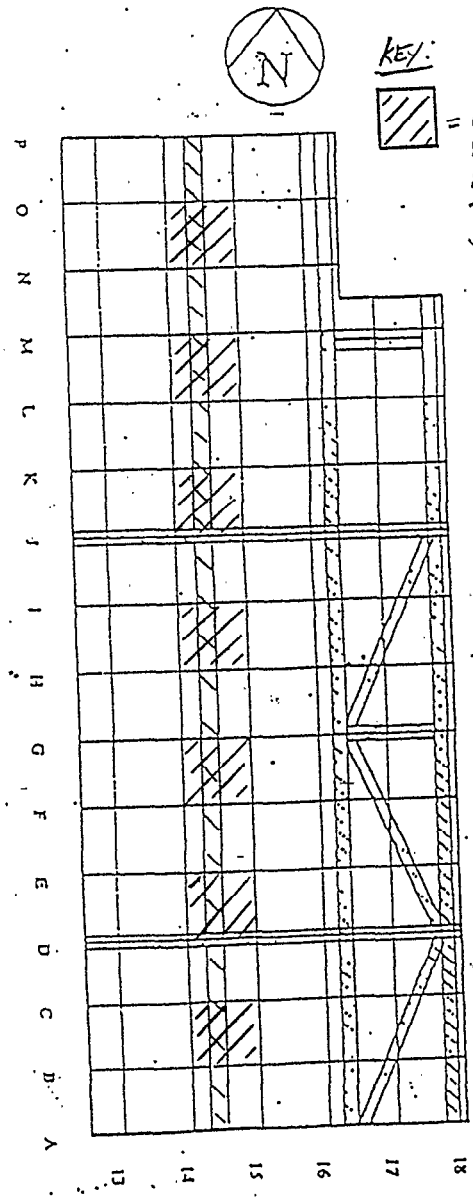
PRAXAIR Building 14

Corridor

Ceiling



ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

609

SAMPLE DATE: 7-31-97
LOCATION: PRAXAIR
AREA: CORRIDOR
DESCRIPTION/REASON: CEILING VERIFICATION
TECHNICIAN: D. PITMAN

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

	α	βγ
Instrument Model & s/n:		2221-C
Detector Model & s/n:		
Calibration Date:		
Efficiency:	cpm/dpm based on S/Y90	0.21
Detector Area:	cm2	0.155

	α	βγ
TOTAL BACKGROUND COUNTS		55
BACKGROUND COUNT TIME(MIN)		
SAMPLE COUNT TIME (TIME)		1

Gross cpm

Sample #	Location Code	Location Description	α	βγ
1	A12 A	I-Beam		78
2	B	Crete PLANK		123
3	C	I-BEAM		95
4	D	Crete Plank		95
5	E	Crete Plank		84
6	C12 A	I-Beam		48
7	B	Crete Plank		95
8	C	I-Beam		130
9	D	Crete Plank		98
10	E	Crete Plank		143
11	E12 A	I-Beam		194
12	B	Crete Plank		151
13	C	I-Beam		62
14	D	Crete Plank		123
15	E	Crete Plank		178
16				
17				
18				
19				
20				
21				
22				
23				
24				
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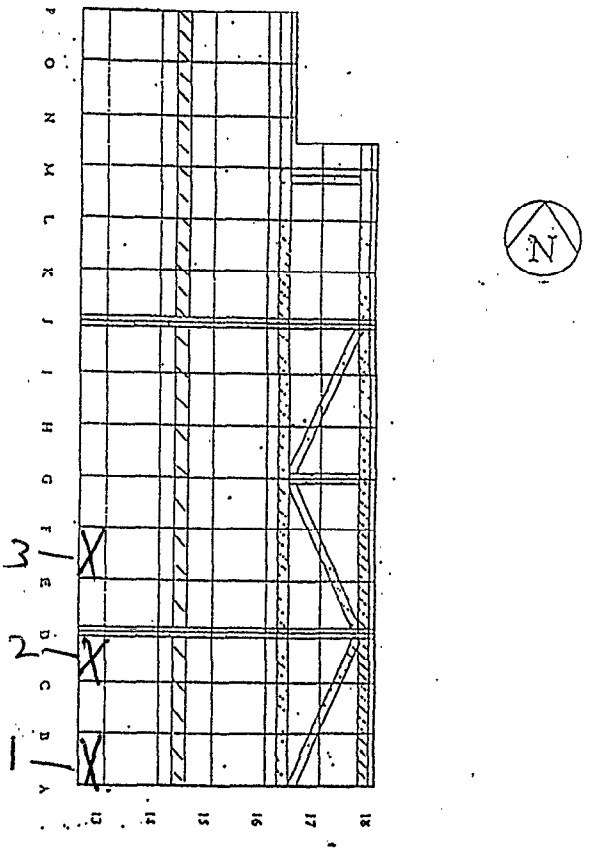
42				

PRAXAIR Building 14

Corridor Ceiling



Loc	Type	Description	Gross	α DPM	Gross	Beta DPM
1	S	A12				
2	S	C12				
3	S	E12				

Scaler S/N		BKD	EFF	MDA
CT =	Alpha:			
Tech	Beta:			

Review

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

639

SAMPLE DATE: 7-31-97
LOCATION: PRAXAIR

AREA: corridor
DESCRIPTION/REASON: ceiling verification
TECHNICIAN: D. PITMAN

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

	α	βγ
Instrument Model & s/n		2221-A
Detector Model & s/n		
Calibration Date:		
Efficiency:	cpm/dpm based on S/N90	0.19
Detector Area:	cm2	0.155

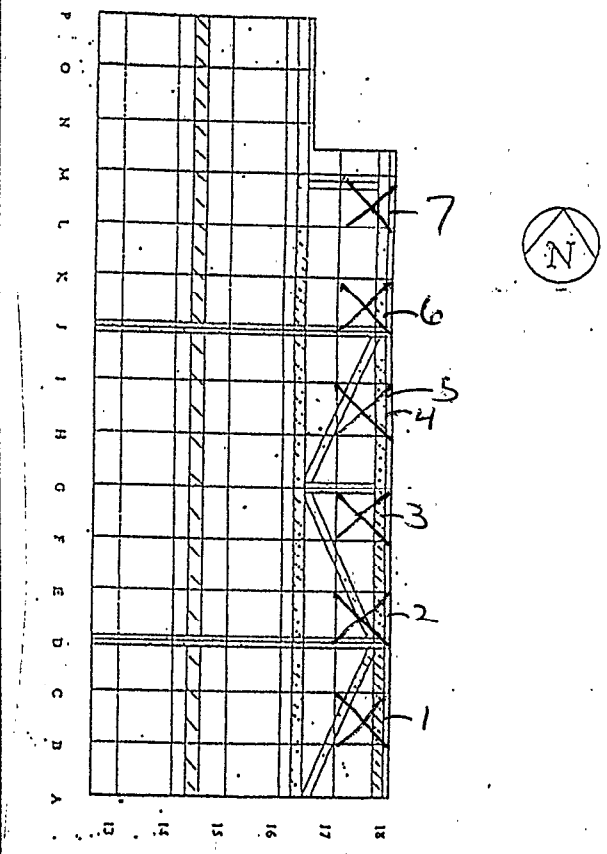
	α	βγ
TOTAL BACKGROUND COUNTS		55
BACKGROUND COUNT TIME(MIN)		1
SAMPLE COUNT TIME (TIME)		1

Gross cpm

Sample #	Location Code		Location Description	α	β
1	B17	A	Crete Plank		153
2		B	I-Beam		34
3		C	crete Plank		152
4		D	I-Beam		51
5		E	Brick		90
6	D17	A	crete Plank		30
7		B	I-Beam		38
8		C	crete Plank		175
9		D	I-Beam		76
10		E	Brick		180
11	F17	A	crete Plank		34
12		B	rest I-Beam		25
13		C	crete Plank		54
14		D	I-Beam		103
15		E	Brick		132
16	H17	A	crete Plank		134
17		B	I-Beam		80
18		C	crete Plank		47
19		D	I-Beam		105
20		E	Brick		108
21	H17		DupL. - Crete Plank		38
22	J17	A	Crete Plank		130
23		B	I-Beam		91
24		C	crete Plank		133
25		D	I-Beam		73
26		E	Brick		77
27	L17	A	crete Plank		45
28		B	I-Beam		43
29		C	crete Plank		125
30		D	I-Beam		35
31		E	Brick		83
32	D13	A	crete Plank		141
33		B	crete Plank		139
34		C	crete Plank		146
35		D	crete Plank		170
36		E	crete Plank		137
37	D15	A	crete Plank		142
38		B			
39		C			
40		D	DUP		
41		E			
42	D15		DupL.		

PRAXAIR Building 14

Corridor Ceiling



Loc	Type	Description	Gross	α DPM	Gross	Beta DPM
1	S	B17				
2	S	D17				
3	S	F17				
4	S	H17				
5	S	H17 DupL.				
6	S	J17				
7	S	L17				

Scaler S/N		BKD	EFF	MDA
CT =	Alpha:			
Tech	Beta:			

Review

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

640

SAMPLE DATE: 8-4-97
LOCATION: Prax.AIR

AREA: corridor
DESCRIPTION/REASON: Ceiling verification
TECHNICIAN: D. Pitman

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

	α	βγ
Instrument Model & s/n		2221-A
Detector Model & s/n		
Calibration Date:		
Efficiency:	cpm/dpm based on S/Y90	0.20
Detector Area:	cm2	0.155

	α	βγ
TOTAL BACKGROUND COUNTS		112
BACKGROUND COUNT TIME(MIN)		1
SAMPLE COUNT TIME (TIME)		1

Gross cpm

Sample #	Location Code	Location Description	α	βγ
1	G12 A	I-Beam		68
2	B	Crete Plank		233
3	C	I-Beam		82
4	D	Crete Plank		110
5	E	Crete Plank		131
6	G12	DuPL Crete Plank		115
7	I12 A	Crete Plank		165
8	B	Crete Plank		129
9	C	I-Beam		60
10	D	Crete Plank		152
11	E	Crete Plank		105
12	K12 A	I-Beam		80
13	B	Crete Plank		107
14	C	I-Beam		64
15	D	Crete Plank		116
16	E	Crete Plank		128
17	M12 A	I-Beam		84
18	B	Crete Plank		75
19	C	I-Beam		50
20	D	Crete Plank		127
21	E	Crete Plank		110
22	O12 A	I-Beam		59
23	B	Crete Plank		144
24	C	I-Beam		80
25	D	Crete Plank		170
26	E	Crete Plank		138
27	O12	DuPL Crete Plank		149
28				
29				
30				
31				
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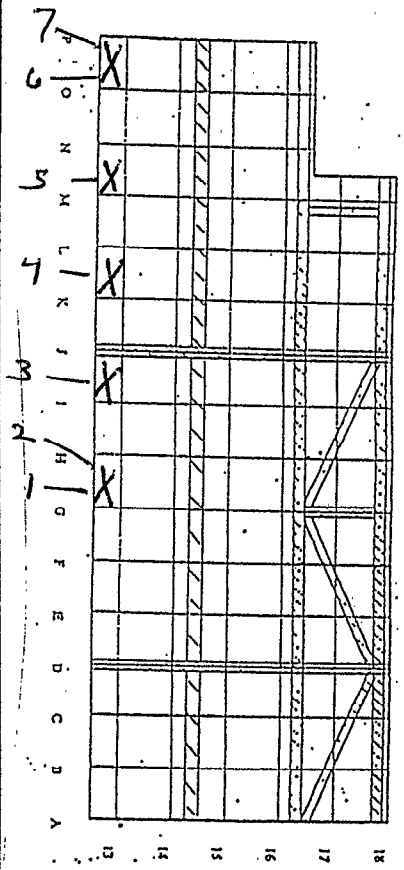
37				
38				
39				
40				
41				
42				

PRAXAIR Building 14

Corridor Ceiling



Loc	Type	Description	Gross	DPM	Gross	Beta DPM
1	S	G12				
2	S	G12 DuPL				
3	S	I12				
4	S	K12				
5	S	M12				
6	S	O-12				
7	S	O-12 DuPL				

Scaler S/N 91234	BKD	EFF	MDA
CT = 1 Alpha:			
Tech Beta:			

Review

4123a

1 of 2

SCORR04.XLS

HILBERT ASSOCIATES, INC.

SMEAR MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 8-25-97
ANALYSIS DATE: PRAXAIR SITE B-14
LOCATION: CORRIDOR FLOOR VERIFICATION SURVEY

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	A-12	B-14 CORRIDOR FLOOR	A	2	1 MIN					+/-		
1	↓		BG	64						+/-		
2	A-14		A	1						+/-		
2	↓		BG	57						+/-		
3	A-16		A	1						+/-		
3	↓		BG	67						+/-		
4	C-13		A	1						+/-		
4	↓		BG	62						+/-		
5	C-15		A	0						+/-		
5	↓		BG	56						+/-		
6	C-17		A	0						+/-		
6	↓		BG	68						+/-		
7	E-12		A	2						+/-		
7	↓		BG	53						+/-		
8	E-14		A	1						+/-		
8	↓		BG	59						+/-		
9	E-16		A	0						+/-		
9	↓		BG	65						+/-		
10	G-13		A	3						+/-		
10	↓		BG	72						+/-		
11	G-15		A	1						+/-		
11	↓		BG	66						+/-		
12	G-17		A	0						+/-		
12	↓		BG	54						+/-		
13	I-12		A	1						+/-		
13	↓		BG	70						+/-		
14	I-14		A	0						+/-		
14	↓		BG	66						+/-		
15	I-16		A	3						+/-		
15	↓		BG	63						+/-		
16	K-13		A	1						+/-		
16	↓		BG	52						+/-		
17	K-15		A	2						+/-		
17	↓		BG	50						+/-		
18	K-17		A	4						+/-		
18	↓		BG	61						+/-		
19	M-12		A	2						+/-		
19	↓		BG	64						+/-		
20	M-14		A	1						+/-		
20	↓		BG	51						+/-		
	M-14	BUP.	A	0	1 MIN.							
	M-14		BG	56								

Instrument Model & s/n: (I) 2929
Detector Model & s/n:
Calibration Date:
Efficiency BG (Beta/Gamma): .28
Efficiency A (Alpha): .32

cpm / dpm
BY 2834/9843
α 1008/3190

cpm / dpm based on S/Y90
cpm / dpm based on Th230

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

α 222/990 = .22 cpm BKGD α
BY 62369/990 = 63 cpm BKGD BY

ENCL-C1.XLS

4123 b

2 of 2

HILBERT ASSOCIATES, INC.

SMEAR MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 8-25-97
ANALYSIS DATE: ARAXAIR SITE B-14
LOCATION: CORRIDOR FLOOR VERIFICATION SURVEY

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	M-16	B14 CORR. FLOOR	A	1	1					+/-		
1	↓	↓	BG	54	1					+/-		
2	O-23		A	0	1					+/-		
2	↓		BG	61	1					+/-		
3	O-15		A	1	1					+/-		
3	↓		BG	70	1					+/-		
4			A							+/-		
4			BG							+/-		
5			A							+/-		
5			BG							+/-		
6			A							+/-		
6			BG							+/-		
7			A							+/-		
7			BG							+/-		
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							+/-		

		cpm / dpm
Instrument Model & s/n:	(+) 2929	BK 2834/9843
Detector Model & s/n:		α 1008/3180
Calibration Date:		
Efficiency BG (Beta/Gamma):	.28	cpm / dpm based on Sr/Y90
Efficiency A (Alpha):	.32	cpm / dpm based on Th230

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

α 222/990 = .22 cpm BKGD α

βγ 62369/990 = 63 cpm BKGD βγ

ENGL/C1JL3

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

4124

BLCORR13.XLS

SAMPLE DATE: 8-25-97
LOCATION: PRAXAIR SITE BLDG. 14
AREA: CORRIDOR FLOOR
DESCRIPTION/REASON: VERIFICATION SURVEY
TECHNICIAN: W. [illegible]

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

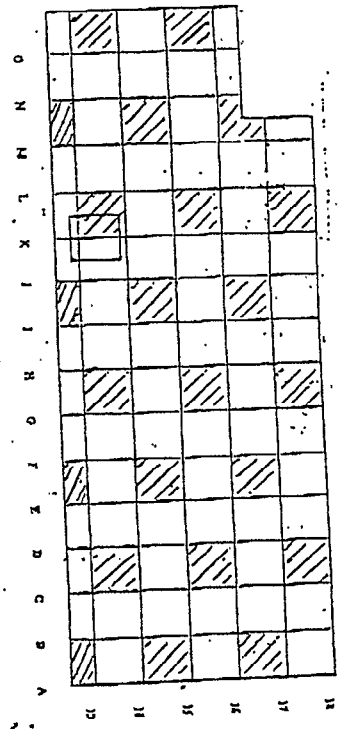
	α	BY
Instrument Model & s/n	(F) ESP-1 14/8-5	(B) LB921
Detector Model & s/n	EFF. = .12 / 50 cm²	EFF. = .20 / 50 cm²
Calibration Date:		
Efficiency:	cpm/dpm based on S/T90	
Detector Area:	cm2	

	α	BY
TOTAL BACKGROUND COUNTS	1	57
BACKGROUND COUNT TIME (MIN)	1	1
SAMPLE COUNT TIME (MIN)	1 MIN.	1 MIN.

Sample #	Location Code	Location Description		Gross cpm α	Gross cpm β
1	A-12	B-14 CORRIDOR FLOOR			88
2					69
3					74
4					105
5					115
6	A-14				137
7					141
8				N	92
9				A	81
10					73
11	A-16				102
12					116
13					124
14					131
15					126
16	C-13			2	145
17				4	152
18				1	130
19				2	128
20				3	116
21	C-13	E	DUP.		125
22	C-15				139
23					118
24					86
25					90
26					83
27	C-17				79
28					124
29					112
30					87
31					105
32	E-12				136
33				N	82
34				A	76
35					116
36					118
37	E-14				128
38					145
39					113
40					129
41					146
42	E-14	E	DUP.		119

Praxair, Bldg. 14
Corridor

Floor



Loc	Type	Description	Gross	Δ DPM.	Gross	Data

4125

HILBERT ASSOCIATES INC
RADIOLOGICAL ENGINEERS

SMEAR MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 7-31-97
ANALYSIS DATE: 8-27-97
LOCATION: PRAXAIR BLDG 14 / corr (ceiling Verification)

DANA PITMAN

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

SMEARS

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION(1) (Ceiling Verification)	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	B-17	Corridor / crete plank	A	1 RS	1						
1	↓	& I-Beams	BG	55	1						
2	D-17	Corridor / crete plank	A	0	1						
2	↓	& I-Beams	BG	52	1						
3	F-17	Corridor / crete plank	A	0	1						
3	↓	& I-Beams	BG	57	1						
4	H-17	Corridor / crete plank	A	1	1						
4	↓	& I-Beams	BG	55	1						
5	H-17 (dup)	Corridor / crete plank	A	1	1						
5	↓	& I-Beams	BG	57	1						
6	J-17	Corridor / crete plank	A	0	1						
6	↓	& I-Beams	BG	65	1						
7	L-17	Corridor / crete plank	A	0	1						
7	↓	& I-Beams	BG	74	1						
8	D-13	Corridor / crete plank	A	0	1						
8	↓	↓	BG	55	1						
9	G-12	Corridor / crete plank	A	1 ↓	1						
9	↓	& I-Beams	BG	54 RS	1						
10	G-12 (dup)	Corridor / crete plank	A	0	1						
10	↓	& I-Beams	BG	68	1						
11	I-12	Corridor / crete plank	A	1	1						
11	↓	& I-Beams	BG	50	1						
12	K-12	Corridor / crete plank	A	2	1						
12	↓	& I-Beams	BG	65	1						
13	M-12	Corridor / crete plank	A	2	1						
13	↓	& I-Beams	BG	68	1						
14	O-12	Corridor / crete plank	A	0	1						
14	↓	& I-Beams	BG	56	1						
15	O-12 (dup)	Corridor / crete plank	A	1	1						
15	↓	& I-Beams	BG	57	1						
16	A-12	Corridor / crete plank	A	1	1						
16	↓	& I-Beams	BG	71	1						
17	C-12	Corridor / crete plank	A	0	1						
17	↓	& I-Beams	BG	78	1						
18	E-12	Corridor / crete plank	A	1	1						
18	↓	& I-Beams	BG	68 RS	1						
19			A		1						
19			BG	N	1						
20		A	A		1						
20			BG	A	1						

RANDY CTD SMEARS

Instrument Model & s/n: 2929 / 91234 M.2929 s/r
Detector Model & s/n: 43-10-1 / 085270 M.43-10-1 s/n
Calibration Date: 7-2-98
Efficiency BG (Beta/Gamma): .28 ~~.38~~ cpm / dpm based on
Efficiency A (Alpha): .33 ~~.33~~ cpm / dpm based on

Background	Counts	Ct Time (min)	Rb	Date
Alpha	134 ~~-19~~ RS	700		
Beta-Gamma	4358 ~~-65~~ RS	700		

SMEAR_AB.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

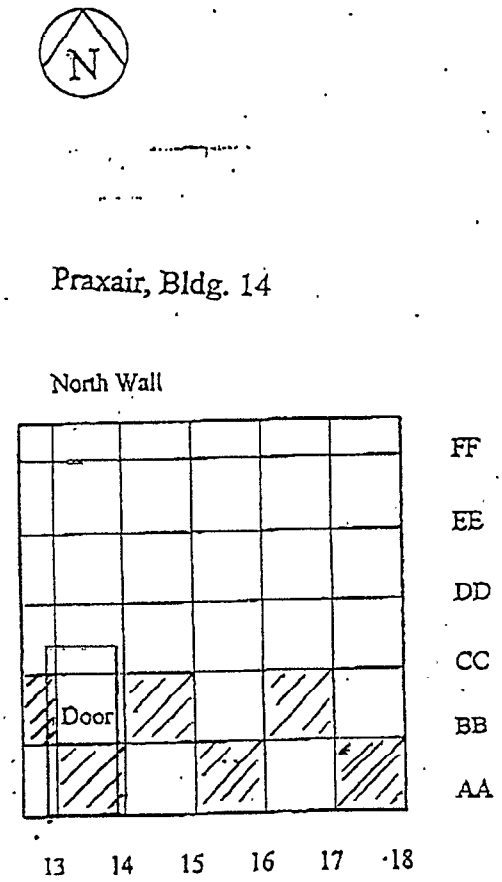
#4126

SAMPLE DATE: 8-12-97
LOCATION: PRAXAIR SITE
B-14 CORRIDOR
NORTH WALL
VERIFICATION SURVEY

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

	α	βγ
TOTAL BACKGROUND COUNTS	1	56
BACKGROUND COUNT TIME (MIN)	1 MIN.	1 MIN.
SAMPLE COUNT TIME (MIN)	1 MIN	1 MIN.

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS SAMPLE COUNTS βγ	α
1	12-BB	CORRIDOR N. WALL	131	
2			128	
3			146	
4			133	
5			141	
6	13-AA		152	
7			120	
8			147	
9			158	
10			126	
11	14-BB		81	
12			62	
13			54	
14			131	
15			145	
16	15-AA		139	3
17			149	5
18			143	5
19			161	7
20			139	4
21	15-AA	E *DUP.	146	
22	16-BB		74	
23			59	
24			68	
25			61	
26			143	
27	17-AA		132	
28			129	
29			135	
30			133	
31			154	
32				
33				
34				
35				
36		N		
37		A		
38				
39				
40				



BCORR09.XLS

Instrument Model & s/n:	(B) L2221 W/44-9 βγ
Detector Model & s/n:	(F) ESP-1 W/43-5 α
Calibration Date:	
Efficiency	cpm / dpm based on S/Y90 = .20 βγ .12 α
Detector Area	cm2 = 15.5 βγ 50 α

ENCL-C2.XLS

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

4127

SAMPLE DATE: 8-18-97
LOCATION: PRAXAIR SITE BLDG. 14
AREA: CORRIDOR WEST WALL
DESCRIPTION/REASON: VERIFICATION SURVEY
TECHNICIAN: William W. [signature]

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

	α	βγ
Instrument Model & s/n	(F) ESP-1 W/43-5	(B) L2221 W/44-9
Detector Model & s/n		
Calibration Date:	EFF. = .12/50 cm²	EFF. = .20/15.5 cm²
Efficiency:	cpm/dpm based on S/Y90	
Detector Area:	cm2	

	α	βγ
TOTAL BACKGROUND COUNTS	1	51
BACKGROUND COUNT TIME (MIN)	1	1
SAMPLE COUNT TIME (TIME)	1 MIN.	1 MIN.

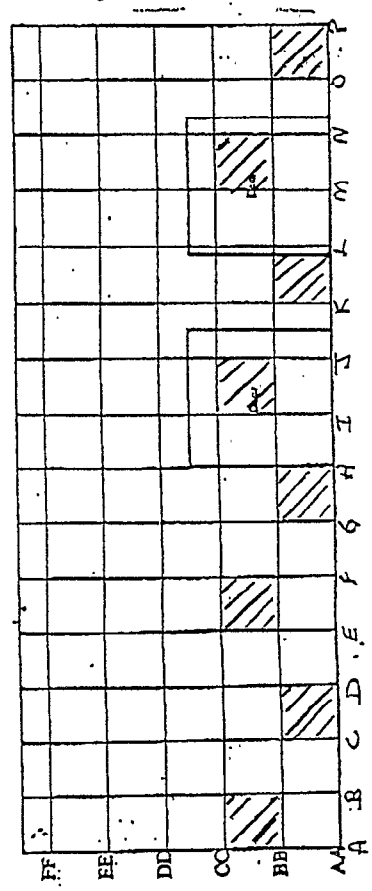
Gross cpm

Sample #	Location Code	Location Description		α	β
1	A-BB	A CORRIDOR W. WALL			126
2		B			133
3		C		N	142
4		D		A	150
5		E			131
6	C-AA	A		4	146
7		B		2	94
8		C		5	107
9		D		2	128
10		E		7	99
11	E-BB	A			104
12		B			135
13		C		N	132
14		D		A	140
15		E			158
16	G-AA	A		2	116
17		B		1	134
18		C		4	123
19		D		3	129
20		E		2	151
21	G-AA	E	DUP.	3	127
22	I-BB	A		1	113
23		B		2	161
24		C		1	146
25		D		4	132
26		E		2	148
27	K-AA	A			152
28		B			136
29		C			125
30		D			129
31		E			147
32	M-BB	A			137
33		B			145
34		C		N	153
35		D		A	96
36		E			104
37	O-AA	A			122
38		B			109
39		C			121
40		D			128
41		E			143
42	O-AA	E	DUP.		156

N

Praxair, Bldg. 14
Corridor Walls

West



Loc	Type	Description	Gross	Δ DPM.	Gross	Beta DPM
A-BB	S	(GRID) WEST WALL	0		63	
C-AA			1		66	
E-BB			1		59	
G-AA			0		68	
I-BB			2		47	
K-AA			2		55	
M-BB			1		67	
O-AA			0		60	

Scaler S/N (I) 2929		BKD	EFF	MDA
CT = 1 MIN.	Alpha:			
Tech [signature]	Beta:			

Review

B CORRIO.XLS

(#4128)

ION TECHNOLOGY, INC.

SMEAR MEASUREMENT ANALYSIS REPORT

PRAXAIR SITE
B-14 CORRIDOR VERIFICATION
OVERHEAD BY GRID. (CEILING & BEAMS)

ANALYSIS DATE:
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Area
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	B-14	B-14 CORRIDOR CEILING OVER HEAD	A					A			
21	↓		BG					BG			
22	D-14		A					A			
22	↓		BG					BG			
23	F-14		A					A			
23	↓		BG					BG			
24	H-14		A					A			
24	↓		BG					BG			
25	J-14		A					A			
25	↓		BG					BG			
26	L-14		A					A			
26	↓		BG					BG			
27	N-14		A					A			
27	↓		BG					BG			
28	A-16		A					A			
28	↓		BG					BG			
29	C-16		A					A			
29	↓		BG					BG			
30	E-16		A					A			
30	↓		BG					BG			
31	G-16		A					A			
31	↓		BG					BG			
32	I-16		A					A			
32	↓		BG					BG			
33	K-16		A					A			
33	↓		BG					BG			
34	M-16		A					A			
34	↓		BG					BG			
35	O-16		A					A			
35	↓		BG					BG			
36			A					A			
36			BG					BG			
37			A					A			
37			BG					BG			
38			A					A			
38			BG					BG			
39			A					A			
39			BG					BG			
40			A					A			
40			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):		cpm / dpm based on S/Y90
Efficiency A (Alpha):		cpm / dpm based on Th230

7-31-97

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

SWIPE.XLS

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

#4129

SAMPLE DATE: 8-12-97
LOCATION: PRAXAIR SITE B-14
AREA: CORRIDOR SOUTH WALL
DESCRIPTION/REASON: VERIFICATION SURVEY
TECHNICIAN: William W. [signature]

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

	α	βγ
Instrument Model & s/n	(F) ESP-1 w/43-5	(B) L2221 w/44-9
Detector Model & s/n	EFF = .12/50cm²	EFF = .20/15.5cm
Calibration Date:		
Efficiency:	[illegible] cpm/dpm based on S/Y90	
Detector Area:	[illegible] cm2	

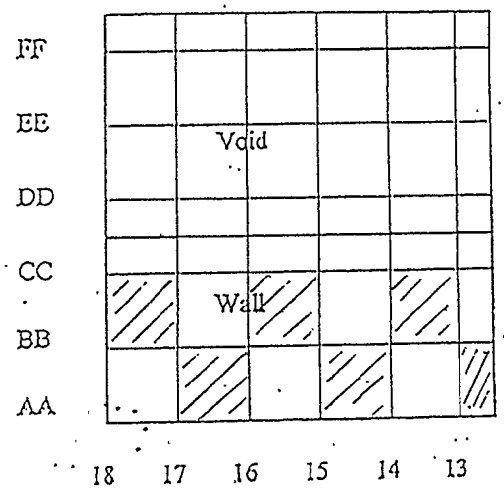
	α	βγ
TOTAL BACKGROUND COUNTS	1	55
BACKGROUND COUNT TIME(MIN)	1 MIN	1 MIN
SAMPLE COUNT TIME (TIME)	1 MIN	1 MIN

Praxair, Bldg. 14
Corridor Walls

Gross cpm

Sample #	Location Code	Location Description	α	β
1	12-AA	B-14 CORR. S. WALL		94
2				128
3				139
4				122
5				146
6	13-BB			115
7				98
8			N	84
9			A	109
10				118
11	14-AA			94
12				126
13				154
14				135
15				142
16	15-BB		2	121
17			4	130
18			1	112
19			1	92
20			2	89
21	15-BB	D.U.P.	3	114
22				131
23				125
24				130
25				117
26	16-AA			87
27				96
28				102
29			N A	113
30				127
31	17-BB			133
32				108
33				91
34				88
35				110
36				
37				
38				
39		N		
40		A		
41				
42				

South Wall



Loc	Type	Description	Gross	Δ DPM.	Gross	Bpla
12-AA	S	B-14 CORR. S. WALL	0	-1	66	21
13-BB			2	6	58	-7
14-AA			1	3	49	-3
15-BB			2	6	61	4
16-AA			0	-1	63	10
17-BB			0	-1	56	-14
		N				
			A			

Scaler S/N (I) 2929		BKD	EFF	MDA
CT = 1 MIN.	Alpha:	45/180 = .25	.32	16
Tech [signature]	Beta:	107.4/180 = .60	.29	134

Review

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

#4130

SAMPLE DATE: 8-18-97
LOCATION: PRAXAIR SITE BLDG. 14
AREA: CORRIDOR WEST WALL
DESCRIPTION/REASON: VERIFICATION SURVEY
TECHNICIAN: William W.

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

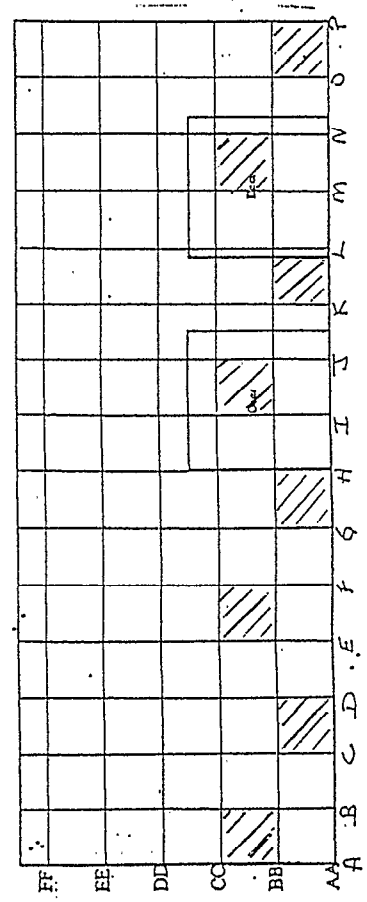
	α	βγ
Instrument Model & s/n	(A) ESP.1 W43-5	(B) L2221 W44-9
Detector Model & s/n		
Calibration Date:	EFF. = .12/50 cm²	EFF. = .20/15.5 cm²
Efficiency:	cpm/dpm based on S/N90	
Detector Area:	cm2	

	α	βγ
TOTAL BACKGROUND COUNTS	1	51
BACKGROUND COUNT TIME(MIN)	1	1
SAMPLE COUNT TIME (TIME)	1 MIN.	1 MIN.

Gross cpm

Sample #	Location Code	Location Description	α	β
1	A-BB	A CORRIDOR W. WALL		126
2		B		133
3		C	N	142
4		D	A	150
5		E		131
6	C-AA	A	4	146
7		B	2	94
8	C-BB	C	5	107
9		D	2	128
10		E	7	99
11	E-BB	A		104
12		B		135
13		C	N	132
14		D	A	140
15		E		158
16	G-AA	A	2	116
17		B	1	134
18		C	4	123
19		D	3	129
20		E	2	151
21	G-AA	E DUP.	3	127
22	I-BB	A	1	113
23		B	2	161
24		C	1	146
25		D	4	132
26		E	2	148
27	K-AA	A		152
28		B		136
29		C		125
30		D		129
31		E		147
32	M-BB	A		137
33		B		145
34		C	N	153
35		D	A	96
36		E		104
37	O-AA	A		122
38		B		109
39		C		121
40		D		128
41		E		143
42	O-AA	E DUP.		156

Praxair, Bldg. 14 West
Corridor Walls



Loc	Type	Description	Gross	Δ DPM	Gross	Beta DPM
A-BB	S	(GRID) WEST WALL	0	-1	63	4
C-AA			1	3	66	15
E-BB			1	3	59	-11
G-AA			0	-1	68	22
I-BB			2	6	47	-55
K-AA			2	6	55	-26
M-BB			1	3	67	19
O-AA			0	-1	60	-7

Scaler S/N (I) 2929		BKD	EFF	MDA
CT = 1 MIN.	Alpha:	190/990 = .19	.32	15
Tech W.	Beta:	6097/990 = 62	.27	146

Review

ION TECHNOLOGY, INC.

4131

SMEAR MEASUREMENT ANALYSIS REPORT

ANALYSIS DATE: 8-12-97
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Area CORRIDOR NORTH WALL 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	12-BB	B-14 CORR. N. WALL	A	1	1 MIN			A			
21	↓	↓	BG	63	↓			BG			
22	13-AA		A	0				A			
22	↓		BG	57				BG			
23	14-BB		A	1				A			
23	↓		BG	66				BG			
24	15-AA		A	0				A			
24	↓		BG	51				BG			
25	16-BB		A	0				A			
25	↓		BG	58				BG			
26	17-AA		A	1				A			
26	↓	↓	BG	65	↓			BG			
27			A					A			
27			BG					BG			
28			A					A			
28			BG					BG			
29			A					A			
29			BG					BG			
30			A					A			
30			BG					BG			
31			A					A			
31			BG					BG			
32			A					A			
32			BG					BG			
33			A					A			
33			BG					BG			
34			A					A			
34			BG					BG			
35			A					A			
35			BG					BG			
36			A					A			
36			BG					BG			
37			A					A			
37			BG					BG			
38			A					A			
38			BG					BG			
39			A					A			
39			BG					BG			
40			A					A			
40			BG					BG			

Instrument Model & s/n:	(I) 2929	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):	~~.32~~ .29	cpm / dpm based on S/Y90
Efficiency A (Alpha):	~~.28~~ .32	cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha	45	180	.25	8-12-97
Beta-Gamma	10744	180	60	8-12-97

SWIPE.XLS

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

#4132

SAMPLE DATE: 8-18-97
LOCATION: PRAXAIR SITE B-14
AREA: CORRIDOR E. WALL
DESCRIPTION/REASON: VERIFICATION SURVEY
TECHNICIAN: [signature]

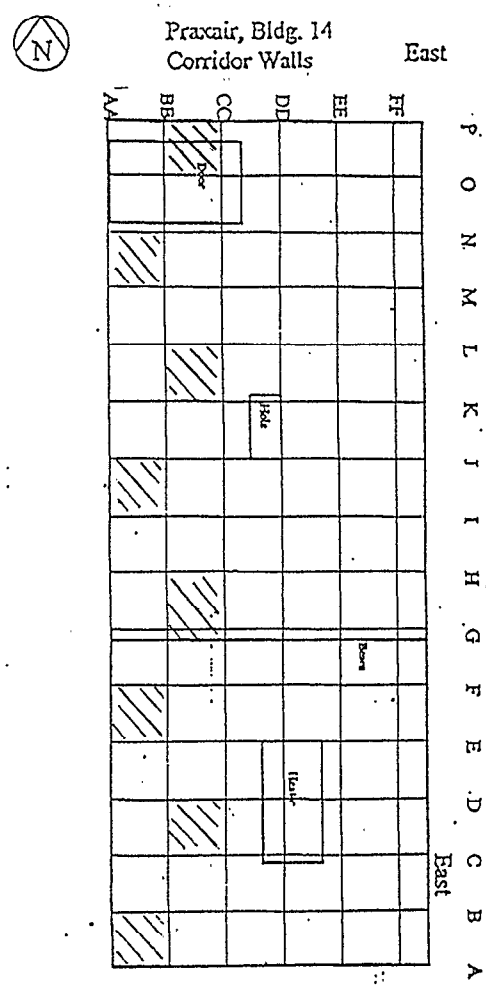
RADIATION MEASURMENTS: Beta-Gamma/Alpha
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: direct scaler measurements

	α	βγ
Instrument Model & s/n	(F) ESP-1 W/43-5	(B) L2221 W/44-9
Detector Model & s/n	EFF. = .12/50 cm²	EFF = .20/15.5 cm²
Calibration Date:		
Efficiency:	cpm/dpm based on S/Y90	
Detector Area:	cm2	

	α	βγ
TOTAL BACKGROUND COUNTS	1	58
BACKGROUND COUNT TIME(MIN)	1	1
SAMPLE COUNT TIME (TIME)	1 MIN.	1 MIN.

Gross cpm

Sample #	Location Code	Location Description		α	β
1	A-AA	A B-14 CORR. E. WALL			79
2		B			84
3		C			101
4		D			93
5		E		N	116
6	C-BB	A		A	91
7		B			86
8		C			83
9		D			72
10		E			121
11	E-AA	A		1	113
12		B		2	126
13		C		2	97
14		D		1	86
15		E		3	92
16	G-BB	A			106
17		B			111
18		C			84
19		D			93
20		E			102
21	G-BB	E	DUP.		114
22	I-AA	A			110
23		B			91
24		C			81
25		D			123
26		E			127
27	K-BB	A			135
28		B		N	99
29		C		A	80
30		D			75
31		E			68
32	M-AA	A			132
33		B			120
34		C			115
35		D			125
36		E			112
37	O-BB	A			118
38		B			136
39		C			141
40		D			98
41		E			88
42	O-BB	E	DUP.		104



Loc	Type	Description	Gross	Δ DPM	Gross	Beta DP
A-AA	S	B-14 CORR. E. WALL	1	3	64	7
C-BB			1	3	55	-26
E-AA			0	-1	63	4
G-BB			2	6	71	33
I-AA			1	3	58	-15
K-BB			0	-1	64	7
M-AA			0	-1	53	-33
O-BB			1	3	67	19

Scaler S/N (I) 2929		BKD	EFF	MDA
CT = 1 MIN.	Alpha:	190/990 = .19	.32	15
Tech [signature]	Beta:	60974/990 = 62	.27	146

Review

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

#4133

SAMPLE DATE: 8-5-97
LOCATION: PRAXAIR SITE

AREA: B-14 CORRIDOR EAST WALL
DESCRIPTION/REASON: VERIFICATION SURVEY
TECHNICIAN: William W. [signature]

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

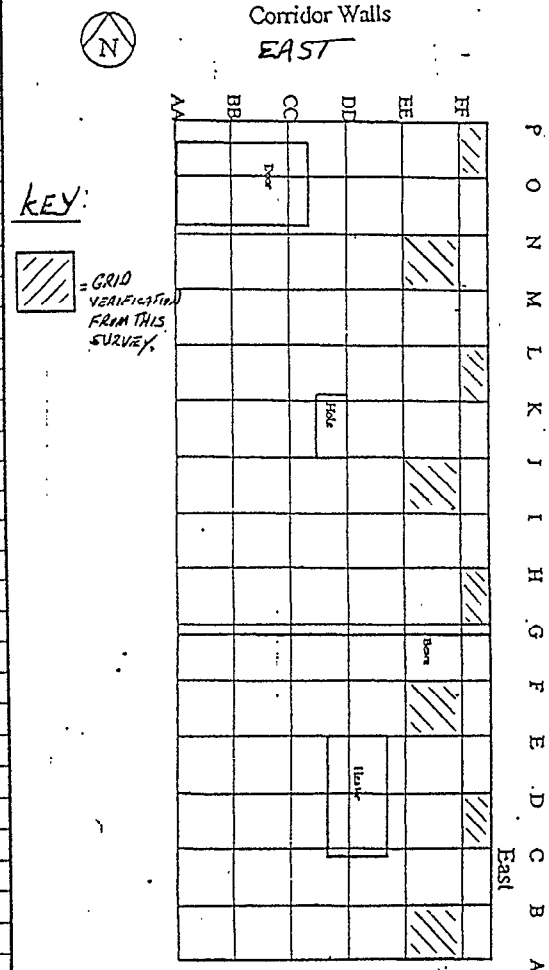
	α	βγ
Instrument Model & s/n:	(F) ESR1 W/43-5	(B) L2121 W/44.9
Detector Model & s/n	EFF. = .12	EFF. = .20
Calibration Date:	DETECTOR AREA = 50cm²	DETECTOR AREA = 15.5 cm²
Efficiency:	[redacted] cpm/dpm based on S/Y90	
Detector Area:	[redacted] cm2	

	α	βγ
TOTAL BACKGROUND COUNTS	1	57
BACKGROUND COUNT TIME(MIN)	1	1
SAMPLE COUNT TIME (TIME)	1	1

Gross cpm

	Sample #	Location Code	Location Description	α	β
AO-EE	1	A-EE	A (B) ~~EAST~~ EAST WALL - SEE MAP		64
	2		B		72
	3		C		86
	4		D		58
	5		E	N	73
CO-FF	6	C-FF	A	A	77
	7		B		87
	8		C		94
	9		D		82
	10		E		59
EO-EE	11	E-EE	A	3	68
	12		B	1	73
	13		C	4	81
	14		D	2	95
GO-FF	15		E	1	86
	16	G-FF	A		72
	17		B		77
	18		C	N	67
	19		D	A	62
	20		E		69
IO-EE	21		E *DUP.		78
	22	I-EE	A	2	84
	23		B	1	79
	24		C	1	73
	25		D	3	82
KO-FF	26		E	1	96
	27	K-FF	A		104
	28		B		89
	29		C		101
	30		D		114
MO-EE	31		E		82
	32	M-EE	A		71
	33		B		68
	34		C	N	94
	35		D	A	100
OO-FF	36		E		98
	37	O-FF	A		87
	38		B		108
	39		C		126
	40		D		90
	41		E		82
	42		E *DUP.		73

Praxair, Bldg. 14
Corridor Walls
EAST



KEY:
= GRID VERIFICATION FROM THIS SURVEY.

Loc	Type	Description	Gross	A DPM	Gross	Beta DPM
A-EE	S	CORRIDOR - EAST WALL				
C-FF						
E-EE						
G-FF						
I-EE						
K-FF						
M-EE						
O-FF						

Scaler S/N		BKD	EFF	MDA
CT =	Alpha:			
Tech	Beta:			

Review

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

4134

SAMPLE DATE: 8-12-97
LOCATION: PRAXAIR SITE B-14
AREA: CORRIDOR SOUTH WALL
DESCRIPTION/REASON: VERIFICATION SURVEY
TECHNICIAN: Willis W.

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

	α	βγ
Instrument Model & s/n	(F) ESP-1 W/43-5	(B) L2221 W/49-9
Detector Model & s/n	EFF = .12/50cm²	EFF = .20/15.5
Calibration Date		
Efficiency	cpm/dpm based on S/Y90	
Detector Area	cm2	

	α	βγ
TOTAL BACKGROUND COUNTS	1	55
BACKGROUND COUNT TIME (MIN)	1 MIN	1 MIN
SAMPLE COUNT TIME (TIME)	1 MIN	1 MIN

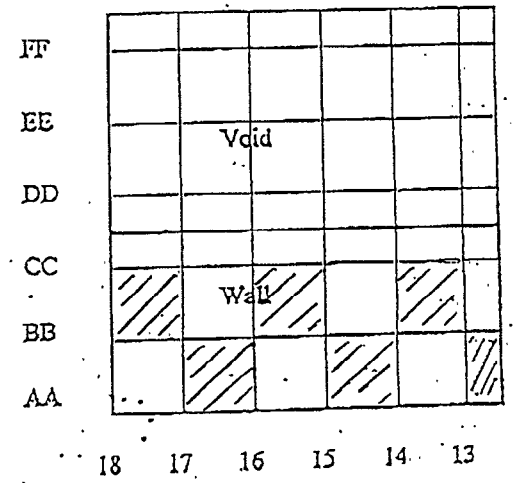
Gross cpm

Sample #	Location Code	Location Description	α	β
1	12-AA	B-14 CORR. S. WALL		94
2				128
3				139
4				122
5				146
6	13-BB			115
7				98
8			N	84
9			A	109
10				118
11	14-AA			94
12				126
13				154
14				135
15				142
16	15-BB		2	121
17			4	130
18			1	112
19			1	92
20			2	89
21	15-BB	D.U.P.	3	114
22				131
23				125
24				130
25				117
26	16-AA			87
27				96
28				102
29			N A	113
30				127
31	17-BB			133
32				108
33				91
34				88
35				110
36				
37				
38				
39		N		
40		A		
41				
42				

Praxair, Bldg. 14
Corridor Walls

BCORR11.XLS

South Wall



Loc	Type	Description	Gross	Δ DPM	Gross	Bp
12-AA	S	B-14 CORR. S. WALL	0	-1	66	2
13-BB			2	6	58	-
14-AA			1	3	49	-3
15-BB			2	6	61	5
16-AA			0	-1	63	10
17-BB			0	-1	56	-1
			N			
			A			

Scaler S/N (F) 2929		BKD	EFF	MDA
CT = 1 MIN.	Alpha:	45/180 = .25	.32	16
Tech	Beta:	1074/180 = 60	.29	134

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

BCORRIZ.XLS

SAMPLE DATE: 8-18-97
LOCATION: PRAXAIR SITE B-14
AREA: CORRIDOR E. WALL
DESCRIPTION/REASON: VERIFICATION SURVEY
TECHNICIAN: [signature]

4135

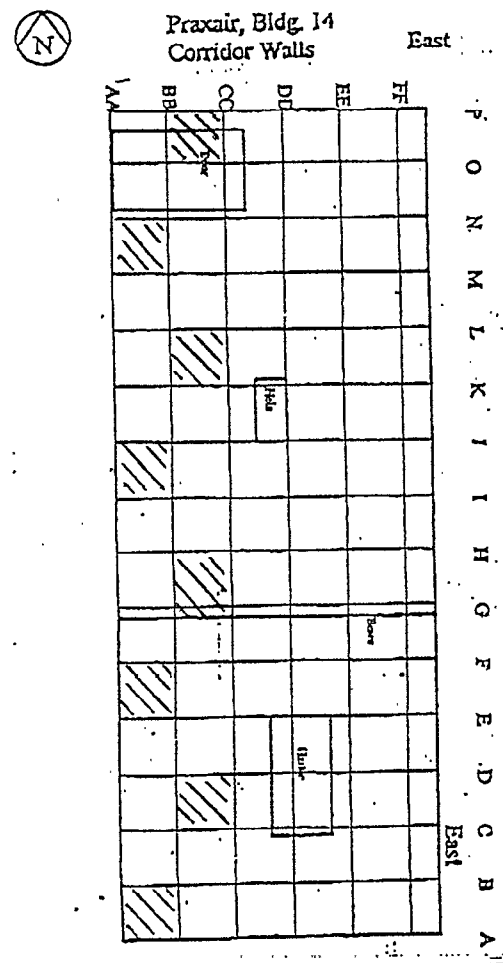
RADIATION MEASUREMENTS: Beta-Gamma/Alpha
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: direct scaler measurements

	α	βγ
Instrument Model & s/n	(F) ESP-1 N/435	(B) L2221 N/44-9
Detector Model & s/n	EFF = .12/50 cm²	EFF = .20/15.5 cm²
Calibration Date:		
Efficiency:	cpm/dpm based on S/T90	
Detector Area:	cm2	

	α	βγ
TOTAL BACKGROUND COUNTS	1	58
BACKGROUND COUNT TIME (MIN)	1	1
SAMPLE COUNT TIME (TIME)	1 min	1 min

Gross cpm

Sample #	Location Code	Location Description		α	β
1	A-AA	A B-14 CORR. E. WALL			79
2		B			84
3		C			101
4		D			93
5		E		N	116
6	C-BB	A		A	91
7		B			86
8		C			83
9		D			72
10		E			121
11	E-AA	A		1	113
12		B		2	126
13		C		2	97
14		D		1	86
15		E		3	92
16	G-BB	A			106
17		B			111
18		C			84
19		D			93
20		E			102
21	G-BB	E	DUP.		114
22	I-AA	A			110
23		B			91
24		C			81
25		D			123
26		E			127
27	K-BB	A			135
28		B		N	99
29		C		A	80
30		D			75
31		E			68
32	M-AA	A			132
33		B			120
34		C			115
35		D			125
36		E			112
37	O-BB	A			118
38		B			136
39		C			141
40		D			98
41		E			88
42	O-BB	E	DUP.		104



Loc	Type	Description	Gross	↑ DPM.	Gross	Beta
A-AA	S	B-14 CORR. E. WALL	1	3	64	7
C-BB			1	3	55	-2[illegible]
E-AA			0	-1	63	4
G-BB			2	6	71	33
I-AA			1	3	58	-15
K-BB			0	-1	64	7
M-AA			0	-1	53	-33
O-BB			1	3	67	19

Scaler S/N (I) 2929		BKD	EFF	MDA
CT = 1 min.	Alpha:	190/990 = .19	.32	15
Tech [signature]	Beta:	60974/990 = 62	.27	146

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SAMPLE DATE: 8-5-97
LOCATION: PRAXAIR SITE
AREA: B-14 CORRIDOR WESTWALL
DESCRIPTION/REASON: VERIFICATION
TECHNICIAN: William W. [illegible]

#4136

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

	α	βγ
Instrument Model & s/n:	(F) ESP-1 W/43-5	(B) L2221 W/44.9
Detector Model & s/n	EFF. = .12	EFF. = .20
Calibration Date:	DETECTOR AREA = 50 cm²	DETECTOR AREA = 15.5 cm²
Efficiency:	cpm/dpm based on S/Y90	
Detector Area:	cm2	

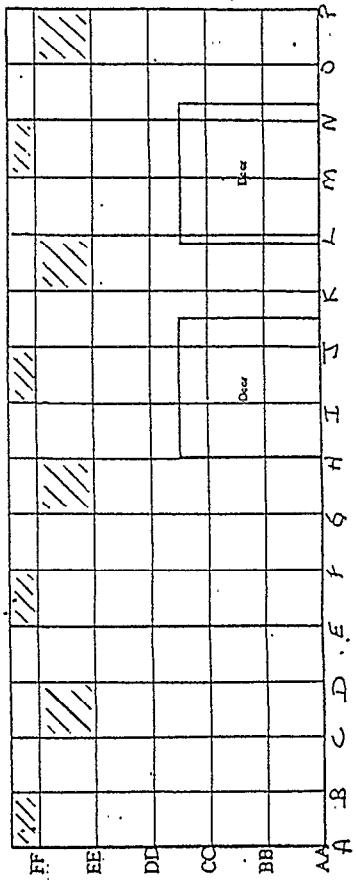
	α	βγ
TOTAL BACKGROUND COUNTS	1	57
BACKGROUND COUNT TIME(MIN)	1	1
SAMPLE COUNT TIME (TIME)	1	1

Gross cpm

Sample #	Location Code	Location Description	α	β
1	A-FF	A WESTWALL-SEE MAP	5	146
2		B	3	161
3		C	7	139
4		D	4	156
5		E	1	150
6	C-EE	A		138
7		B		127
8		C		141
9		D		96
10		E		144
11	E-FF	A		118
12		B		132
13		C		107
14		D		149
15		E		158
16	G-EE	A		115
17		B	N	109
18		C	A	96
19		D		72
20		E		104
21		E *D.U.P.		81
22	I-FF	A		93
23		B		118
24		C		123
25		D		104
26		E		133
27	k-EE	A	6	128
28		B	2	142
29		C	4	97
30		D	2	106
31		E	3	132
32	M-FF	A		122
33		B		161
34		C		154
35		D		146
36		E		129
37	O-EE	A	N	137
38		B	A	143
39		C		133
40		D		121
41		E		160
42		E *D.U.P.		149

Praxair, Bldg. 14
Corridor Walls

West



KEY:

= GRID VERIFICATION FROM THIS SURVEY.

Loc	Type	Description	Gross	A DPM	Gross	Beta DPM
A-FF	S	CORRIDOR WEST WALL				
C-EE						
E-FF						
G-EE						
I-FF						
k-EE						
M-FF						
O-EE						
		N A				

Scaler S/N		BKD	EFF	MDA
CT =	Alpha:			
Tech	Beta:			

Review

ION TECHNOLOGY, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SAMPLE DATE: 8-5-97
LOCATION: PRAXAIR SITE

#4137

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

AREA: B-14 CORRIDOR NORTH WALL
DESCRIPTION/REASON: VERIFICATION
TECHNICIAN: William W.

	α	βγ
Instrument Model & s/n:	(F) ESR, N/43-5	(B) LLLI N/44-2
Detector Model & s/n	EFF. = .12	EFF = .20
Calibration Date:	DETECTOR AREA = 50cm²	DETECTOR AREA = 50cm²
Efficiency:	cpm/dpm based on S/N90	
Detector Area:	cm2	

	α	βγ
TOTAL BACKGROUND COUNTS	1	57
BACKGROUND COUNT TIME(MIN)	1	1
SAMPLE COUNT TIME (TIME)	1	1

Gross cpm

Sample #	Location Code	Location Description	α	β
1	12-EE	A NORTH WALL - SEE MAP		71
2		B		68
3		C		126
4		D		132
5		E		91
6	14-FF	A		130
7		B		129
8		C		141
9		D	N	116
10		E	A	135
11	16-EE	A		122
12		B		81
13		C		73
14		D		128
15		E		131
16	17-FF	A	4	118
17		B	2	112
18		C	2	97
19		D	2	136
20		E	3	110
21		E *DUP.	2	89
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32		N		
33		A		
34				
35				
36				
37				
38				
39				
40				
41				
42				

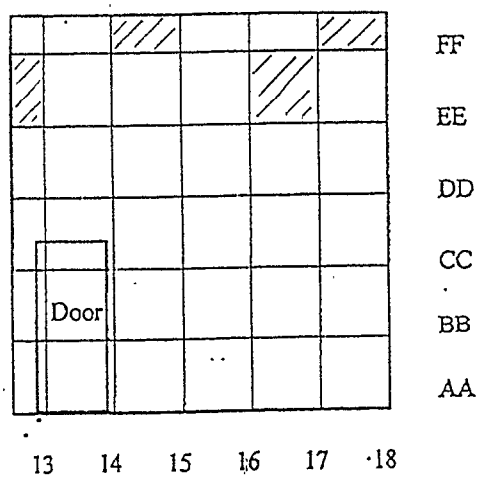
N

KEY

Praxair, Bldg. 14

= GRID VERIFICATION AS PER THIS SURVEY.

North Wall



Loc	Type	Description	Gross	A DPM	Gross	Beta DPM
12-EE	S	CORRIDOR - NORTH WALL				
14-FF						
16-EE						
17-FF						
		N				
		A				

Scaler S/N		BKD	EFF	MDA
CT =	Alpha:			
Tech	Beta:			

Review

4138

HILBERT ASSOCIATES INC
RADIOLOGICAL ENGINEERS

SMEAR MEASUREMENT ANALYSIS REPORT

SAMPLE DATE: 7-31-97
ANALYSIS DATE: 8-27-97
LOCATION: PRAXAIR BLDG 14 / corr (ceiling Verification)

DANA PITMAN

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

SMEARS

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION (ceiling Verification)	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	B-17	Corridor / crete plank	A	1 RJ	1						
1	↓	& I-Beams	BG	55	1						
2	D-17	Corridor / crete plank	A	0	1						
2	↓	& I-Beams	BG	52	1						
3	F-17	Corridor / crete plank	A	0	1						
3	↓	& I-Beams	BG	57	1						
4	H-17	Corridor / crete plank	A	1	1						
4	↓	& I-Beams	BG	55	1						
5	H-17 (DUP)	Corridor / crete plank	A	1	1						
5	↓	& I-Beams	BG	57	1						
6	J-17	Corridor / crete plank	A	0	1						
6	↓	& I-Beams	BG	65	1						
7	L-17	Corridor / crete plank	A	0	1						
7	↓	& I-Beams	BG	74	1						
8	D-13	Corridor / crete plank	A	0	1						
8	↓	↓	BG	55	1						
9	G-12	Corridor / crete plank	A	1 ↓	1						
9	↓	& I-Beams	BG	54 RJ	1						
10	G-12 (DUP)	Corridor / crete plank	A	0	1						
10	↓	& I-Beams	BG	68	1						
11	I-12	Corridor / crete plank	A	1	1						
11	↓	& I-Beams	BG	50	1						
12	K-12	Corridor / crete plank	A	2	1						
12	↓	& I-Beams	BG	65	1						
13	M-12	Corridor / crete plank	A	2	1						
13	↓	& I-Beams	BG	68	1						
14	O-12	Corridor / crete plank	A	0	1						
14	↓	& I-Beams	BG	56	1						
15	O-12 (DUP)	Corridor / crete plank	A	1	1						
15	↓	& I-Beams	BG	57	1						
16	A-12	Corridor / crete plank	A	1	1						
16	↓	& I-Beams	BG	71	1						
17	C-12	Corridor / crete plank	A	0	1						
17	↓	& I-Beams	BG	78	1						
18	E-12	Corridor / crete plank	A	1	1						
18	↓	& I-Beams	BG	68 RJ	1						
19			A		1						
19			BG	N	1						
20		A	A		1						
20			BG	A	1						

SCORROZ.XLS

RANDY CTD SMEARS

Instrument Model & s/n: 2929 / 91234 — M.2929 s/n
Detector Model & s/n: 43-10-1 / 085270 — M.43-10-1 s/n
Calibration Date: 7-2-98
Efficiency BG (Beta/Gamma): .28 — cpm / dpm based on
Efficiency A (Alpha): .33 — cpm / dpm based on

Background	Counts	Ct. Time (min)	Hb	Date
Alpha	[illegible]	700		
Beta-Gamma	[illegible]	700		

ION TECHNOLOGY, INC.

4139

SMEAR MEASUREMENT ANALYSIS REPORT

SCOR03.XLS

ANALYSIS DATE: 8-12-97
LOCATION: Praxair, Tonawanda, NY
Bldg. 14, Area CORRIDOR NORTH WALL 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	12-AA	G-14 CORR. N. WALL	A	1	1 MIN			A			
21			BG	63				BG			
22	13-AA		A	0				A			
22			BG	57				BG			
23	14-AA		A	1				A			
23			BG	66				BG			
24	15-AA		A	0				A			
24			BG	51				BG			
25	16-AA		A	0				A			
25			BG	58				BG			
26	17-AA		A	1				A			
26			BG	65				BG			
27			A					A			
27			BG					BG			
28			A					A			
28			BG					BG			
29			A					A			
29			BG					BG			
30			A					A			
30			BG					BG			
31			A					A			
31			BG					BG			
32			A					A			
32			BG					BG			
33			A					A			
33			BG					BG			
34			A					A			
34			BG					BG			
35			A					A			
35			BG					BG			
36			A					A			
36			BG					BG			
37			A					A			
37			BG					BG			
38			A					A			
38			BG					BG			
39			A					A			
39			BG					BG			
40			A					A			
40			BG					BG			

Instrument Model & s/n:	2929	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):	~~.22~~ .29	cpm / dpm based on S/Y90
Efficiency A (Alpha):	~~.26~~ .32	cpm / dpm based on Th230

Background	Counts	Ct Time (min)	Rb	Date
Alpha	45	180	.25	8-18-97
Beta-Gamma	10241	180	60	8-18-97

SWIPE.XLS

ION TECHNOLOGY, INC. (#4140)

RADIOLOGICAL CONTINUATION SURVEY FORM

640 Maple Ave
Saratoga Springs, NY
(518) 584-0166

Project: PRAXAIR SITE
Area: CORRIDOR (FLOOR)

Instrument Model & s/n	(F) ESP-1 #43-5	(B) [illegible] #44-9
Detector Model & s/n	EFF = .12 / 50 cm²	EFF = .20 / 15.5 cm²
Calibration Date:		
Efficiency:	cpm/dpm based on SrY90	
Detector Area:	cm²	

Date/Time 8-15-97 0800	Tech LL	Instrument / sn (F)
Location/ Purpose B-14 CORRIDOR FLOOR VERIFICATION SURVEY		Survey #

	α	βγ
TOTAL BACKGROUND COUNTS	1	57
BACKGROUND COUNT TIME (MIN)	1	1
SAMPLE COUNT TIME (TIME)	1 MIN.	1 MIN.

Loc	Type	Description	Gross	α dpm	Gross	β dpm	Loc	Type	Description	Gross	α dpm	Gross	β dpm
43	DP	E-16 FLOOR A			97	9	81	DP	K-13 FLOOR D	N	N	85	
44		B			106		82		E	A	A	92	
45		C	N		84		83		K-15 A	2	~~2~~	136	
46		D	A		63		84		B	4	~~4~~	149	
47		E			71		85		C	3	~~3~~	156	
48		G-13 A	1		138		86		D	2	~~2~~	76	
49		B	3		135		87		E	1	~~1~~	81	
50		C	4		127		88		K-17 A			89	
51		D	2		141		89		B			73	
52		E	1		116		90		C			65	
53		G-15 A			128		91		D			88	
54		B			119		92		E			126	
55		C			87		93		M-12 A			133	
56		D			98		94		B			109	
57		E	N		93		95		C			99	
58		G-17 A	A		102		96		D			81	
59		B			113		97		E			74	
60		C			79		98		M-14 A			122	
61		D			62		99		B	N		126	
62		E			74		100		C	A		151	
63		I-12 A	3	N	86	N	101		D		N	71	N
64		B	2	A	137	A	102		E		A	89	A
65		C	2		148		103		M-16 A			94	
66		D	4		118		104		B			114	
67		E	2		133		105		C			123	
68		I-14 A			91		106		D			131	
69		B			85		107		E			102	
70		C			88		108		O-13 A	2		88	
71		D			102		109		B	2		96	
72		E			69		110		C	1		109	
73		I-16 A	N		73		111		D	3		132	
74		B	A		78		112		E	2		143	
75		C			81		113		O-15 A			132	
76		D			91		114		B			124	
77		E			111		115		C	N		96	
78		K-13 A			142		116		D	A		82	
79		B			130		117		E			71	
80		C			124		118		DUP. E			83	

Type:s = smearable, dp = direct probe

Comments:

			BKD	EFF	MDA
Scalar S/N					
CT=	DATE N	α:			
Tech	A	β:			

Review:

Encl 3.4 to HSP 210