APPENDIX C-5

VERIFICATION SURVEYS FOR SECOND FLOOR

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

C. HALLAM / CHALL
SURVEY #098
SAMPLE DATE: 03/29/97
LOCATION: B14 2ND FLOOR POST DECON SURVEY FOR OWHD

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

TOTAL BACKGROUND COUNTS	78
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	NA - SCAN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	C0 → C8	*A, ALL ACCESSIBLE SURFACES < 200 CPM
2	C2 → E2	*C, EAST SIDE ALL < 200 CPM
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*I BEAM SIZES

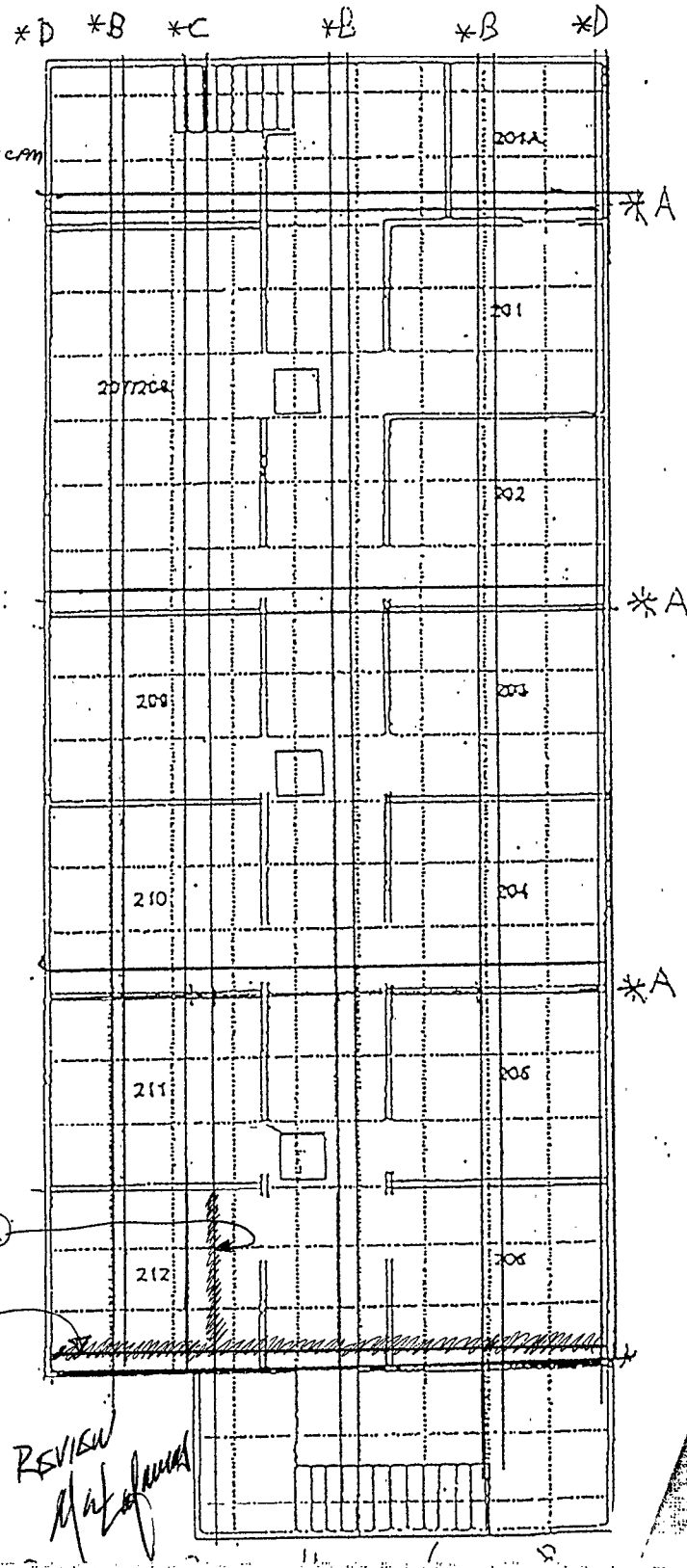
*A = I 19 3/4, 13 1/4

*B = 15 1/4, 7 1/4

*C = 9 I 12', 13", 13"

*D I 10 1/2, 13"

Instrument Model & s/n:	L2221
Detector Model & s/n:	
Calibration Date:	020796
Efficiency	[illegible] cpm / dpm based on S/Y90
Detector Area	[illegible] cm2



REVIEW

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

C. HALLAM / CHALLAM
SURVEY # 099.

SAMPLE DATE: 031397
LOCATION: B14 2ND FLOOR OWNED POST-DECON SURVEY

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

TOTAL BACKGROUND COUNTS	72
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	N/A → SCAN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	C0 → I0	*D, ALL ACCESSIBLES < 200 CPM
2	C1 → E1	*B, ALL ACCESSIBLES < 200 CPM
3	C2 → E2	*C, WEST SIDE ALL < 200 CPM
4	C6 → E6	*B, WEST SIDE ALL < 200 CPM
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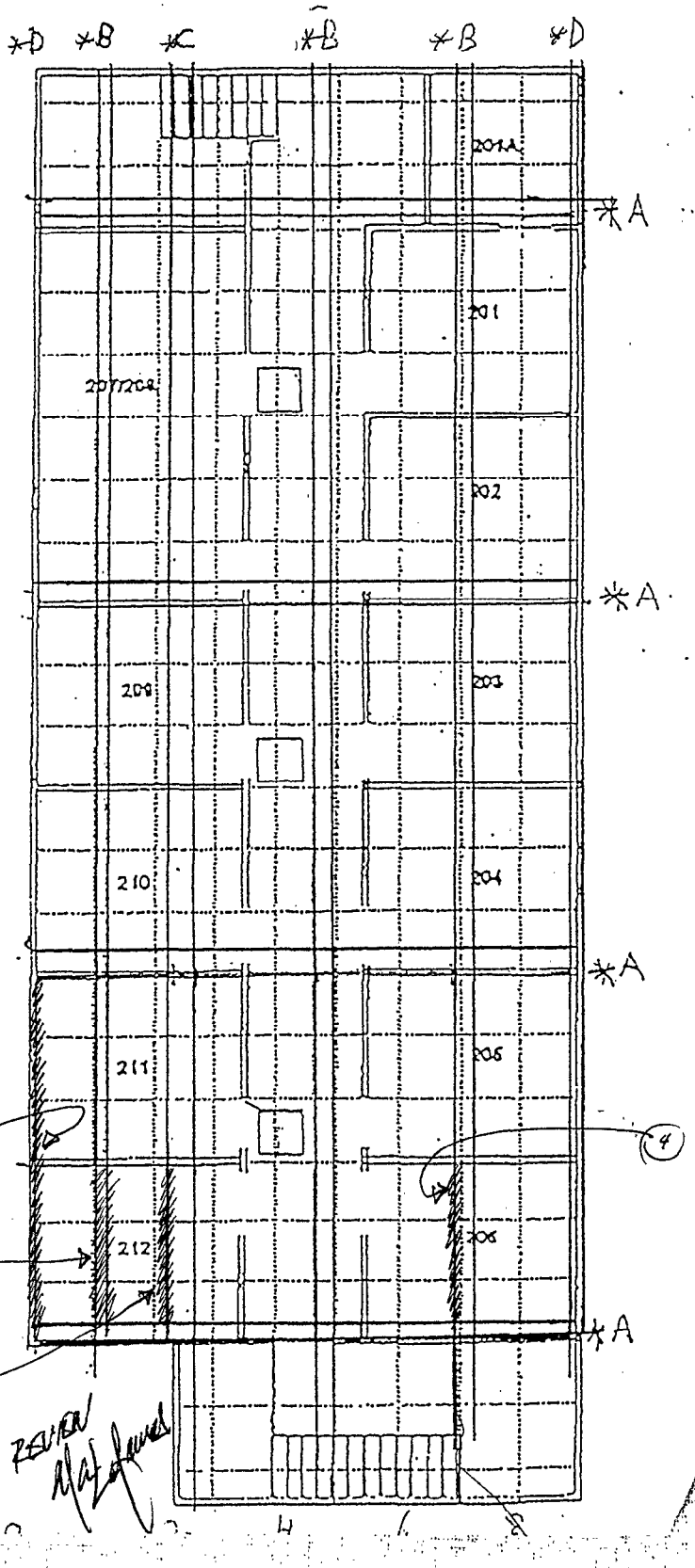

*I BEAM SIZES

*A = I 19 3/4, 12 1/4

*B = 15 1/4, 7 1/4

*C = 9 I 12', 13", 13"

*D I 10 1/2, 13"

Instrument Model & s/n:	L2221 (D)
Detector Model & s/n:	
Calibration Date:	
Efficiency	0.120 cpm / dpm based on S/Y90
Detector Area	15.5 cm2

REVIEW

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.
N. JESKE
C. HALLAM / C. Hallam
SURVEY # 108
SAMPLE DATE: 031797
LOCATION: B14 2ND FLOOR OVHD POST DECON SURVEY

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

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

TOTAL BACKGROUND COUNTS	82
BACKGROUND COUNT TIME (MIN)	1 min
SAMPLE COUNT TIME (MIN)	N/A → SCAN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	I0 → K0	ALL ACCESSIBLES ON (*D) < 200 CPM
2	G0 → G8	*A, SOUTH SIDE ALL < 200 CPM
3	I0 → I4	*A, NORTH SIDE ALL < 200 CPM
4	E1 → K1	*B, ALL ACCESSIBLES < 200 CPM
5	E2 → K2	*C, ALL ACCESSIBLES < 200 CPM
6	E6 → H6	*B, ALL ACCESSIBLES < 200 CPM
7	C0 → H0	*D, ALL ACCESSIBLES < 200 CPM
8	C6 → E6	*B, EAST SIDE, ALL < 200 CPM
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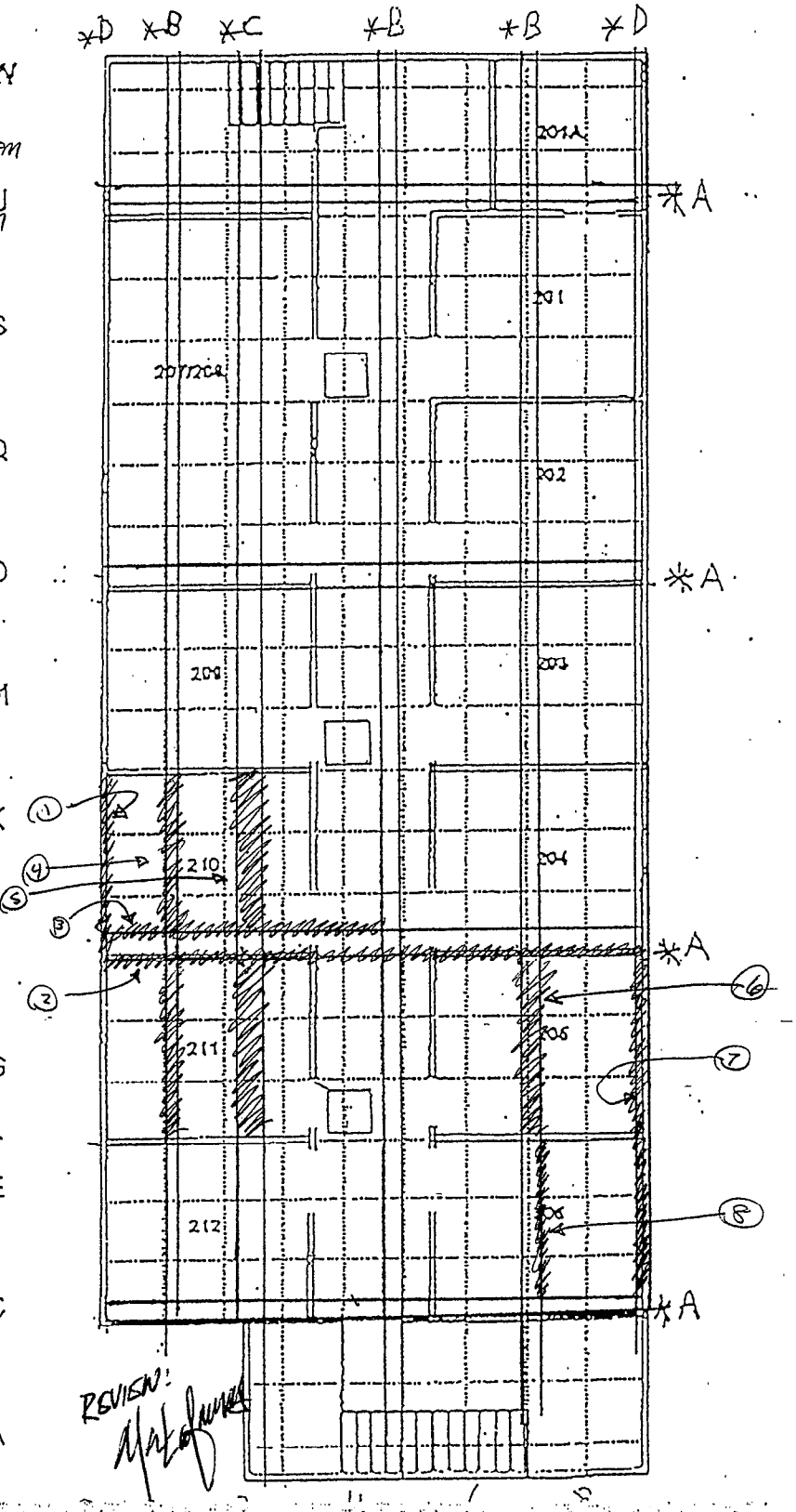
*I BEAM SIZES
*A = I 12 1/4 19 3/4
*B = 15 1/4 7 1/4
*C = 9" 13" 13" 12"
*D I 13" 10 1/2

Instrument Model & s/n:	L2221 (D)
Detector Model & s/n:	
Calibration Date:	
Efficiency	0.21 cpm / dpm based on S/Y90
Detector Area	15.5 cm2



REVIEW:

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.
W. JABLE / W. JABLE
C. HALLAM / C. Hallam
SURVEY # 115
SAMPLE DATE: 031897
LOCATION: B14 2ND FLOOR POST DECON SURVEY OF OVHD

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

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

TOTAL BACKGROUND COUNTS	74
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	N/A SCAN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	L0 → N0	*D ALL < 200 CPM
2	L1 → N1	*B ALL < 200 CPM
3	L2 → N2	*C WEST SIDE ALL < 200 CPM
4	N0 → N3	*A SOUTH SIDE ALL < 200 CPM
5	O5 → O8	*A NORTHSIDE ALL < 200 CPM
6	C4 → I4	*B ALL < 200 CPM
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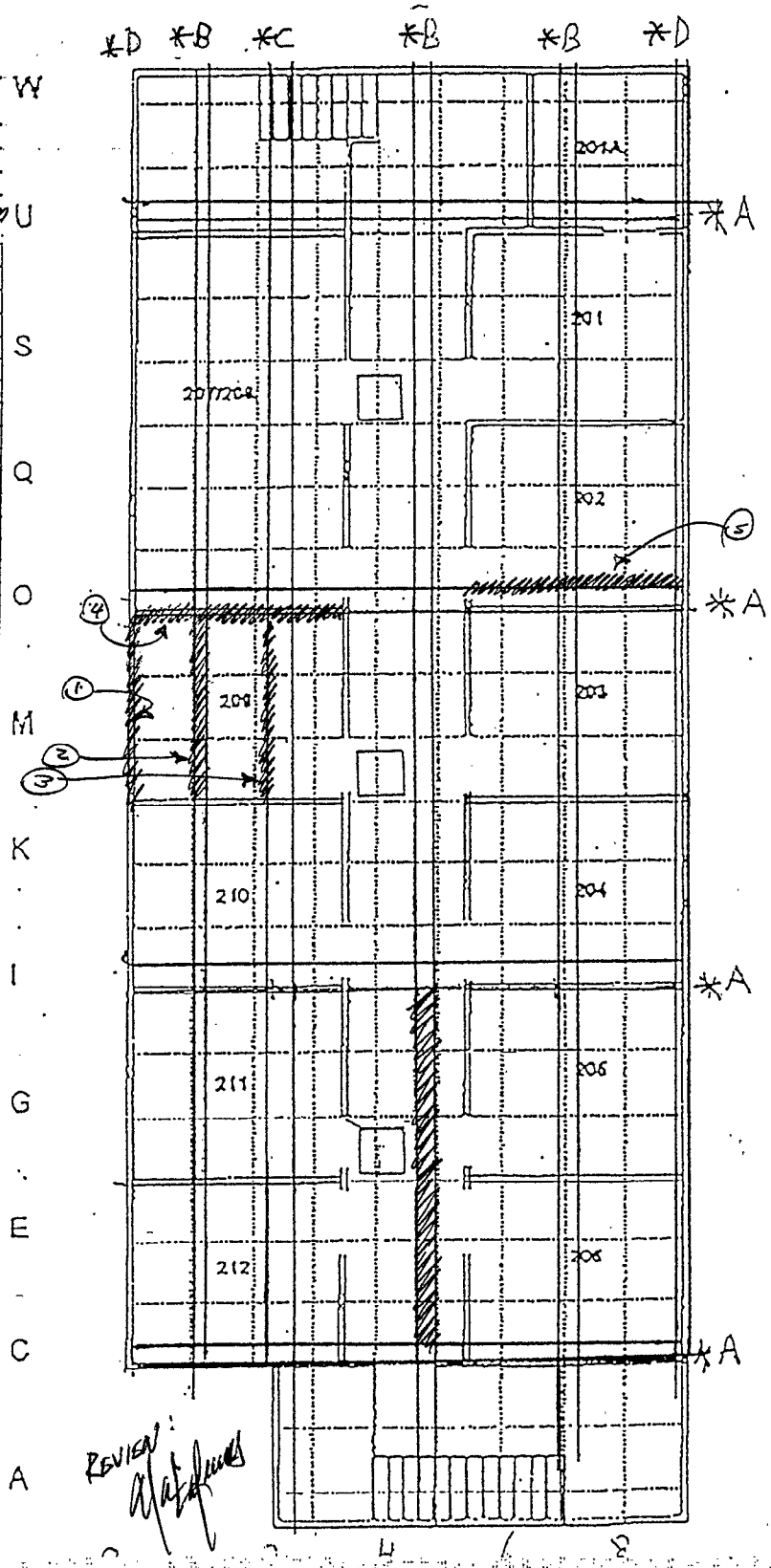
*I BEAM SIZES
*A = I 18 1/4 19 3/4
*B = 15 1/4 7 1/4
*C = 9 13" 13" 12"
*D I 13" 10 1/2

Instrument Model & s/n:	L2221
Detector Model & s/n:	D
Calibration Date:	
Efficiency	0.21 cpm / dpm based on S/Y90
Detector Area	15.5 cm2



ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY # 131
C. HALLAM / [illegible]
SAMPLE DATE: 031997
LOCATION: BLDG 14 2ND FLOOR OVHD POST DECON SURVEY

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

TOTAL BACKGROUND COUNTS	73
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	N/A → SCAN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	A4 → B4	*B, ALL ACCESSIBLES < 200 CPM
2	A7, B7	*B, ALL ACCESSIBLES < 200 CPM
3	L2 → N2	*C, EAST SIDE, ALL < 200 CPM
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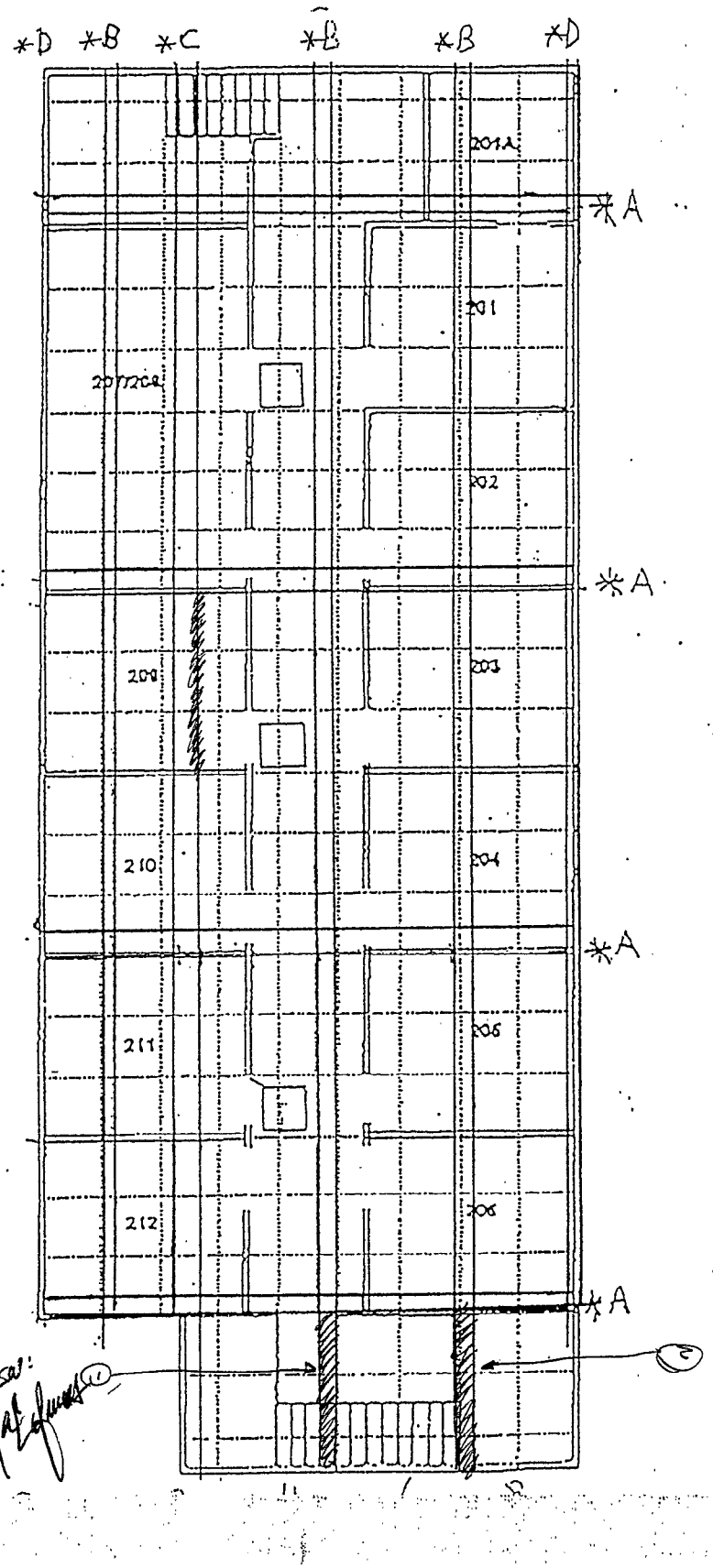
W U S Q O M K I G E C A



*I BEAM SIZES
*A = I 19 3/4, 13 1/4
*B = 15 1/4, 7 1/4
*C = 9, 13", 15", 12"
*D I 10 1/2, 13"

Instrument Model & s/n:	
Detector Model & s/n:	L2221
Calibration Date:	
Efficiency	0.24 cpm/dpm based on S/Y90
Detector Area	15.5 cm2

REVISED: [illegible]

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

C. HALLAM / [illegible]
SURVEY # 141
SAMPLE DATE: 03 2097
LOCATION: B14 2ND FLOOR OVHD POST DECON

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

TOTAL BACKGROUND COUNTS	74
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	1 MIN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	I4 → I8	*A, NORTH SIDE ALL <200 CPM
2	I7 → L7	*B, ALL <200 CPM
3	I8 → L8	*D, ALL <200 CPM
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*I BEAM SIZES

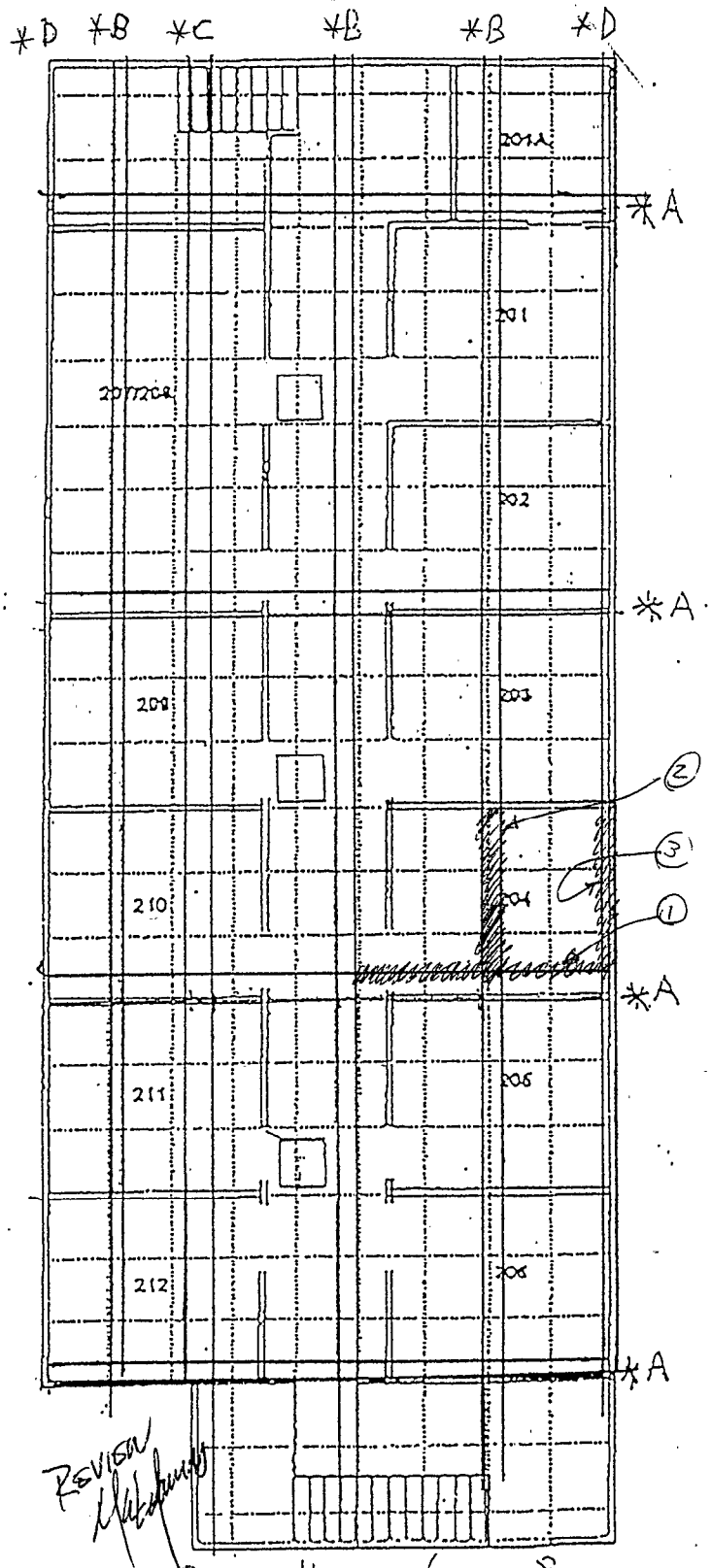
*A = I 19 3/4, 12 1/4

*B = 15 1/4, 7 1/4

*C = 9 I 12', 13", 13'

*D I 10 1/2, 13"

Instrument Model & s/n:	L2221 / (B)
Detector Model & s/n:	
Calibration Date:	
Emiciency	0.24 cpm / dpm based on S/Y90
Detector Area	15.5 cm2



REVIEW [illegible]

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

SURVEY # 151

C. HALLAM / [illegible]

SAMPLE DATE: 032497

LOCATION: B14 2nd FLOOR POST DECON SURVEY

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

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

TOTAL BACKGROUND COUNTS	73
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	N/A - SCAN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	00→05	*A NORTH SIDE, ALL <200 CPM
2	N3→N8	*A SOUTH SIDE, ALL <200 CPM
3	I4→04	*B, ALL <200 CPM
4	L7→07	*B, ALL <200 CPM
5	L8→M8	*D, ALL <200 CPM
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*I BEAM SIZES

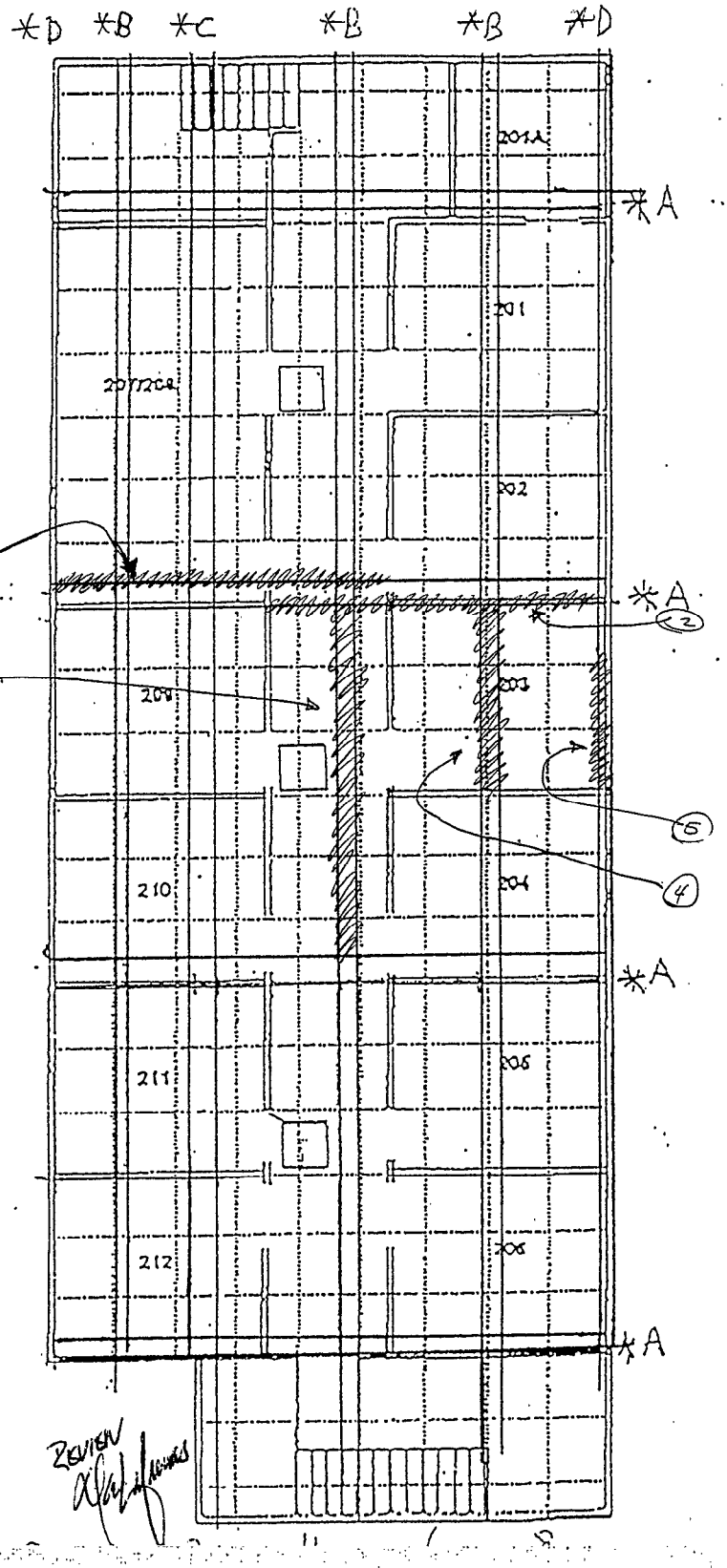
*A = I 12 1/4 19 3/4

*B = 15 1/4 7 1/4

*C = 9" 13" 13" 12"

*D I 13" 10 1/2

Instrument Model & s/n:	
Detector Model & s/n:	L2221 / (B)
Calibration Date:	
Efficiency	0.23 cpm / dpm based on S/Y90
Detector Area	15.5 cm2



REVIEW [illegible]

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

C. HALLAM / [illegible]

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY # 172
SAMPLE DATE: 3-26-97
LOCATION: B14 2ND FLOOR POST DECON SURVEY

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

TOTAL BACKGROUND COUNTS	74
BACKGROUND COUNT TIME (MIN)	1 min
SAMPLE COUNT TIME (MIN)	N/A = SCAN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	00 → U0	ALL ACCESSIBLES < 200 cpm (*D)
2	01 → U1	ALL ACCESSIBLES (*B) < 200 cpm
3	02 → U2	*C, WEST SIDE, ALL ACCESSIBLES < 200 cpm
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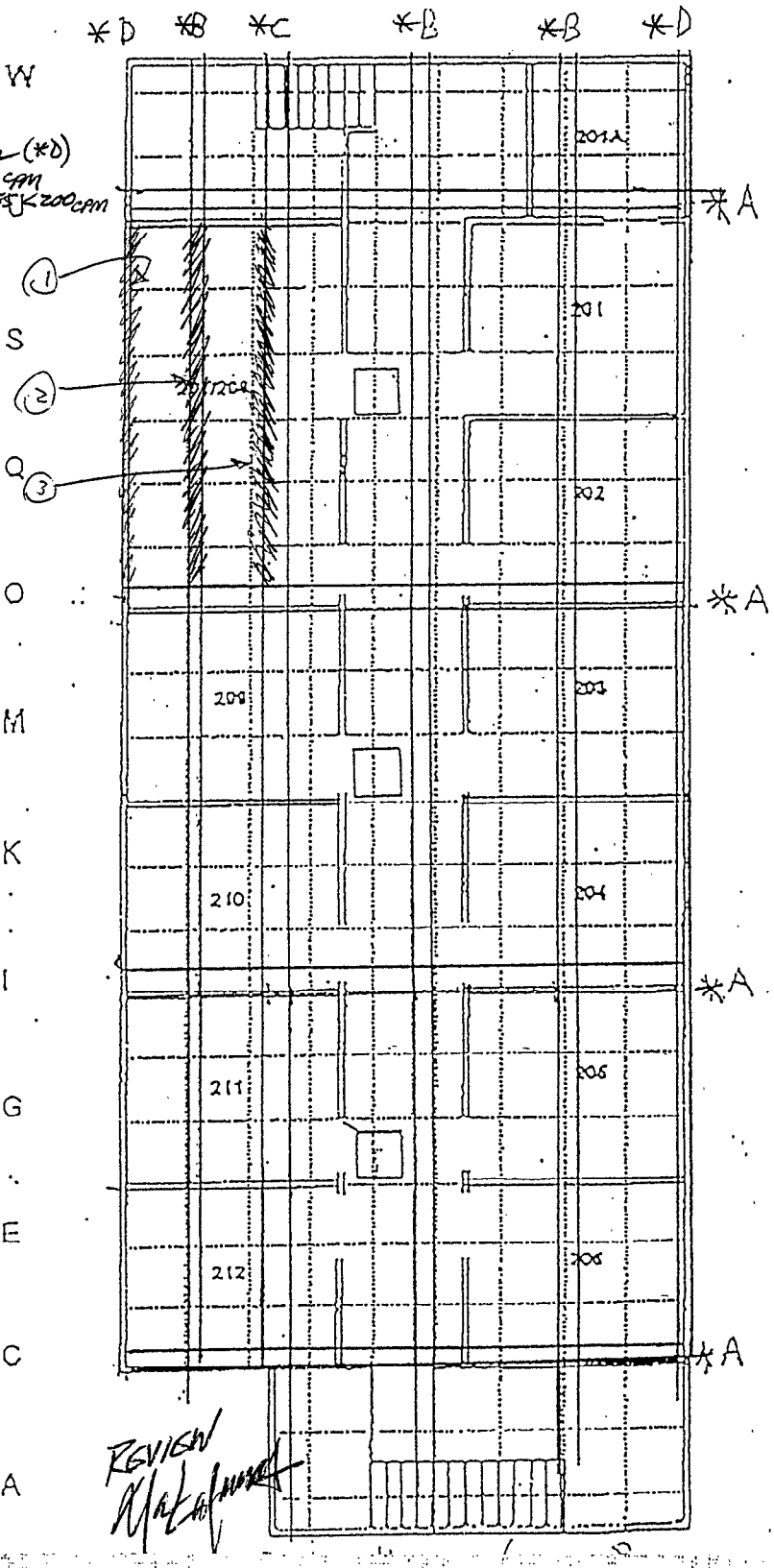

*I BEAM SIZES

*A = I 19 3/4, 12 1/4

*B = 15 1/4, 7 1/4

*C = 9, 13", 13", 12"

*D I 10 1/2, 13"

Instrument Model & s/n:	L2221/D
Detector Model & s/n:	
Calibration Date:	
Efficiency	0.121 cpm / dpm based on S/Y90
Detector Area	15.5 cm2

REVIEW [illegible]

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY # 182
C. HALLAM/CHallam
SAMPLE DATE: 3-27-97
LOCATION: BLDG 14 2ND FLOOR POST DECON SURVEY

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

TOTAL BACKGROUND COUNTS	72
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	N/A → SCAN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	U0 → W0	*D, ALL ACCESSIBLES < 200 CPM
2	U1 → W1	*B, ALL ACCESSIBLES < 200 CPM
3	U2 → W2	*C, WEST SIDE, ALL ACCESSIBLES < 200 CPM
4	O2 → U2	*C, EAST SIDE, ALL ACCESSIBLES < 200 CPM
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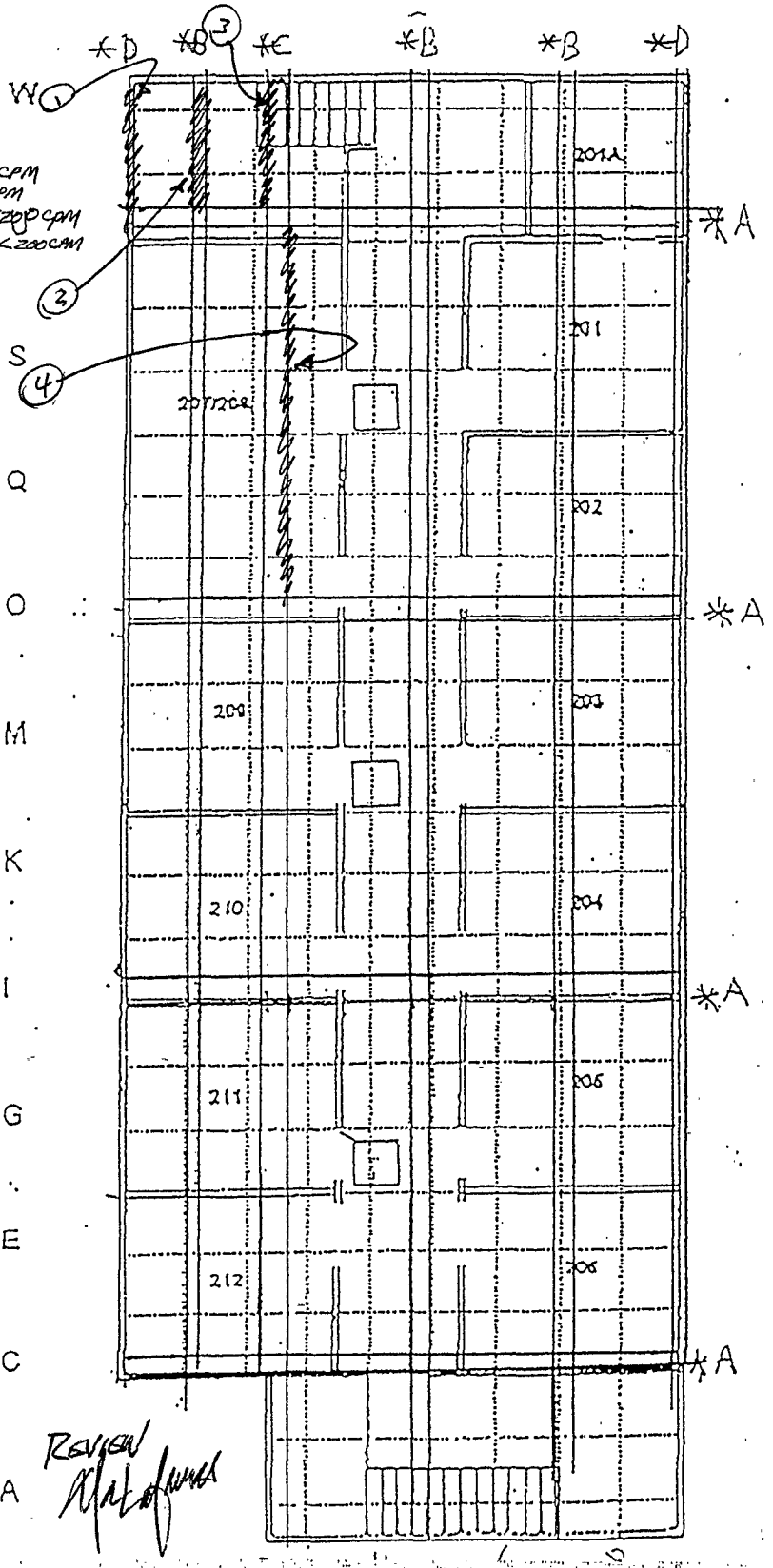

*I BEAM SIZES
*A = I 18 1/4 19 3/4
*B = 15 1/4 7 1/4
*C = 9 13" 15" 12"
*D I 13" 10 1/2

Instrument Model & s/n:	L 2221 /D
Detector Model & s/n:	
Calibration Date:	
Efficiency	0.21 cpm / dpm based on S/Y90
Detector Area	15.5 cm2

Review

ENCL-C2.XLS

ION TECHNOLOGY, INC.

Bldg. 14, Praxair Site

RADIOLOGICAL SURVEY CONTINUATION FORM

Date / Time: 4-1-97 @ 1150	Tech.: M. Bigo	Instruments/sn: LUDLUM 2929 SN 91234 RKG α 145/700	Eff. BB -29
Location / Purpose: BLD-14 2ND FLOOR OFFICES.		Survey No.: 186 RWP No.: N/A BB 43169/700	MDA
VERIFICATION		Eff. α .32	α 15
			BB 136

Loc.	Type	Description	Gross	α DPM	Gross	β DPM	Loc.	Type	Description	Gross	α DPM	Gross	β DPM
1	S	E-6 RM-206 - N. WALL	0		58								
2	S	C-8 RM-206 E WALL	0		54								
3	S	C-6 RM-206 OVERHEAD	0		57								
4	S	D-8 RM-206 OVERHEAD	1		65								
5	S	E-6 RM 206 OVERHEAD	1		65								
6	S	G-6 RM-205 OVERHEAD	0		69								
7	S	G-9 AA EAST WALL RM 205	1		59								
8	S	F-8 OVERHEAD RM-205	0		65								
9	S	H-7 OVERHEAD RM-205	1		52								
10	S	H-1 RM-211 OVERHEAD	0		67								
11	S	G-2 RM-211 - OVERHEAD	2		50								
12	S	G-0 RM 211 - OVERHEAD	0		68								
13	S	H-7 CC RM 205 N. WALL	0		46								
14	S	E-1 RM. 212 OVERHEAD	0		67								
15	S	C-2 RM 212 OVERHEAD	0		53								
16	S	D-2 RM 212 OVERHEAD	0		51								
17	S	F-1 AA RM 211 S. WALL	0		62								
18	S	H-2 CC RM 211 N. WALL	0		52								
19	S	E-2 AA RM 212 N. WALL	0		64								
20	S	C-0 CC RM 212 W WALL	0		55								
21	S	" "	0		43								

D.U.P. SMEAR

Comments:

REVIEW

S2F4_017.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SAMPLE DATE:
LOCATION: PRAXAIR SITE
BLDG. #14
2ND FLOOR OFFICE AREA
VERIFICATION — WALLS

(α)

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

SURVEY #186

TOTAL BACKGROUND COUNTS	1
BACKGROUND COUNT TIME (MIN)	1 MIN.
SAMPLE COUNT TIME (MIN)	1 MIN.

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS CPM
1	H-6 CC	A N. WALL RM. 205	1
2		B	1
3		C	1
4		D	0
5		E	0
6	G-8 AA	A E. WALL ROOM 205	1
7		B	0
8		C	0
9		D	1
10		E	2
11			
12	H-1 CC	A N. WALL RM. 211	1
13		B	1
14		C	0
15		D	2
16		E	1
17	F-1 AA	A S. WALL RM 211	0
18		B	2
19		C	1
20 *		D	1
21		E	3
22			
23			
24 *	F1 AA	DUP. = 1	
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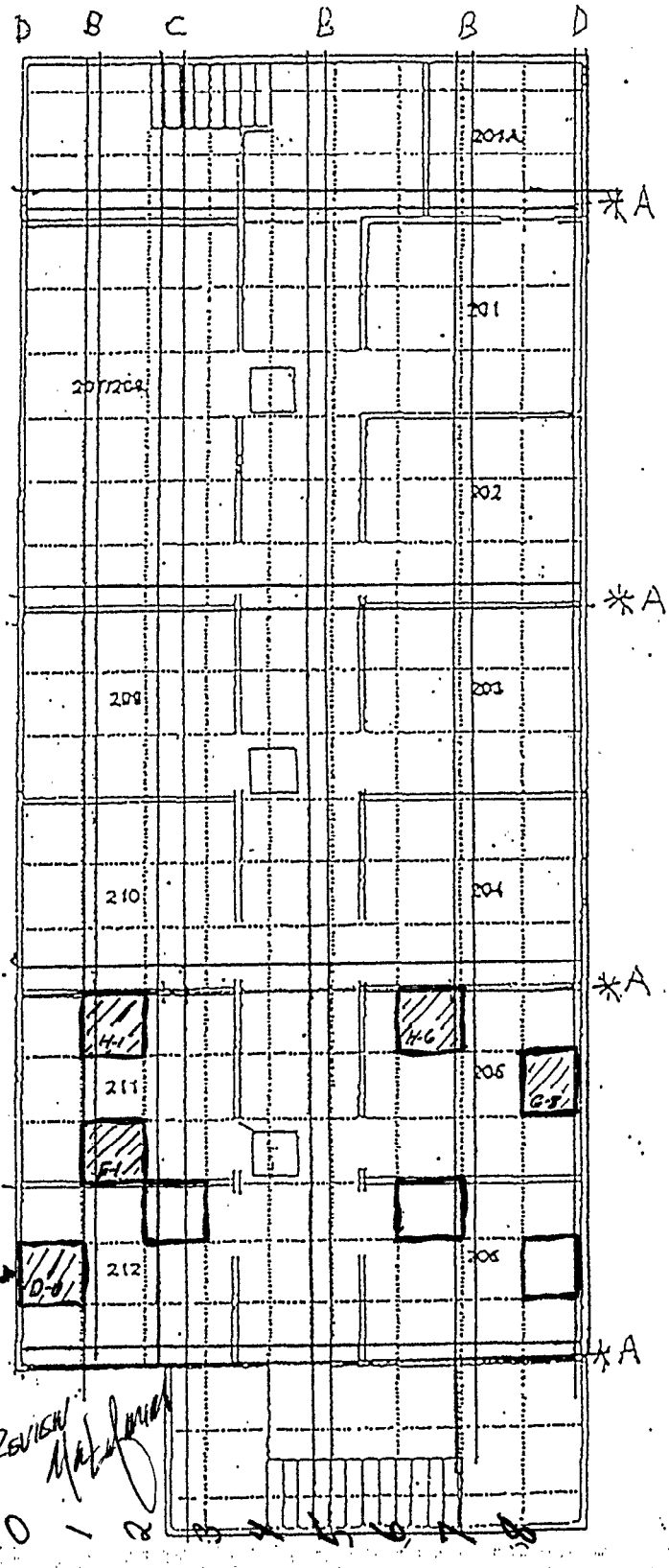
W U S Q O M K I G E C A

NOTE: SURVEY PATTERNS ARE AS FOLLOWS: A B C D E FACING GRID



Instrument Model & s/n:	(F) ESP1 w/43-5
Detector Model & s/n:	
Calibration Date:	
Efficiency	cpm / dpm based on S/Y90 = .12
Detector Area	cm2 = 50

A2FL WOH1.XLS

NOT SURVEYED

REVIEW

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY #186

SAMPLE DATE:
LOCATION: PRAXAIR SITE
BLDG. #14
2ND FLOOR OFFICE AREA
VERIFICATION - WALLS

(2)

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

TOTAL BACKGROUND COUNTS	3
BACKGROUND COUNT TIME (MIN)	1 MIN.
SAMPLE COUNT TIME (MIN)	1 MIN.

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS CPM
1	E-2 AA	A N. WALL Rm 212	1
2		B	3
3		C	1
4		D	4
5		E	1
6	D-0 CC	A W. WALL Rm. 212	0
7		B	5
8		C	2
9		D	1
10		E	1
11	E6 AA	A N. WALL Rm. 206	2
12		B	2
13		C	0
14		D	1
15		E	1
16 *	C-8 CC	A E. WALL Rm 206	5
17		B	2
18		C	1
19		D	0
20		E	0
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22 *	C-8-CC	E DUP. = 1	
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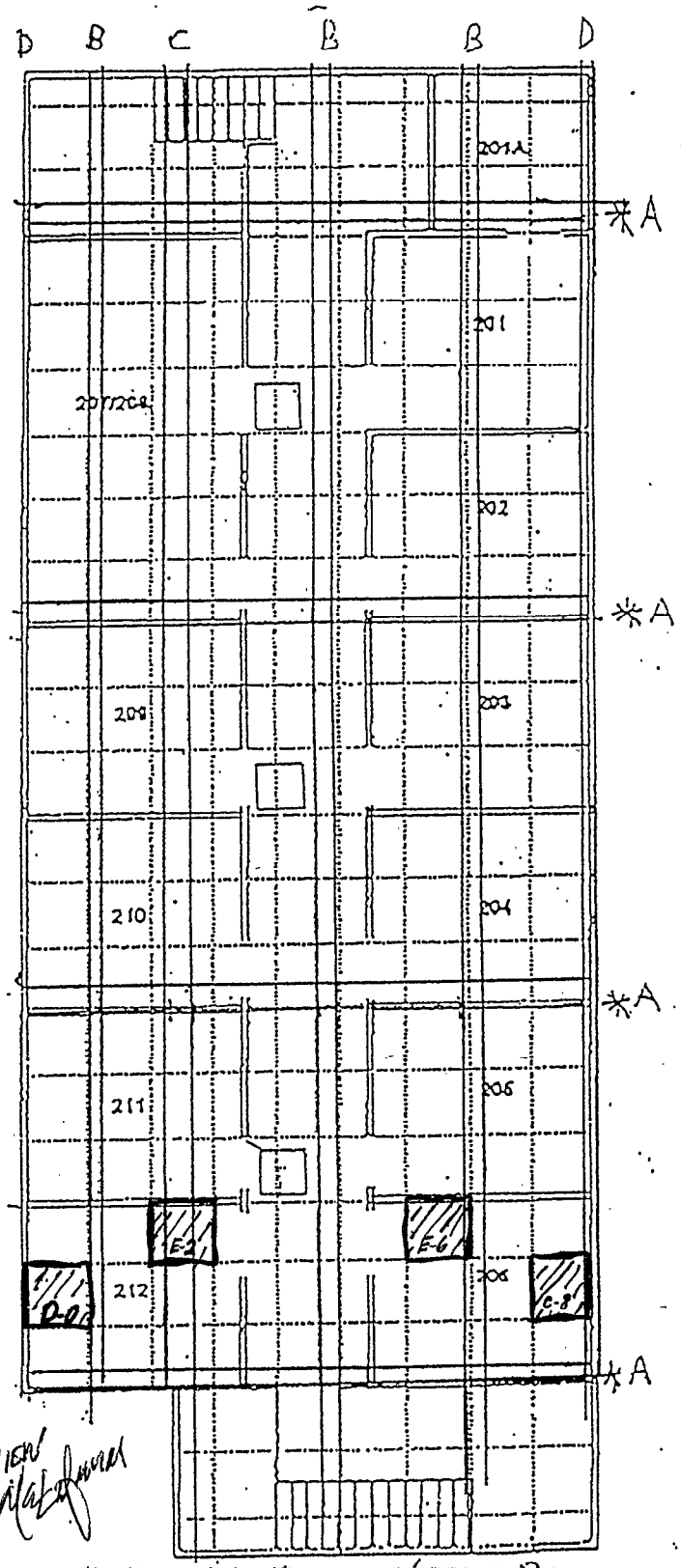


3-31-91

Instrument Model & s/n:	ESP-1 W/43-5
Detector Model & s/n:	
Calibration Date:	
Efficiency	cpm / dpm based on S/Y90 .13
Detector Area	cm2 50

A2FL WOH 2

ENCL-C2.XLS

REVIEW

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY #186

SAMPLE DATE:
LOCATION: PRAXAIR SITE
BLDG. #14
2ND FLOOR OFFICE AREA
VERIFICATION - OVERHEAD

(α)

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

TOTAL BACKGROUND COUNTS	3
BACKGROUND COUNT TIME (MIN)	1 MIN.
SAMPLE COUNT TIME (MIN)	1 MIN.

SAMPLE #	LOCATION CODE		LOCATION DESCRIPTION		GROSS CPM
1	E-1	A	RM 212	BEAM	2
2		B		CEILING	2
3		C		CEILING	4
4		D		BEAM	1
5		E		CEILING	7
6	D-2	A		BEAM	0
7		B		CEILING	0
8		C		BEAM	2
9		D		BEAM	2
10		E		CEILING	8
11	C-2	A		BEAM	1
12		B		BEAM	1
13		C		CEILING	4
14		D		BEAM	0
15		E		CEILING	5
16	E-6	A	RM 206	CEILING	4
17		B		BEAM	1
18		C		CEILING	3
19		D		CEILING ~~BEAM~~	4
20 *		E		BEAM	0
21	D-8	A		CEILING	3
22		B		BEAM	0
23		C		CEILING	3
24		D		CEILING	5
25		E		BEAM	2
26	C-6	A		CEILING	4
27		B		BEAM	0
28		C		CEILING	2
29		D		CEILING	3
30		E		BEAM	1
31					
32	*E-6	E	DUP. = 1		
33					
34					
35					
36					
37					
38					
39					
40					

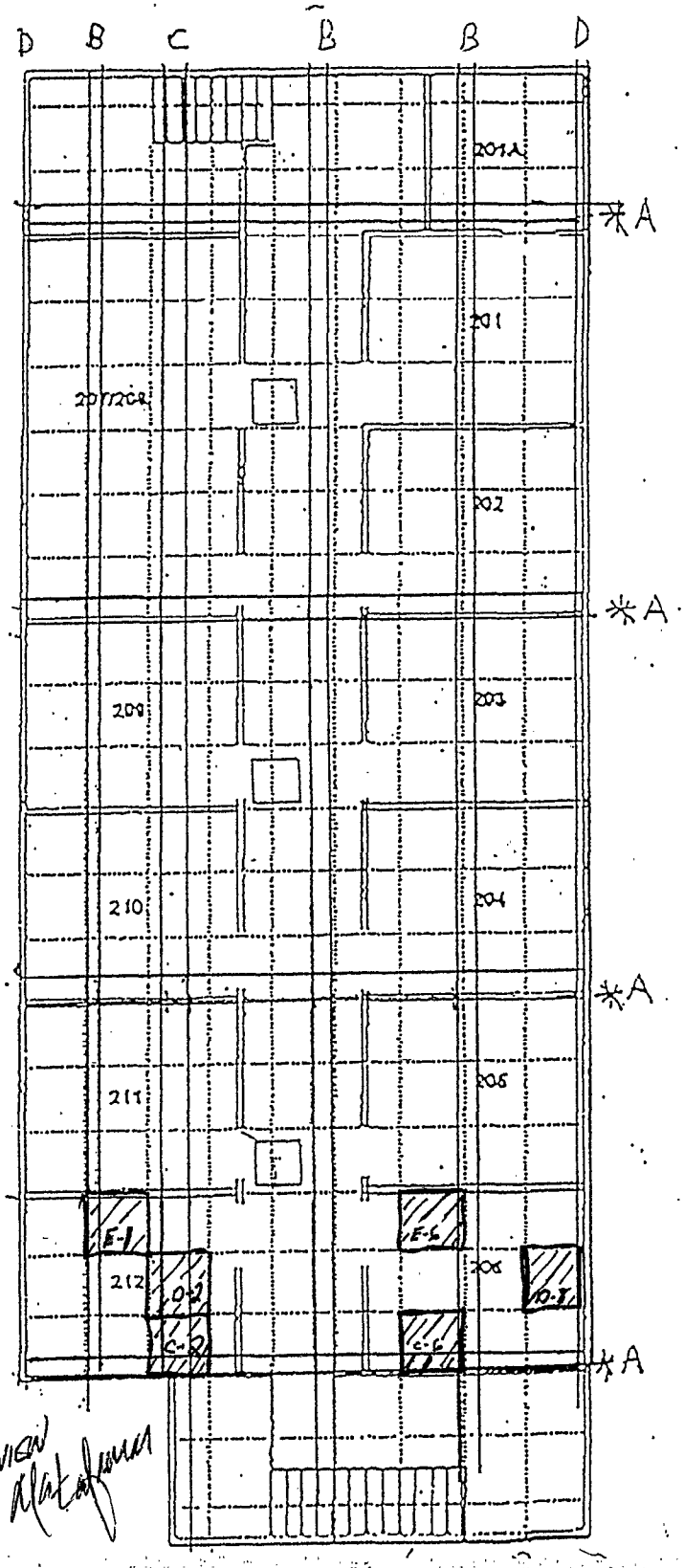
NOTE: SURVEY PATTERN IS AS FOLLOWS: A B / C / D C

3-31-97

Instrument Model & s/n:	(F) ES-P w/43-5
Detector Model & s/n:	
Calibration Date:	
Efficiency	cpm / dpm based on S/Y90 = .13
Detector Area	cm2 = 50

A2FLWOH2

ENCL-C2.XLS



REVIEW

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SAMPLE DATE:
LOCATION: PRAXAIR SITE
BLDG. #14
2ND FLOOR OFFICE AREA
VERIFICATION - OVERHEAD

(2)

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

SURVEY #186

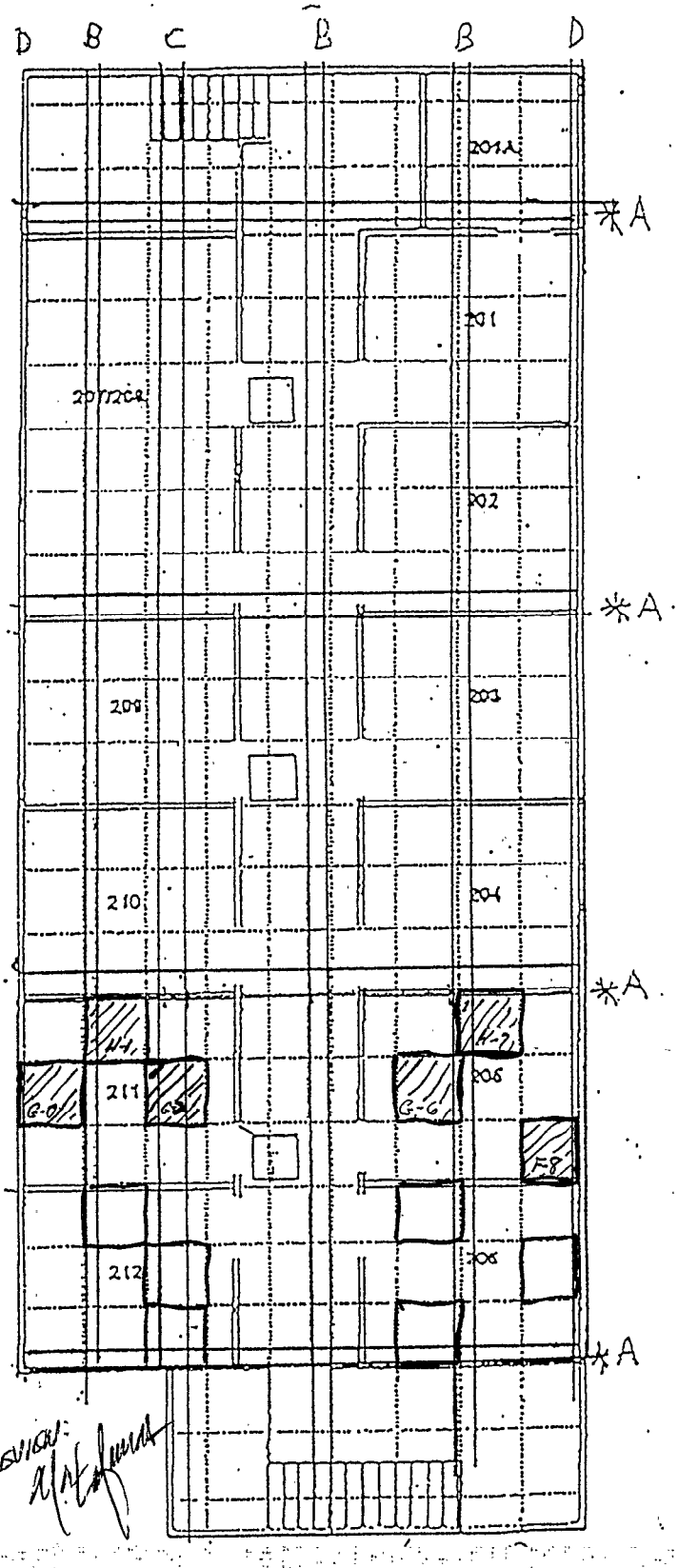
TOTAL BACKGROUND COUNTS	1CPM
BACKGROUND COUNT TIME (MIN)	1 MIN.
SAMPLE COUNT TIME (MIN)	1 MIN.

SAMPLE #	LOCATION CODE		LOCATION DESCRIPTION		GROSS CPM
1	G-6	A	Rm 205	CEILING	5
2		B		BEAM	6
3		C		CEILING	2
4		D		BEAM	4
5		E		CEILING	2
6	H-7	A		CEILING	7
7		B		BEAM	1
8		C		CEILING	6
9		D	CEILING	BEAM	10
10		E	BEAM	CEILING	2
11	F-8	A		CEILING	12
12		B		BEAM	3
13		C		CEILING	8
14		D		CEILING	6
15		E		BEAM	1
16					
17	G-0	A	Rm. 211	BEAM	4
18		B		CEILING	6
19		C		BEAM	2
20 *		D		CEILING	5
21		E		BEAM	1
22	H-1	A		BEAM	3
23		B		CEILING	7
24		C		CEILING	4
25		D		BEAM	2
26		E		CEILING	9
27	G-2	A		BEAM	3
28		B		CEILING	6
29		C		BEAM	1
30		D		CEILING	5
31		E		BEAM	1
32					
33 *	G-0	D	DUP. = 4		
34					
35					
36					
37					
38					
39					
40					

NOTE: SURVEY PATTERN IS AS FOLLOWS: N ↑ [A B / D E] FACING GRID

3-27-97

Instrument Model & s/n:	
Detector Model & s/n:	
Calibration Date:	
Efficiency	cpm / dpm based on S/Y90 = .12
Detector Area	cm2 = 50



ENCL-C2.XLS

A2FLW01.XLS

REVIEW:

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY #186

SAMPLE DATE:
LOCATION: PRAXAIR SITE
BLDG. #14
2ND FLOOR OFFICE AREA
VERIFICATION - WALLS

BY

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

TOTAL BACKGROUND COUNTS	60
BACKGROUND COUNT TIME (MIN)	1 MIN.
SAMPLE COUNT TIME (MIN)	1 MIN.

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS CPM
1	E-2 AA	A N. WALL Rm. 212	48
2		B	61
3		C	53
4		D	64
5		E	49
6	D-0 CC	A W. WALL Rm. 212	73
7		B	81
8		C	68
9		D	56
10		E	82
11	E-6 AA	A N. WALL Rm. 206	68
12		B	73
13		C	61
14		D	70
15		E	61
16	C-8 CC	A E. WALL Rm. 206	124
17		B	133
18		C	142
19		D	127
20 *		E	108
21			
22 *	C-8-CC	E DUP = 121	
23			
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39			
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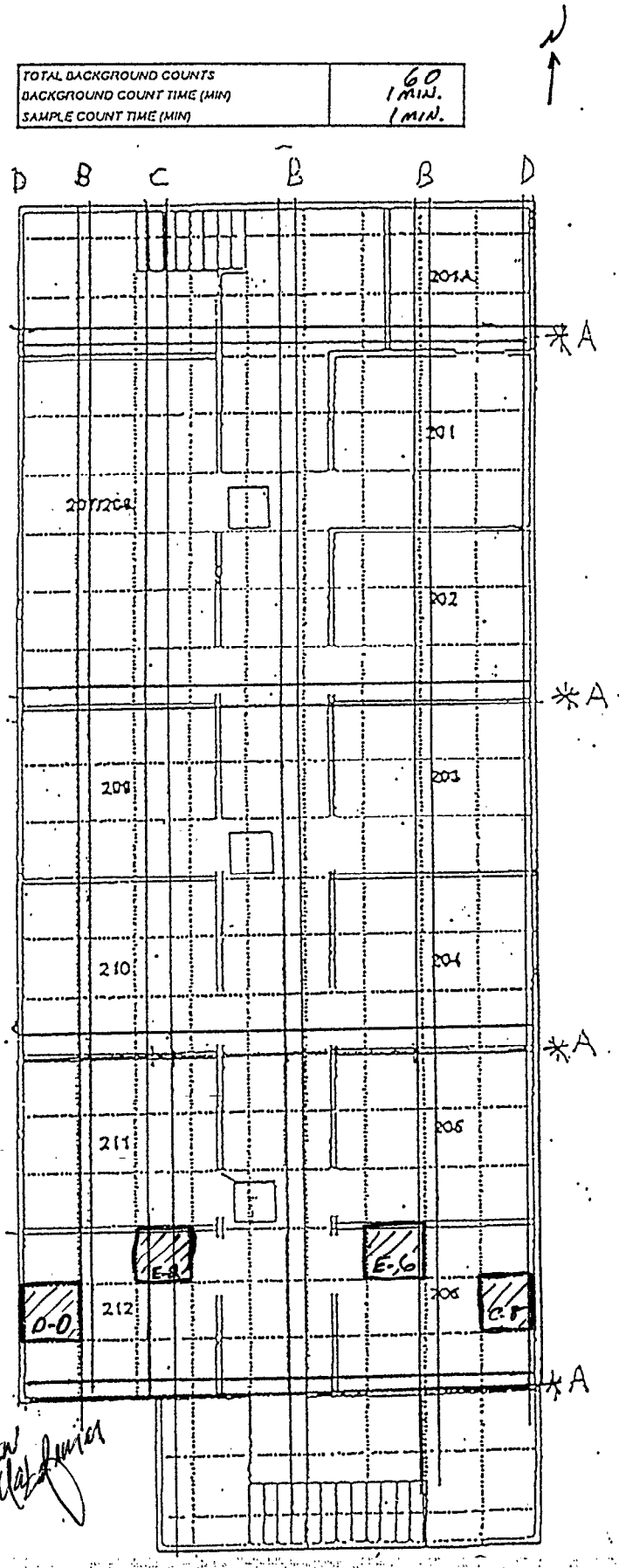

NOTE: SURVEY PATERNS ARE AS FOLLOWS PER GRID:

A B C D E FACING GRID

Instrument Model & s/n:	L2221 #91935 W/44-9 #091747
Detector Model & s/n:	3-4-97
Calibration Date:	
Efficiency	cpm / dpm based on S/Y90 .19
Detector Area	cm2 15.5

2-21-99

02 flwl

REVIEW

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY #186

SAMPLE DATE:
LOCATION: PRAXAIR SITE
BLDG. #14
2ND FLOOR OFFICE AREA
VERIFICATION - OVERHEAD

BY

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

TOTAL BACKGROUND COUNTS	70
BACKGROUND COUNT TIME (MIN)	1 MIN.
SAMPLE COUNT TIME (MIN)	1 MIN.

SAMPLE #	LOCATION CODE		LOCATION DESCRIPTION	GROSS CPM	W/BY
1	E-1	A	RM. 212	BEAM 123	
2		B		CEILING 132	
3		C		CEILING 106	U
4		D		BEAM 121	
5		E		CEILING 147	
6	D-2	A		BEAM 103	
7		B		CEILING 144	
8		C		BEAM 116	
9		D		BEAM 93	S
10		E		CEILING 130	
11	C-2	A		BEAM 127	
12		B		BEAM 109	
13		C		CEILING 156	
14		D		BEAM 113	
15		E		CEILING 148	Q
16	E-6	A	RM 206	CEILING 157	
17		B	~~RM 205~~ (4)	BEAM 129	
18		C		CEILING 168	
19		D		~~CEILING BEAM~~ CEILING 149	
20 *		E		BEAM 118	O
21	D-8	A		CEILING 16	
22		B		BEAM 85	
23		C		CEILING 144	
24		D		CEILING 158	
25		E		BEAM 99	
26	C-6	A		CEILING 84	M
27		B		BEAM 72	
28		C		CEILING 143	
29		D		CEILING 162	
30		E		BEAM 79	
31					K
32 *	E-6	E	DUP. = 126		
33					
34					
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36					I
37					
38					
39					
40					

NOTE: SURVEY PATTERN IS AS FOLLOWS: N

G

3-3-97

E

Instrument Model & s/n:	L2221 #91935 W/44.9 #091747
Detector Model & s/n:	
Calibration Date:	
Efficiency	cpm / dpm based on S/N90 = .19
Detector Area	cm2 = 15.5

C

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ENCL-C2.XLS

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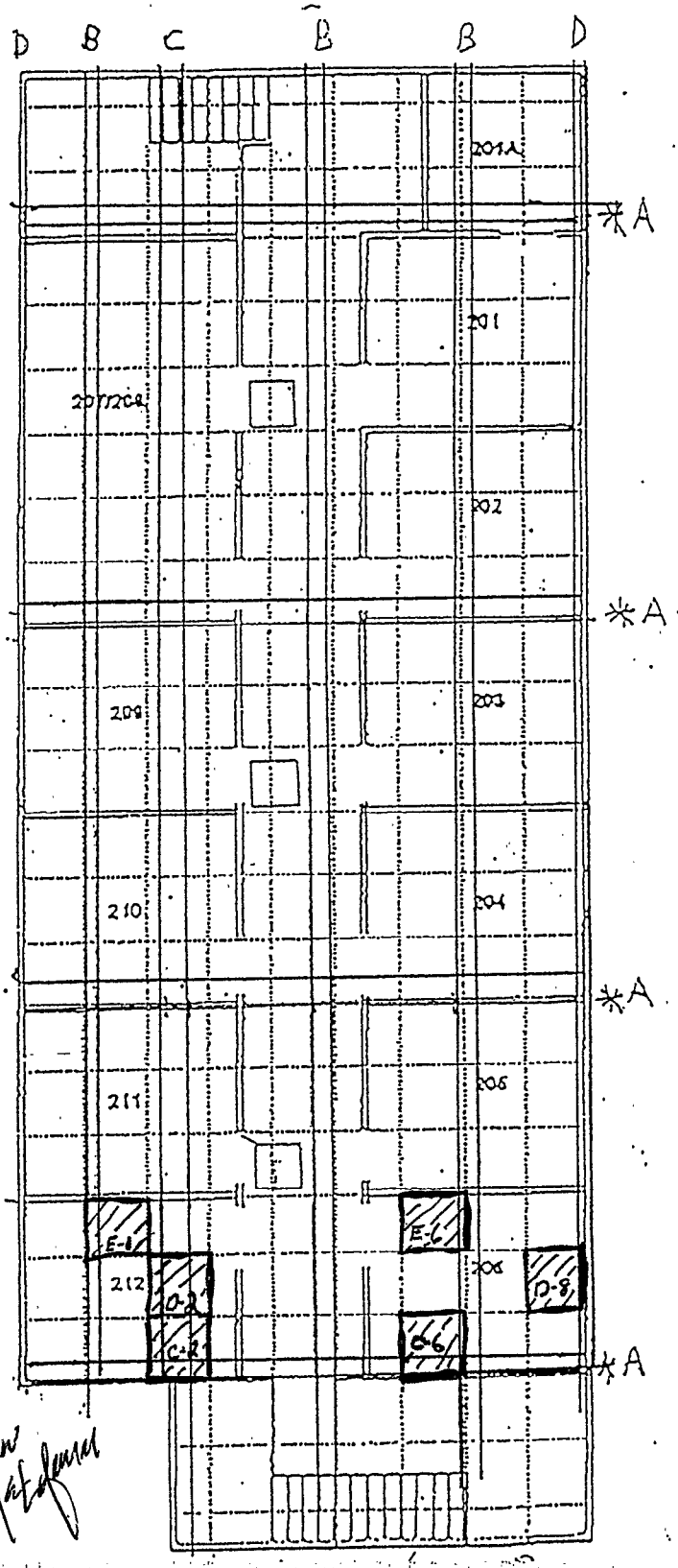
A

REVIEW



HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SAMPLE DATE:
LOCATION: PRAXAIR SITE
BLDG. #14
2ND FLOOR OFFICE AREA
VERIFICATION - WALLS

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

SURVEY #186

TOTAL BACKGROUND COUNTS	60
BACKGROUND COUNT TIME (MIN)	1 MIN.
SAMPLE COUNT TIME (MIN)	1 MIN.

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS CPM
1	H-2 CC	A N. WALL Rm. 205	112
2		B	85
3		C	113
4		D	82
5		E	86
6	G-8 AA	A E. WALL Rm. 205	98
7		B	85
8		C	104
9		D	96
10		E	92
11			
12	H-2 CC	A N. WALL Rm. 211	83
13		B	97
14		C	107
15		D	123
16		E	92
17	F1 AA	A S. WALL Rm 211	81
18		B	77
19		C	88
20 *		D	73
21		E	89
22	E-2 AA	A N. WALL Rm 212	48
23		B	61
24		C	53
25		D	64
26		E	49
27	D-0 CC	A W. WALL Rm 212	
28		B	
29		C	
30		D	
31		E	
32			
33 *	F1 AA D	DUR = 86	
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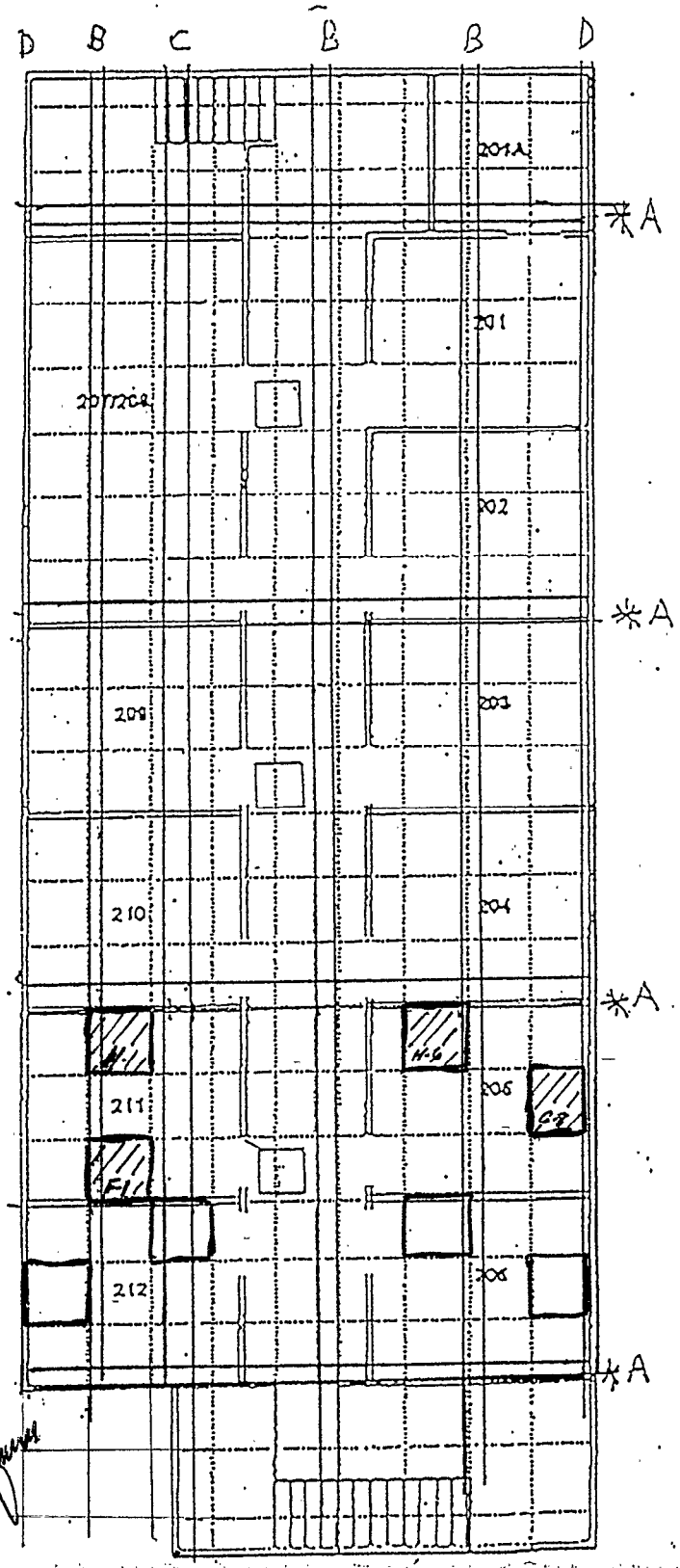
37			
38			
39			
40			



NOTE: SURVEY PATTERNS ARE AS FOLLOW PER GRID:

A B	FACING GRID
D E	

Instrument Model & s/n:	L2221 #91935 W/44-9 #091747
Detector Model & s/n:	
Calibration Date:	3-4-97
Efficiency	cpm / dpm based on S/Y90 = .20
Detector Area	cm2 = 15.5

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REVIEW

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

SURVEY # 192

C. HALLAM / [illegible]

SAMPLE DATE: 3-31-97

LOCATION: B14 2ND FLOOR POST DECON SURVEY

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

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

TOTAL BACKGROUND COUNTS	78
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	NA - 0 SCAN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	04 → T4	*B, ALL ACCESSIBLES <200 CPM
2	07 → T7	*B, ALL ACCESSIBLES <200 CPM
3	08 → T8	*D, ALL ACCESSIBLES <200 CPM
4		
5		
6		
7		
8		
9		
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11		
12		
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*I BEAM SIZES

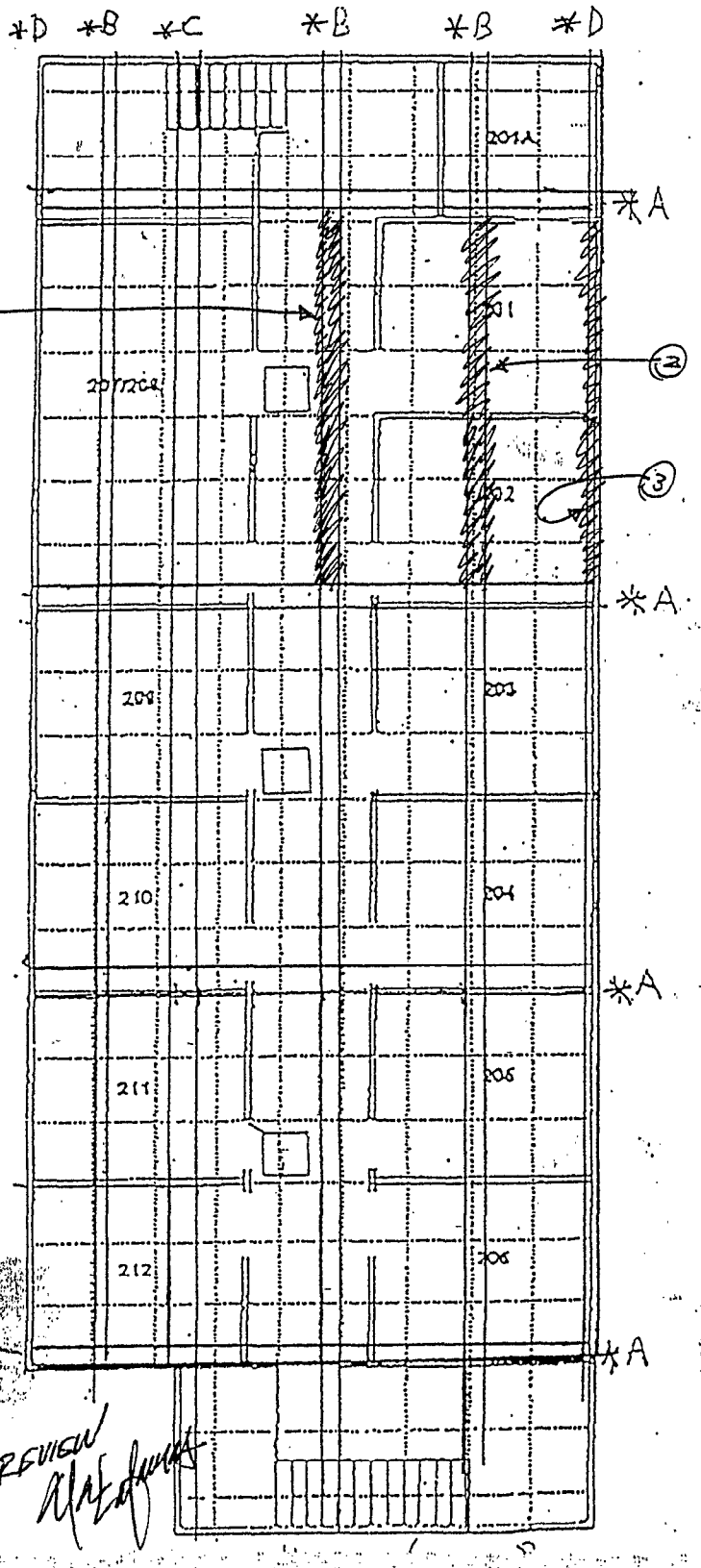
*A = I 13 1/4 19 3/4

*B = 15 1/4 7 1/4

*C = 9" 13" 13" 12"

*D I 13" 10 1/2

Instrument Model & s/n:	
Detector Model & s/n:	L2221 / D
Calibration Date:	
Efficiency	0.20 cpm / dpm based on S/Y90
Detector Area	15.5 cm2



REVIEW [illegible]

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY # 195
C. HALLAM / [illegible]
SAMPLE DATE: 4-1-97
LOCATION: B14 2ND FLOOR HVAC ROOM

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

TOTAL BACKGROUND COUNTS	75
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	N/A → SCAN

N-S = NORTH-SOUTH
GW = EAST-WEST
/// = AREA SURVEYED

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS SAMPLE COUNTS
1	XB → AAO	N-S TREAM ALL ACCESIBLES	< 200 CPM
2			
3			
4			
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6			
7			
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12			
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15			
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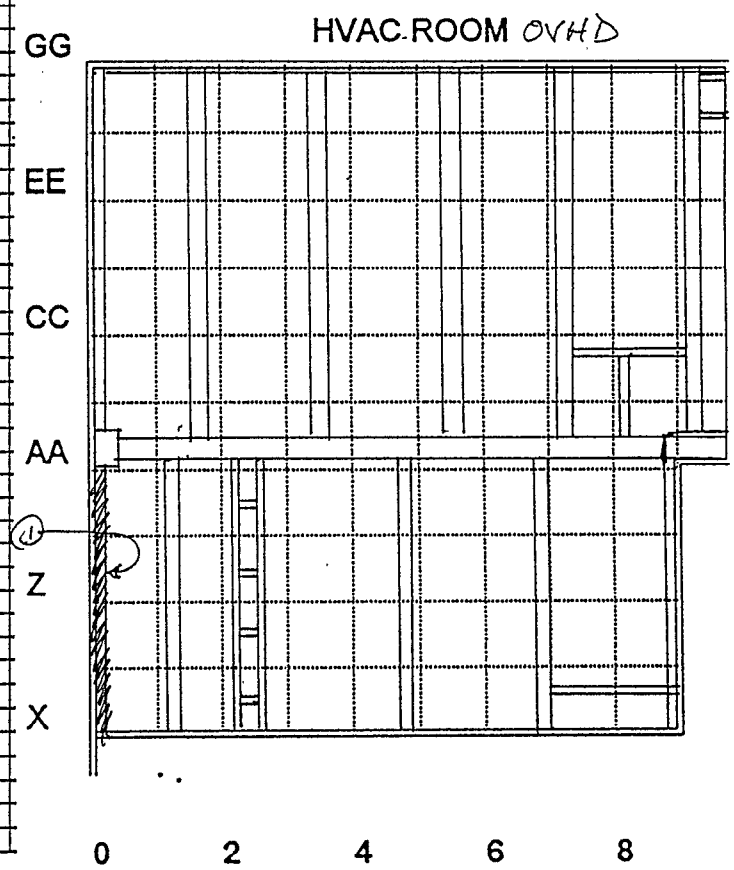

Instrument Model & s/n:	L 2221 / B 4-1-97 B
Detector Model & s/n:	
Calibration Date:	
Efficiency	[illegible] cpm / dpm based on S/Y90
Detector Area	[illegible] cm2

REVIEW [illegible]

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY # 202

SAMPLE DATE: 4-2-97
LOCATION: B14 2ND FLOOR HVAC ROOM
POST DECON SURVEY

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

(F) N-S = NORTH-SOUTH I BEAM
(I) E-W = EAST-WEST I BEAM
(A) N-S = NORTH SOUT ANGLE IRON
(A) E-W = EAST WEST ANGLE IRON
ALL = SURVEYED AREA

TOTAL BACKGROUND COUNTS	64
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	NA → SCAN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS SAMPLE COUNTS
1	GG7→GG9	(I) E-W, ALL ACCESSIBLES	<200 CPM
2	~~GG9~~ FF9	(A) E-W, ALL ACCESSIBLES (ZGL.)	<200 CPM
3	AA9→GG9	(I) N-S, ALL ACCESSIBLES	<200 CPM
4	AA7→GG7	(I) N-S, EAST SIDE, ALL ACCESSIBLES	<200 CPM
5	BB7→BB9	(A) E-W, ALL ACCESSIBLES	<200 CPM
6	AA8, BB8	(A) N-S, ALL ACCESSIBLES	<200 CPM
7	AA7, AA8	(I) E-W, NORTH SIDE, ALL ACCESSIBLES	<200 CPM
8	~~AA8, BB8~~ ~~(4-2-97)~~ AA0→AA6	(I) E-W, SOUTH SIDE	<200 CPM
9	X1→AA1	(I) N-S, ALL ACCESSIBLES	<200 CPM
10	X2→AA2	DOUBLE C-BEAM ALL ACCESSIBLES	<200 CPM
11			
12			
13			
14			
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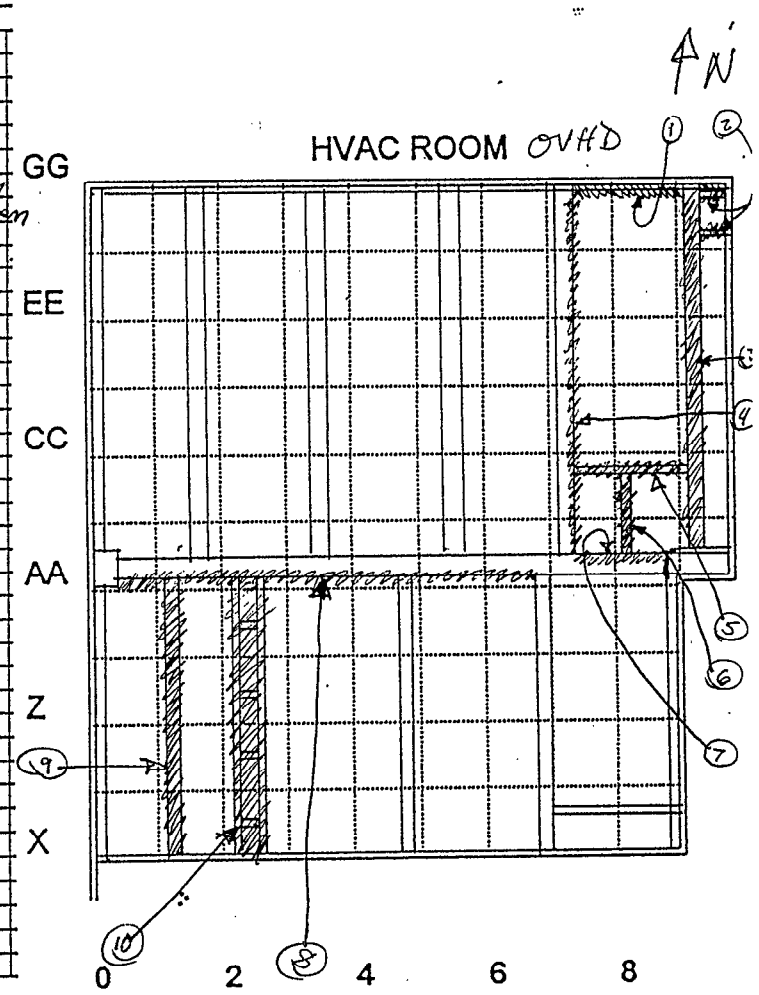

C. HALLAM / C Hallam
Mike Zigo

Instrument Model & s/n:	L2221 / D & L2221 / BGK
Detector Model & s/n:	
Calibration Date:	~~0.32cpm/dpm @15.5cm~~
Efficiency	cpm / dpm based on S/Y90
Detector Area	cm2

REVIEW

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

C. HALLAM/[illegible]

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY # 209

SAMPLE DATE: 4-3-97

LOCATION: B14 2ND FLOOR HVAC ROOM

POST DECON SURVEY

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

TOTAL BACKGROUND COUNTS	67
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	N/A SCAN

(I) N-S = NORTH/SOUTH I BEAM
(I) E-W = EAST/WEST I BEAM
(A) E-W = EAST/WEST ANGLE IRON

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS SAMPLE COUNTS
1	X4 → AA4	(I) N-S, ALL ACCESSIBLES	<200 CPM
2	Y4 → Y6	(A) E-W, ALL ACCESSIBLES	<200 CPM
3	X6 → X8	(A) E-W, ALL ACCESSIBLES	<200 CPM
4	X8 → AA8	(I) N-S, ALL ACCESSIBLES	<200 CPM
5	ZZ6 → ZZ8	(A) E-W, ALL ACCESSIBLES	<200 CPM
6	AA6 → AA8	(I) E-W, ALL ACCESSIBLES	<200 CPM
7	X6 → AA6	(I) N-S, ALL ACCESSIBLES	<200 CPM
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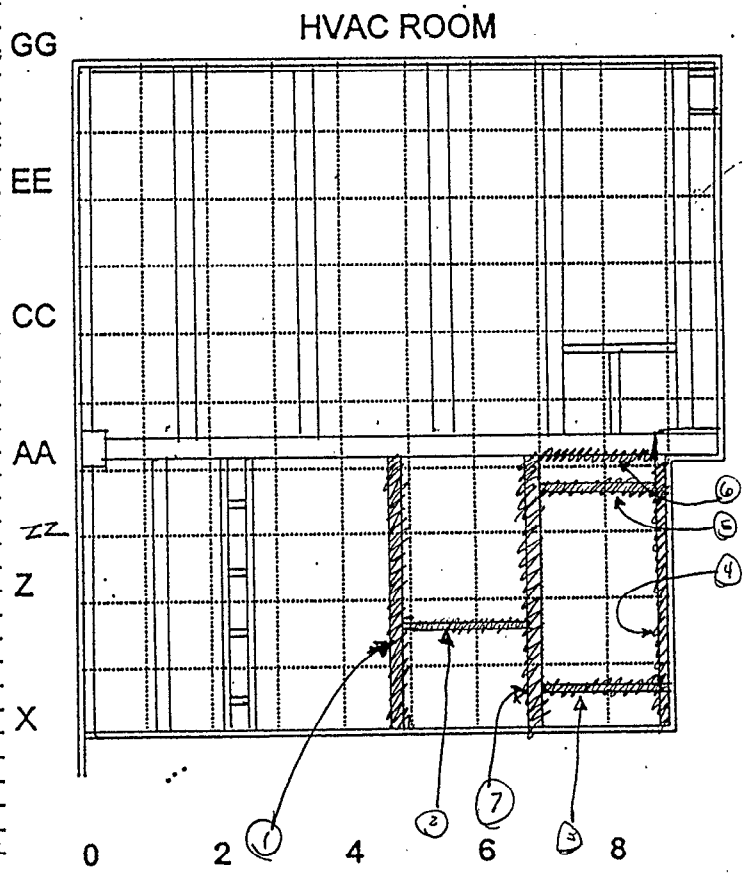

Instrument Model & s/n:	L2221 / B
Detector Model & s/n:	
Calibration Date:	
Efficiency	0.21 cpm / dpm based on S/Y90
Detector Area	15.5 cm2

REVIEW [illegible]

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

C. HALLAM / C. Hallam
SURVEY #210
SAMPLE DATE: 4-3-97
LOCATION: B14 2ND FLOOR
POST DECON SURVEY

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

TOTAL BACKGROUND COUNTS	72
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	N/A SCAN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	U6 → U8	*A, ALL ACCESSIBLES < 200 cpm (NORTH SIDE ONLY)
2		
3		
4		
5		
6		
7		
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11		
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14		
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16		
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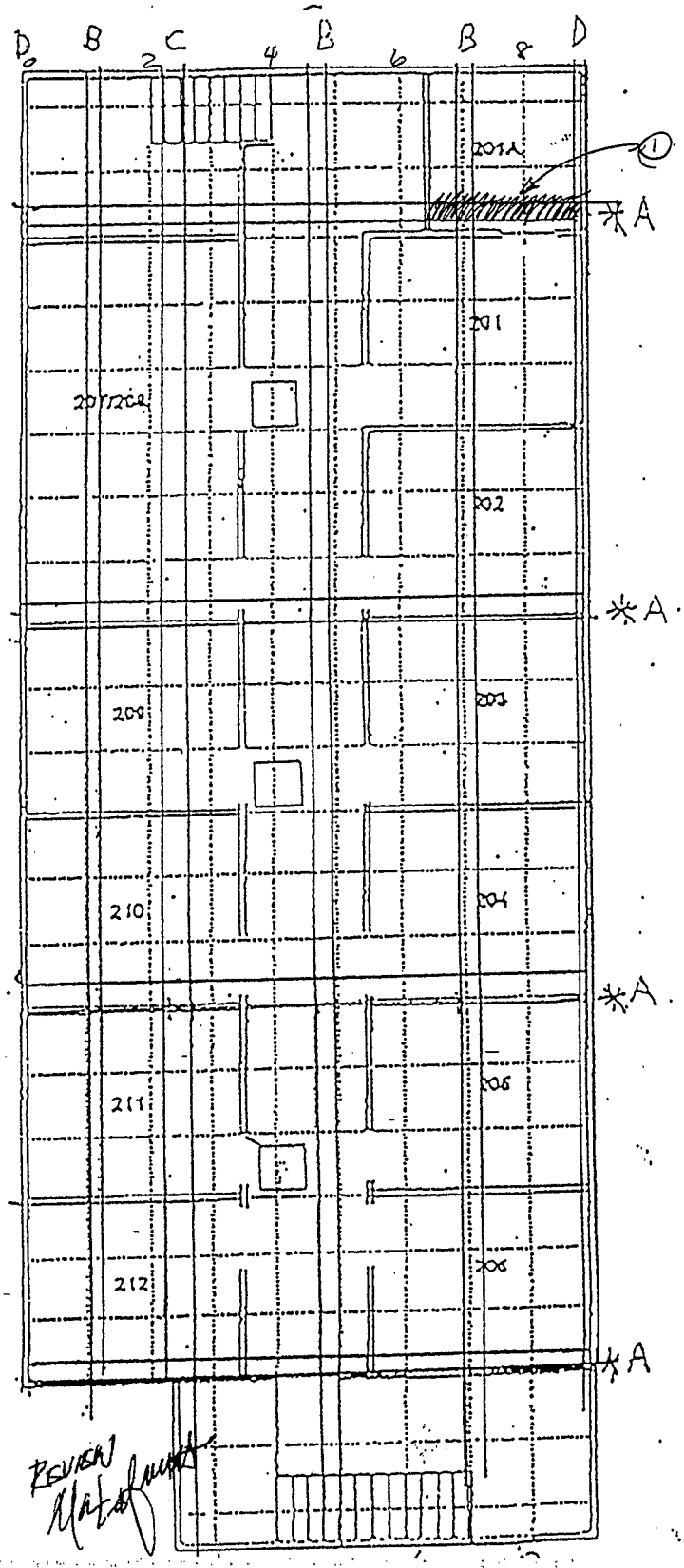
40		

W U S Q O M K I G E C A

*I BEAM SIZES
*A = I 19 3/4 / 12 1/4
*B = 15 1/4 / 7 1/4
*C = 9 / 13" / 13" / 12"
*D I 10 1/2 / 13"

Instrument Model & S/N	L2221 / B
Detector Model & S/N	
Calibration Date:	
Efficiency	0.41 cpm / dpm based on S/Y90
Detector Area	15.5 cm2



REVIEW

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

C. HALLAM / [illegible]
SURVEY # 221
SAMPLE DATE: 4-7-97
LOCATION: B14 2ND FLOOR OVHD
POST DECON SURVEY

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

TOTAL BACKGROUND COUNTS	75
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	1 MIN / SCAN

|/|/| = AREA SURVEYED

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION
1	U8	*D, LEDGE, 50cm², 231 CPM
2	U7	*B, LEDGE, 50cm², 202 CPM
3	U6 → U8	*A, ALL ACCESSIBLES <200 CPM (SOUTH SIDE ONLY)
4	U1 → U6	*A, ALL ACCESSIBLES <200 CPM
5	U2 → U12	*C, EAST SIDE, ALL ACCESSIBLES <200 CPM
6	U4 → U14	*B, ALL ACCESSIBLES <200 CPM
7		
8		
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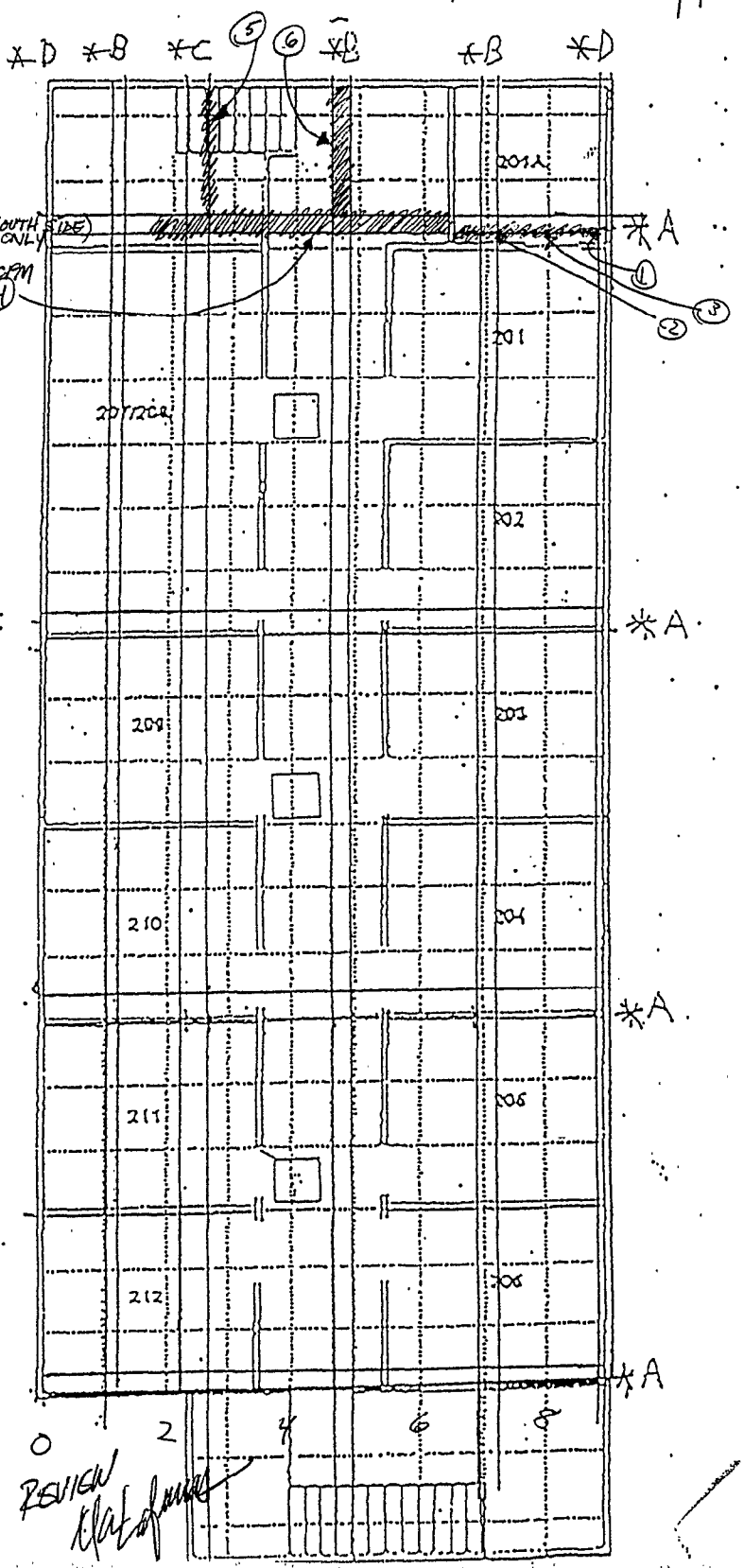
W S Q O M K I G E C A

*I BEAM SIZES
*A = I 12 1/4 19 3/4
*B = 15 1/4 7 1/4
*C = 9" 13" 13" 12"
*D I 13" 10 1/2

Instrument Model & S/N	L2221 / B
Detector Model & S/N	
Calibration Date:	
Efficiency	[illegible] cpm / dpm based on S/100
Detector Area	[illegible] cm2



REVIEW [illegible]

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

C.HAUAM / CHAU
SURVEY # 222
SAMPLE DATE: 4-8-97
LOCATION:
B14 2ND FLOOR HVAC ROOM OVHD

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

TOTAL BACKGROUND COUNTS	67
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	N/A - SCAN

MMM = AREA SURVEYED

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS SAMPLE COUNTS
1	AA0 → AA7	BEAM, NORTH SIDE, ALL ACCESSIBLES	< 200 CPM
2			
3			
4			
5			
6			
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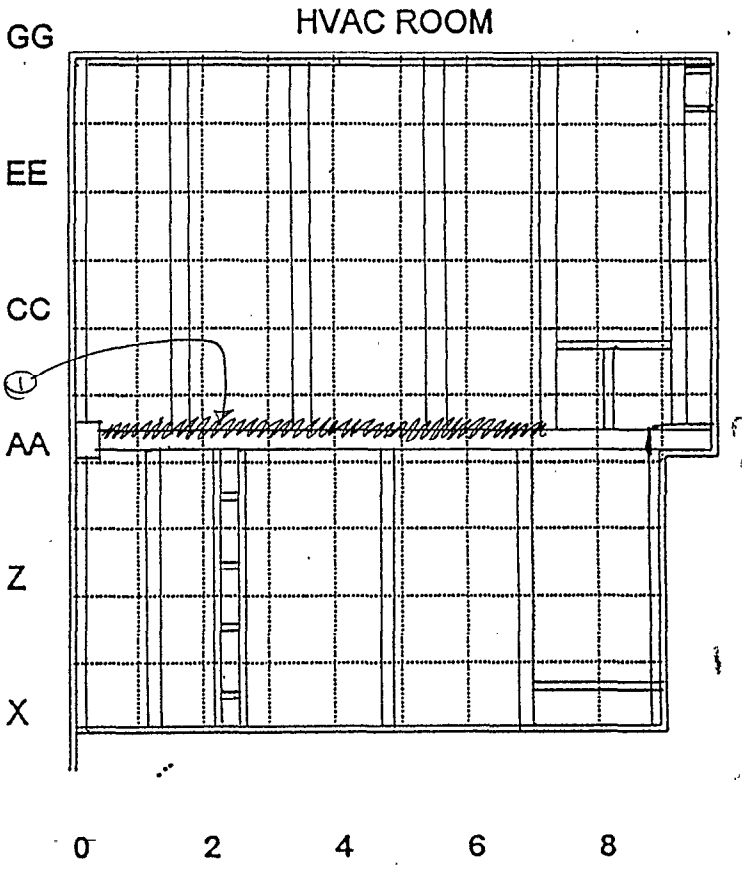

Instrument Model & s/n:	L2221 / B
Detector Model & s/n:	
Calibration Date:	
Efficiency	7.20 cpm / dpm based on S/Y90
Detector Area	19.5 cm2

REVIEW

ENCL-C2.XLS

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

C. HALLAM/CHALLAM
SURVEY # 223
SAMPLE DATE: 4-7-97
LOCATION: B14 2ND FLOOR HVAC ROOM TANK STAND
POST DECON SURVEY

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

TOTAL BACKGROUND COUNTS	67
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	NA → SCAN

\\\ = SURVEYED AREA

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION		
1	CC6 → CC9	I BEAM SUPPORT, ALL ACCESSIBLES	< 200 CPM	
2	BR7 → BR9	I BEAM SUPPORT, ALL ACCESSIBLES	< 200 CPM	
3				
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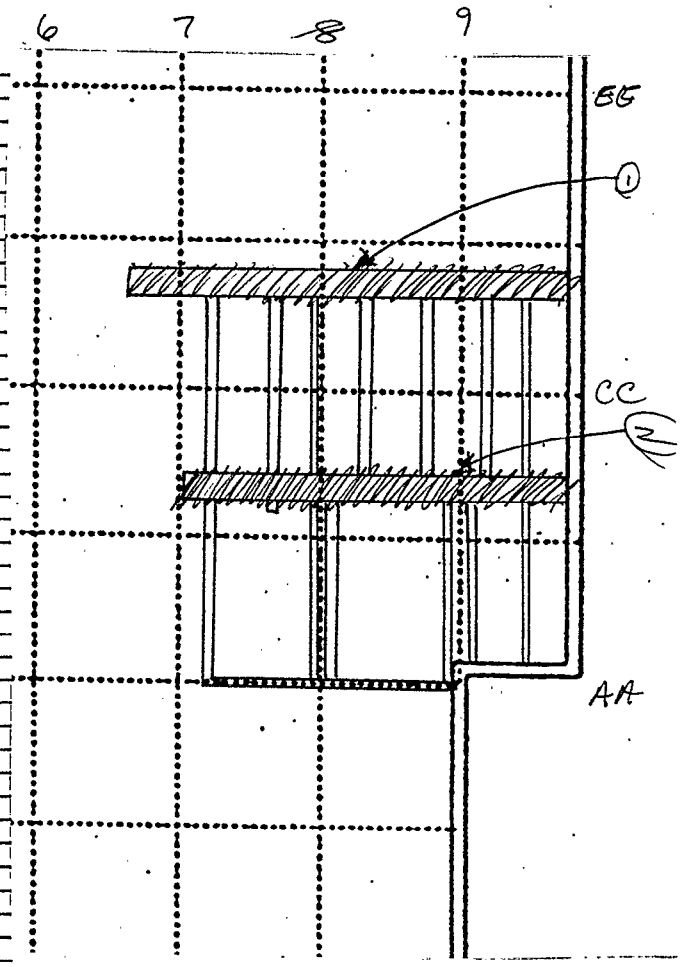


Instrument Model & s/n:	L2221 / B
Detector Model & s/n:	
Calibration Date:	
Efficiency	0.29 cpm / dpm based on S/Y90
Detector Area	75.3 cm2

REVIEW

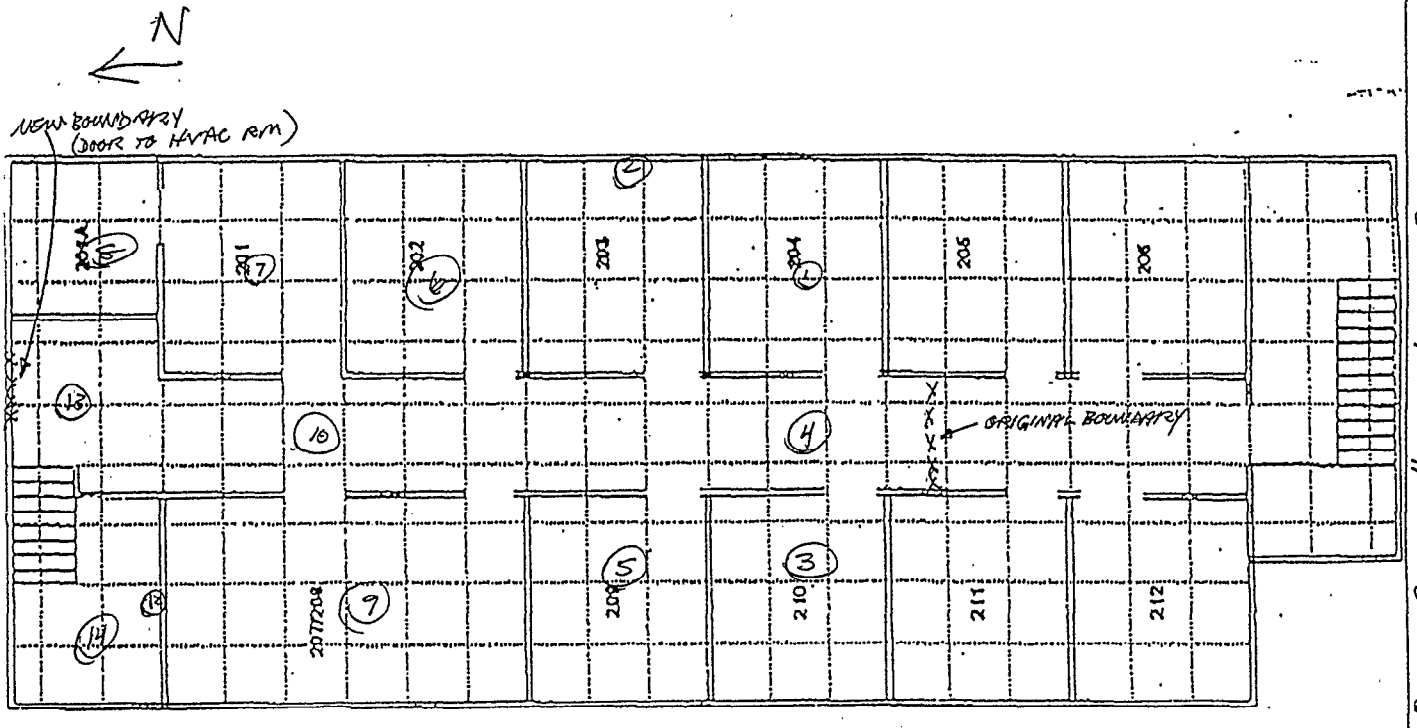
HILBERT ASSOCIATES INC
RADIOLOGICAL ENGINEERS

IDM Environmental
Bldg. 14, Praxair Site
Tonawanda, NY 14151

Radiological Survey Form

Hilbert Associates, Inc
Radiological Consultants
640 Maple Ave
Saratoga Springs, NY 12866
Phone: 518-584-0166
Fax: 518-584-8529
Contract # 95012

Date / Time 4-8-97 / 1600	Tech C. HALLAM / CHallam	Instruments / sn L2221 / B
Location / Purpose B14 2ND. FLOOR DAMPPOST SURVEY		Survey # 229 RWP # 01
UP TO HVAC ROOM – VERIFICATION SMEARS		



SURVEY INCLUDES RAG WIPE OF ALL SURFACES INCLUDING: FLOORS, WALLS, OVHDS, I BEAMS, LIGHT FIXTURES (INTERNAL & EXTERNAL), PIPING, CONDUIT, AND OTHER FIXTURES VERIFIED < 1K DPM/WIPE BY FIELD COUNT. SPOT CHECK WITH DIRECT PROBE ON THESE SURFACES ~~THEN~~ INDICATES < 5K DPM/100CM² BY SCAN

Loc	Type	Description	Gross	Δ DPM	Gross	Beta DPM	Loc	Type	Description	Gross	Δ DPM	Gross	Beta DPM
1	S	TOP OF LIGHT (OVHD)	1	2	56	-25	8	S	FLOOR	1	2	61	-7
2	S	I BEAM LEDGE (OVHD)	0	-1	48	-54	9	S	FLOOR	0	-1	54	-32
3	S	FLOOR	0	-1	58	-18	10	S	FLOOR	1	2	60	-11
4	S	FLOOR	0	-1	58	-18	11	S	TOP OF LITE (OVHD)	0	-1	70	25
5	S	C-BEAM LEDGE (OVHD)	3	8	74	39	12	S	I BEAM LEDGE (OVHD)	1	2	58	-18
6	S	FLOOR	1	2	65	7	13	S	FLOOR	0	-1	69	21
7	S	I BEAM LEDGE (OVHD)	0	-1	62	-4	14	S	FLOOR	0	-1	51	-43

Comments: S = SMEAR ○ = SURVEY PT.

Scaler S/N L2928 / I	BKD	EFF	MDA
CT = 1 min Alpha:	0.24	0.34	14
Tech C. HALLAM / CHallam Beta:	63	0.28	141

Review [signature]

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY #258
C. HALLAM / CHALL

SAMPLE DATE: 4-9-97
LOCATION: PRAXAIR B14 2ND FLOOR

α, βγ DIRECT SURVEY VERIFICATION OF WALLS INCLUDING SCAN SURVEY OF EACH GRID ~~VERIFY~~

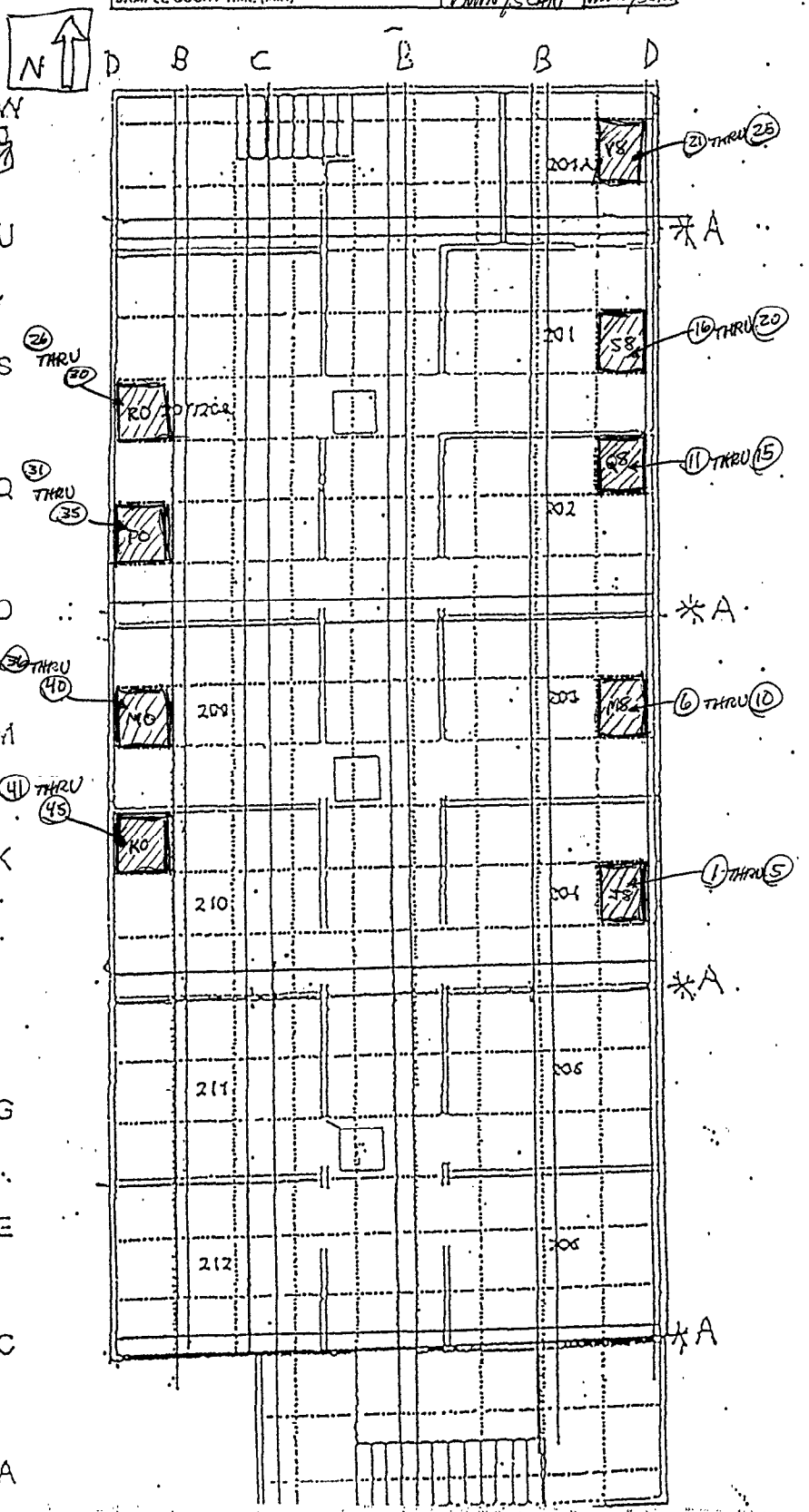
RADIATION MEASUREMENT: Beta-Gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: direct scaler measurements

	α	βγ
TOTAL BACKGROUND COUNTS	1	73
BACKGROUND COUNT TIME (MIN)	1 MIN	1 MIN
SAMPLE COUNT TIME (MIN)	1 MIN/SCAN	1 MIN/SCAN

SURVEY PATTERN: UP (FACING WALL)

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS α CPM	GROSS βγ CPM
1	J8 / BB	A EAST WALL	2	98
2		B Rm 204	5	83
3		C	2	115
4		D	3	91
5		E	4	93
6	M8 / CC	A EAST WALL	3	108
7		B Rm 203	2	122
8		C	1	104
9		D	2	84
10		E	0	83
11	O8 / CC	A EAST WALL	3	163
12		B Rm 202	3	122
13		C	1	90
14		D	0	81
15		E	2	92
16	S8 / AA	A EAST WALL	1	81
17		B Rm 201	0	100
18		C	2	103
19		D	1	114
20		E	0	106
21	V8 / CC	A EAST WALL	1	99
22		B Rm 201A	3	66
23		C	0	100
24		D	1	112
25		E	0	81
26	RO / BB	A WEST WALL	1	78
27		B Rm 207/208	2	87
28		C	2	117
29		D	1	112
30		E	1	105
31	PO / CC	A WEST WALL	1	79
32		B Rm 207/208	0	101
33		C	0	106
34		D	3	86
35		E	2	94
36	MO / CC	A WEST WALL	3	85
37		B Rm 209	2	86
38		C	1	95
39		D	0	106
40		E	2	84
41	KO / CC	A WEST WALL	0	90
42		B Rm 210	0	92
43		C	1	82
44		D	2	86
45		E	1	88

	α	βγ
Instrument Model & S/N	ESP-1 / F	L2221 / D
Detector Model & S/N	L43-5	L44-9
Calibration Date:		
Efficiency	0.13 cpm / dpm based on 5/100	0.21
Detector Area	50 cm2	15.5



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A

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY #259

C. HALLAM / C. Hall

SAMPLE DATE: 4-9-97

LOCATION: PRAXAIR B14 ~~2ND FLOOR~~ NORTH STAIRWELL TO 2ND FLOOR

α, βγ DIRECT SURVEY VERIFICATION OF WALL INCLUDING SCAN SURVEY OF GRID.

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

	α	βγ
TOTAL BACKGROUND COUNTS	1	67
BACKGROUND COUNT TIME (MIN)	1 MIN	1 MIN
SAMPLE COUNT TIME (MIN)	1 MIN/SCAN	1 MIN/SCAN

SURVEY PATTERN: UP ↑ (FACING WALL)

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS α cpm	GROSS βγ cpm
1	U0/AA	A WEST WALL	2	106
2		* B, NORTH STAIRWELL	0	162
3		C	1	125
4		D	1	95
5		E	0	72
6				
7	U0/AA*	Duplicate B	1	
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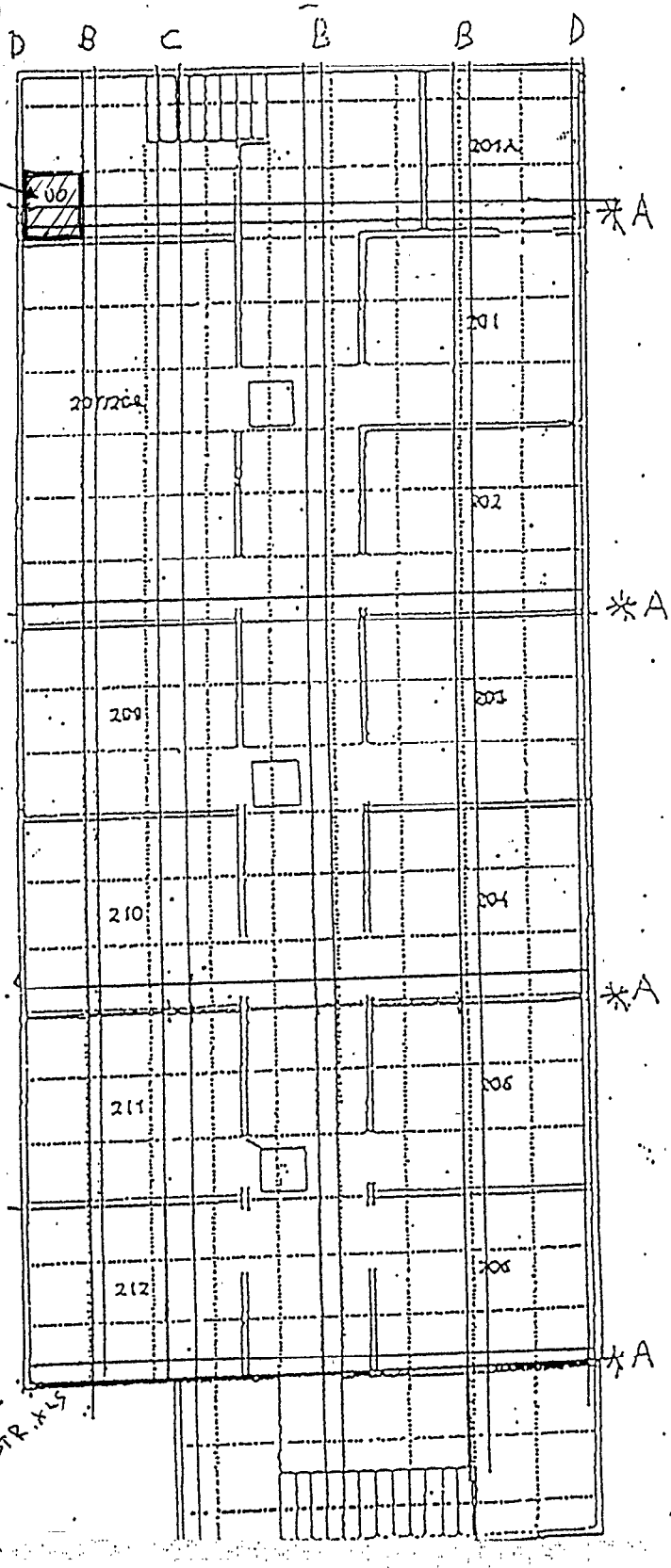
	α	βγ
Instrument Model & S/N	ESP-1 /	L2221
Detector Model & S/N	43-5 / F	44-9 / D
Calibration Date:		
Efficiency	0.13 cpm / dpm based on 5/1/90	0.21
Detector Area	50 cm2	15.5

A2PLWOK3

D2FLSTR.XLS



ENCL-C2.XLS

HILBE ASSOCIATES, INC. SURVEY # 260 **SMEAR MEASUREMENT ANALYSIS REPORT**

C. HALLAM / [illegible]

SAMPLE DATE: 4-9-97

ANALYSIS DATE: 4-10-97

LOCATION: PRAXAIR BLDG 14 2ND FLOOR OFFICE AREA & NORTH STAIRWELL

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	J8/BB	EAST WALL Rm 204	A	0	1 MIN					+/-		16
1	J8/BB	↓	BG	64	↓					+/-		135
2	M8/CC	EAST WALL Rm 203	A	1						+/-		16
2	↓	↓	BG	86						+/-		135
3	Q8/CC	EAST WALL Rm 202	A	0						+/-		16
3	↓	↓	BG	55						+/-		135
4	S8/AA	EAST WALL Rm 201	A	0						+/-		16
4	↓	↓	BG	59						+/-		135
5	V8/CC	EAST WALL Rm 201A	A	1						+/-		16
5	↓	↓	BG	73						+/-		135
6	R0/BB	WEST WALL Rm 207/208	A	0						+/-		16
6	↓	↓	BG	75						+/-		135
7	P0/CC	WEST WALL Rm 207/208	A	0						+/-		16
7	↓	↓	BG	70						+/-		135
8	N0/CC	WEST WALL Rm 209	A	0						+/-		16
8	↓	↓	BG	53						+/-		135
9	K0/CC	WEST WALL Rm 210	A	0						+/-		16
9	↓	↓	BG	58						+/-		135
10	U0/AA	WEST WALL NORTH STAIRWELL	A	1	↓					+/-		16
10	↓	↓	BG	67	1 MIN					+/-		135
11			A							+/-		1
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: L2929 / I 91234

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

Calibration Date:

Efficiency BG (Beta/Gamma): 0.29 cpm / dpm based on SY90

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

Background	Counts	Ct Time (min)	Rb	Date
Alpha	~~187/100 (0.26)~~	700	0.26	4-10-97
Beta-Gamma	~~42957/100 (61.4)~~	700	61	4-10-97

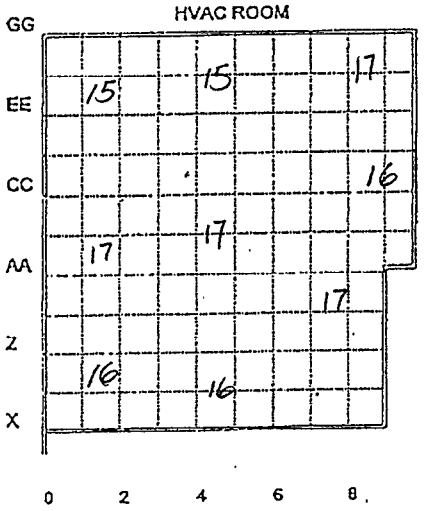
HILBERT ASSOCIATES INC
RADIOLOGICAL ENGINEERS

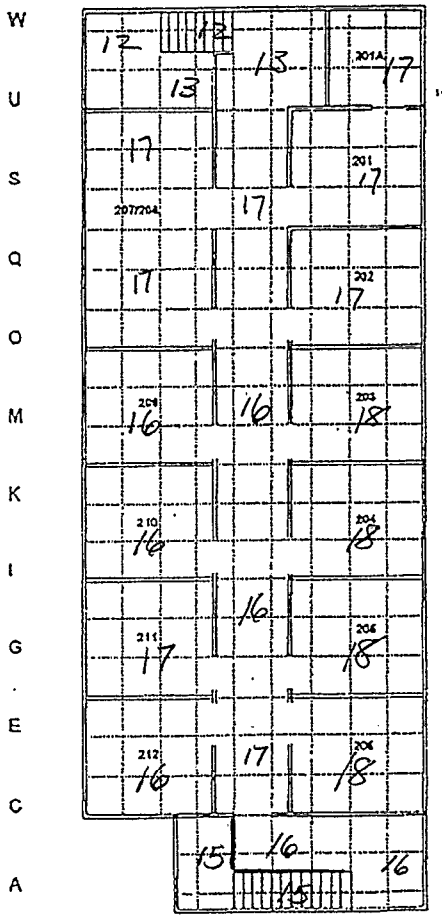
IDM Environmental
Bldg. 14, Praxair Site
Tonawanda, NY 14151

Radiological Survey Form

Hilbert Associates, Inc
Radiological Consultants
640 Maple Ave
Saratoga Springs, NY 12866
Phone: 518-584-0166
Fax: 518-584-8529
Contract # 95012

Date / Time 4-14-97/0820	Tech C.HALLAM/CHallam	Instruments / sn LUD M-19 / G	
Location / Purpose PRAXAIR, BLDG 14. 2ND FLOOR		Survey # 265	RWP # N/A
VERIFICATION/POST DECON RADIATION SURVEY			





☐ 1M X 1M GRID

~~BKGD~~ BKGD = 11 uR/hr

Loc	Type	Description	Gross	A DPM	Gross	Beta DPM	Loc	Type	Description	Gross	A DPM	Gross	Beta DPM

Comments: ALL READINGS IN uR/hr GENERAL AREA	Scaler S/N	BKD	EFF / MDA
	CT = Alpha:		
	Tech Beta:		

Review

HILBERT ASSOCIATES INC
RADIOLOGICAL ENGINEERS

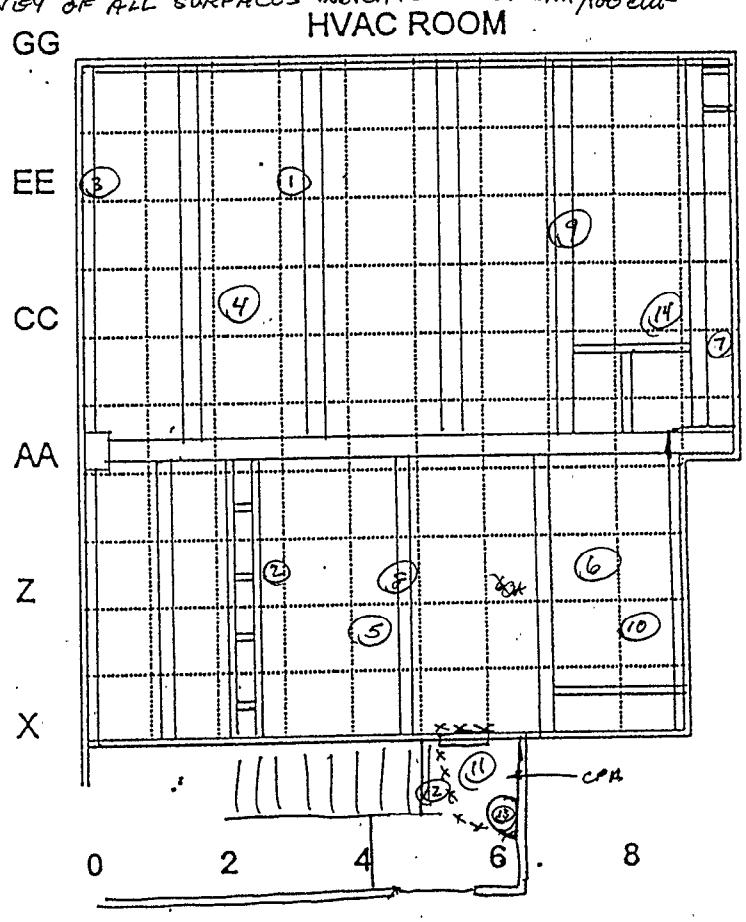
IDM Environmental
Bldg. 14, Praxair Site
Tonawanda, NY 14151

Radiological Survey Form

Hilbert Associates, Inc
Radiological Consultants
640 Maple Ave
Saratoga Springs, NY 12866
Phone: 518-584-0166
Fax: 518-584-8529
Contract # 95012

Date / Time 4-10-97 / 1245	Tech C. HALLAM / [illegible]	Instruments / sn L2221 / D	
Location / Purpose B14 2ND FLOOR HVAC ROOM		Survey # 272	RWP # 01
DOWNPOST SURVEY			

SURVEY INCLUDES RAGWIPE OF ALL SURFACES INCLUDING: FLOOR, WALLS, OVHDS, I BEAMS, LIGHT FIXTURES, PIPING, CONDUIT, HVAC DUCTING, AND OTHER FIXTURES VERIFIED <1K DPM/WIPE BY FIELD COUNT. SPOT CHECK DIRECT SURVEY OF ALL SURFACES INDICATES <5K DPM/100 CM²



Loc	Type	Description	Gross	A DPM	Gross	Beta DPM	Loc	Type	Description	Gross	A DPM	Gross	Beta DPM
1	S	HVAC DUCT	1	2	63	7	8	S	I BEAM LEDGE	0	-1	61	0
2	S	HVAC DUCT	0	-1	67	21	9	S	I BEAM LEDGE	0	-1	52	-31
3	S	WEST WALL LOWER I BEAM	1	2	52	-31	10	S	TOP OF WATER TANK	0	-1	59	-7
4	S	FLOOR	1	2	60	-3	11	S	FLOOR	0	-1	58	-10
5	S	↓	0	-1	73	41	12	S	FLOOR	1	2	70	31
6	S	FLOOR	0	-1	71	34	13	S	FRISKER STAND	0	-1	61	0
7	S	EAST VENT DUCT PIT	0	-1	63	7	14	S	TANK STAND I BEAM	1	2	75	48

Comments: S = SMEAR O = SURVEY PT

Scaler S/N L 2929 / I	BKD	EFF	MDA
CT = 1 MIN Alpha:	0.26	0.32	16
Tech C. HALLAM / [illegible] Beta:	61	0.29	185

Review [illegible]

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

SURVEY #294
C. HALLAM/CHallam
SAMPLE DATE: 4-30-97
LOCATION: PRAXAIR B14 AREA 14A
SAMPLE OF PAINT CHIPS AND HEPA DUST FROM HEPA VAC USED FOR 2ND FLOOR AND HVAC ROOM DECON

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

TOTAL BACKGROUND COUNTS	42
BACKGROUND COUNT TIME (MIN)	1 MIN
SAMPLE COUNT TIME (MIN)	1 MIN

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS SAMPLE COUNTS	NET SAMPLE COUNT RATE (CPM)	RESULTS (DPM/100CM2)	95% ERROR (DPM/100CM2)	MDA (DPM/100CM2)
1		TOP OF SAMPLE MATERIAL	123	81			
2		IN MARINELLI					
3							
4							
5							
6							
7							
8							
9							
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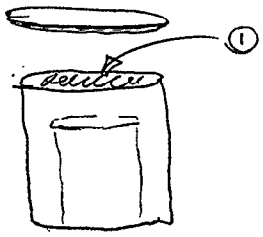
40							

Instrument Model & s/n:	L 2221 / D
Detector Model & s/n:	
Calibration Date:	
Efficiency	0.20 cpm / dpm based on S/Y90
Detector Area	615.5 cm2

CH 4-30-97



SAMPLE CONTAINER

REVIEW

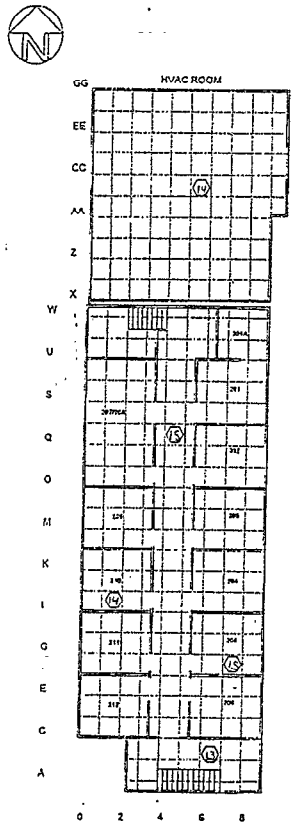
ENCL-C2.XLS

ION TECHNOLOGY, INC.
640 Maple Ave
Saratoga Springs, NY
(518) 584-0166

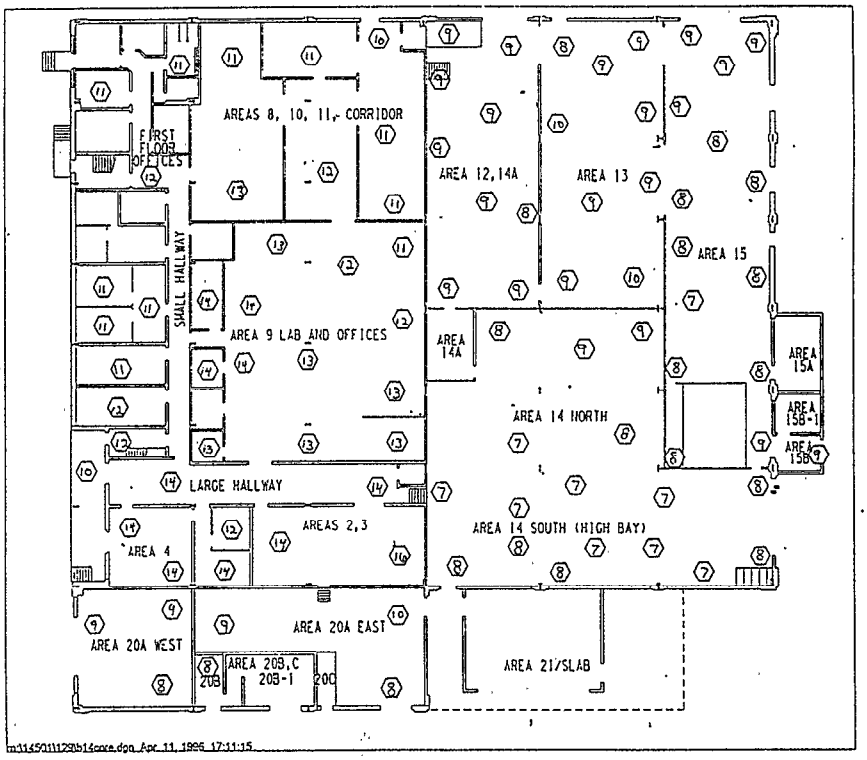
RADIOLOGICAL SURVEY

Project: PRAXAIR
Area: BLDG 14

Date/Time 8-5-98	Tech D. PITMAN	Instrument / sn M19 / 109994
Location/ Purpose BLDG 14		Survey # 1791 RWP# N/A
VERIFICATION - RAD Post Project		



SECOND FLOOR OFFICES



BLDG 14 ⟨X⟩ = μR Reading Location

Loc	Type	Description	Gross	α dpm	Gross	β dpm	Loc	Type	Description	Gross	α dpm	Gross	β dpm

Type:s = smearable, dp = direct probe	Scalar S/N	BKD	EFF	MDA
Comments:	CT= DATE α:			
	Tech β:			

Review:

Encl 3.3 to HSP 210

GILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

4116

SAMPLE DATE: 4-10-97
LOCATION: PRAXAIR BLDG 14 2ND FLOOR OFFICE AREA
DIRECT SURVEY VERIFICATION OF ~~HACH~~ OVERHEAD

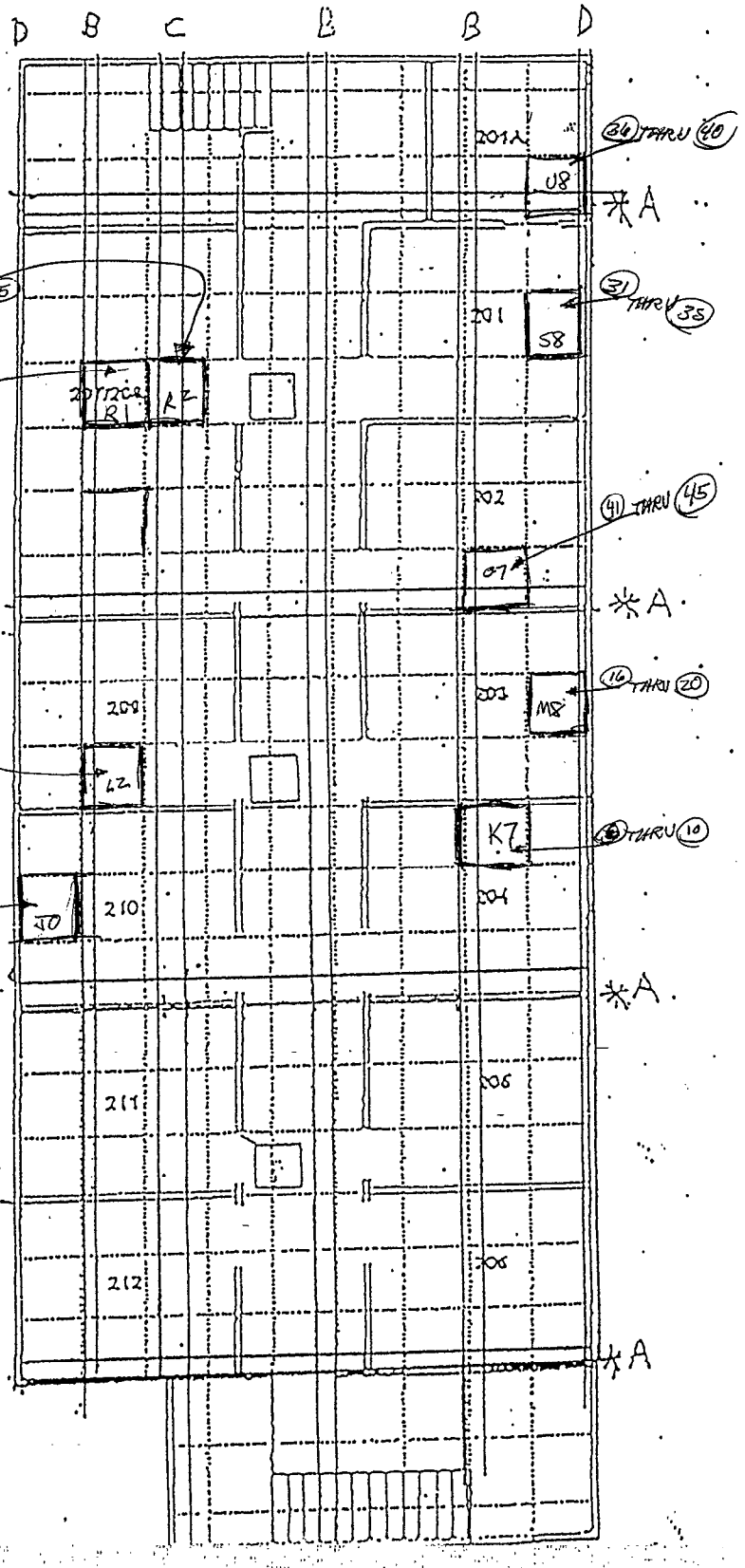
RADIATION MEASUREMENT: Beta-Gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: direct scaler measurements

	α	βγ
TOTAL BACKGROUND COUNTS	0	77
BACKGROUND COUNT TIME (MIN)	1 MIN	1 MIN
SAMPLE COUNT TIME (MIN)	1 MIN	1 MIN

W. JESKE
C. HALLAM

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION		GROSS CPM α	GROSS CPM βγ
1	J0	BEAM (B)	Rm 210		108
2		CEILING (C)			156
3		C			172
4		B		2	104
5		B			145
6	K7	B	Rm 204		76
7		C		0	115
8		C			131
9		B			82
10		C			130
11	L2	B	Rm 209		76
12		C			187
13		B		2	100
14		B			55
15		C			143
16	M8	C	Rm 203		147
17		B			56
18		C			104
19		B			90
20		C		4	138
21	R2	B	Rm 207/208		122
22		B		4	57
23		C			117
24		B			89
25		B			72
26	R1	B	Rm 207/208		82
27		C			163
28		C			137
29		B			111
30		C		1	136
31	S8	B	Rm 201		88
32		B			86
33		C			124
34		C			88
35		B		2	126
36	U8	C	Rm 201A		135
37		B		3	148
38		B			82
39		B			67
40		B			168
41	O7	B	Rm 202		47
42		B			84
43		C			142
44		B			72
45		B			86

	α	βγ
Instrument Model & S/N	ESP-1 /	L2221/91935
Detector Model & S/N	43-5 / F	44-9/091747
Calibration Date:	2-10-97	3-4-97
Efficiency	[redacted] cpm/dpm based on S/190	0.19
Detector Area	[redacted] cm2	15.5



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A

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

4117

SAMPLE DATE: 4-10-97
LOCATION: B14 2ND FLOOR OFFICE AREA
DIRECT SURVEY VERIFICATION OF HALLWAY OVHD

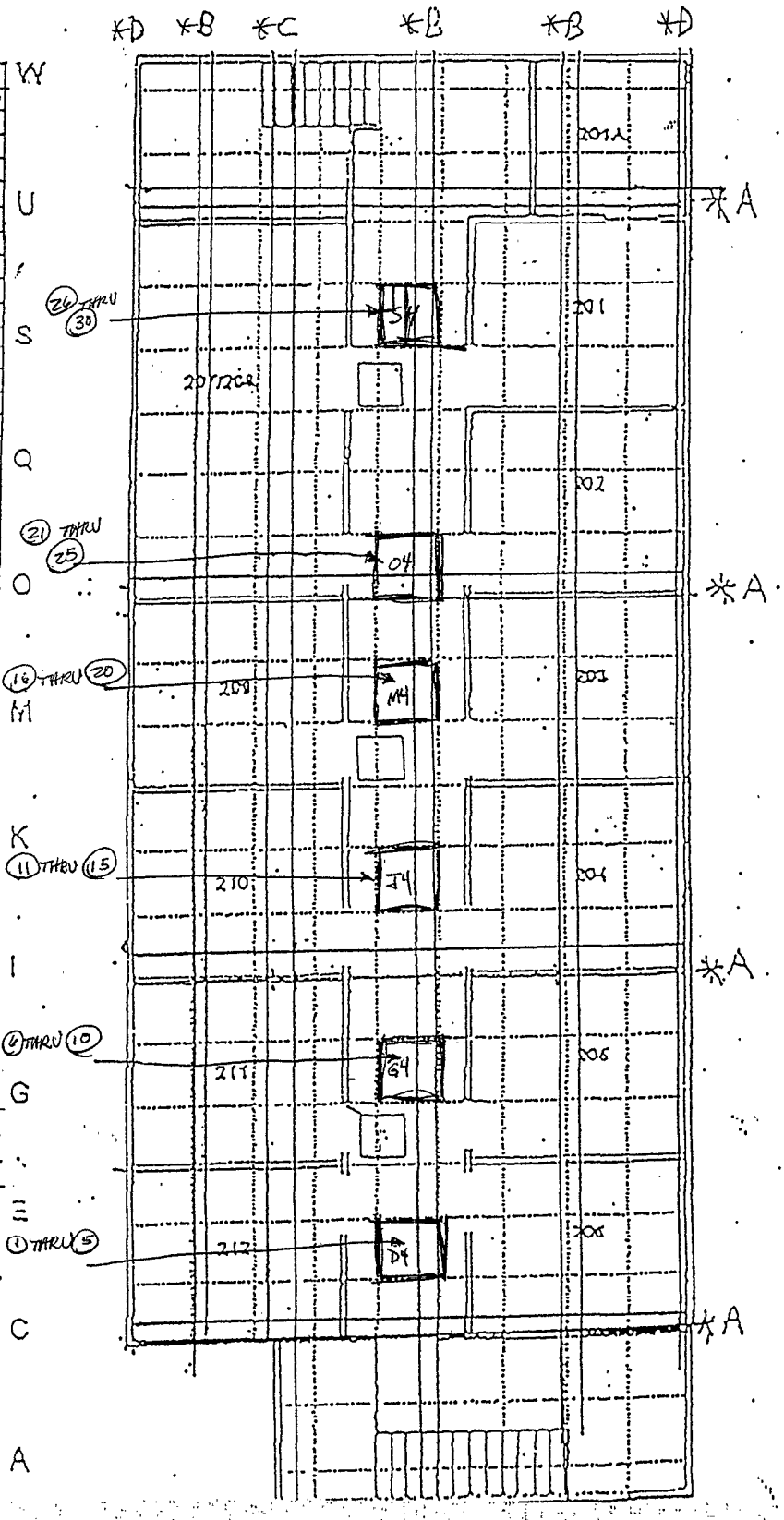
RADIATION MEASUREMENT: Beta-Gamma
RESULTS REPORTED UNITS: dpm per 100cm2
MEASUREMENT TYPE: direct scaler measurements

	α	βγ
TOTAL BACKGROUND COUNTS	0	77
BACKGROUND COUNT TIME (MIN)	1 MIN	1 MIN
SAMPLE COUNT TIME (MIN)	1 MIN	1 MIN

W. TESKE
C. HALLAM

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS CPM α	GROSS CPM βγ
1	D4	CEILING (C) HALL		122
2		BEAM (B)		112
3		C	0	149
4		C		157
5		B		68
6	G4	C		129
7		B		56
8		C		148
9		C	4	123
10		B		64
11	J4	C		141
12		B		65
13		C		148
14		C		96
15		B	1	101
16	M4	C		113
17		B	0	96
18		C		132
19		C		123
20		B		168
21	O4	C		130
22		B	2	87
23		C		158
24		C		142
25		B		94
26	S4	C		167
27		B	1	106
28		C		182
29		C		173
30		B HALL		97
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				

	α	βγ
Instrument Model & S/N	ESP-1 / F	L222/ 41935
Detector Model & S/N	43-5	44-9 041747
Calibration Date:		3-4-97
Efficiency	[redacted] cpm / dpm based on Sr/90	0.14
Detector Area	[redacted] cm2	15.5



ENCL-C2.XLS

HILBE SSOCIATES, INC.

C. HALLAM / W. JESKE

4118

SMEAR MEASURE...NT ANALYSIS REPORT

SAMPLE DATE: 4-10-97

ANALYSIS DATE:

LOCATION: PRAXAIR BLDG 14 2ND FLOOR VERIFICATION SMEAR 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	V4	IBEAM LEDGE	A	0						+/-		
1	↓	↓	BG	49						+/-		
2	B6		A	1						+/-		
2	↓	↓	BG	48						+/-		
3	A 0/AA	WALL - CENTER OF GRID	A	1						+/-		
3	↓	↓	BG	42						+/-		
4	Z3	FLOOR - CENTER OF GRID	A	2						+/-		
4	↓	↓	BG	45						+/-		
5	CC5		A	1						+/-		
5	↓		BG	48						+/-		
6	EE3		A	2						+/-		
6	↓	↓	BG	47						+/-		
7	BB0/BB	WEST WALL CENTER OF GRID	A	0						+/-		
7	↓	↓	BG	37						+/-		
8	GG0/CC	NORTH WALL - CENTER OF GRID	A	1						+/-		
8	↓	↓	BG	50						+/-		
9	EE9/BB	EAST WALL - CENTER OF GRID	A	2						+/-		
9	↓	↓	BG	46						+/-		
10	X8/AA		A	0						+/-		
10	↓	↓	BG	40						+/-		
11	J0	IBEAM LEDGE Rm 210	A	0						+/-		
11	↓	↓	BG	43						+/-		
12	K7	IBEAM LEDGE Rm 204	A	1						+/-		
12	↓	↓	BG	40						+/-		
13	L2	IBEAM LEDGE Rm 209	A	4						+/-		
13	↓	↓	BG	44						+/-		
14	M8	IBEAM LEDGE Rm 203	A	2						+/-		
14	↓	↓	BG	42						+/-		
15	R2	IBEAM LEDGE Rm 207/208	A	2						+/-		
15	↓	↓	BG	41						+/-		
16	R1	IBEAM LEDGE Rm 207/208	A	0						+/-		
16	↓	↓	BG	48						+/-		
17	S8	IBEAM LEDGE Rm 201	A	0						+/-		
17	↓	↓	BG	54						+/-		
18	U8	I BEAM LEDGE Rm 201A	A	0						+/-		
18	↓	↓	BG	47						+/-		
19	O7	IBEAM LEDGE Rm 202	A	0						+/-		
19	↓		BG	30						+/-		
20			A							+/-		
20			BG							+/-		

Instrument Model & s/n:

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				

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S2F4_107.XLS

HILBE ASSOCIATES, INC.

SMEAR MEASURE..NT ANALYSIS REPORT

#4119

C. HALLAM / W. TESKE

SAMPLE DATE: 4-10-97

ANALYSIS DATE:

LOCATION: PRAXAIR BLDG 14 2ND FLOOR ~~HVAC ROOM~~ 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	X4	TBEAM LEDGE	A	1						+/-		
1	↓		BG	45						+/-		
2	AA5	~~EBOK~~	A	3						+/-		
2	↓		BG	39						+/-		
3	EE9		A	1						+/-		
3	↓		BG	34						+/-		
4	CC1		A	3						+/-		
4	↓		BG	65						+/-		
5	EE7		A	0						+/-		
5	↓		BG	44						+/-		
6	EE0		A	0						+/-		
6	↓		BG	47						+/-		
7	E6		A	1						+/-		
7	↓		BG	36						+/-		
8	D4		A	1						+/-		
8	↓		BG	48						+/-		
9	G4		A	1						+/-		
9	↓		BG	40						+/-		
10	J4		A	2						+/-		
10	↓		BG	51						+/-		
11	M4		A	7						+/-		
11	↓		BG	53						+/-		
12	O4		A	3						+/-		
12	↓		BG	47						+/-		
13	S4		A	0						+/-		
13	↓		BG	51						+/-		
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:		
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				

HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

4120

SAMPLE DATE: 4-10-97
LOCATION: PRAXAIR BLDG 14 2ND FLOOR STAIRWELLS
DIRECT SURVEY VERIFICATION OF OVHD / WALLS

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

	α	βγ
TOTAL BACKGROUND COUNTS	0	
BACKGROUND COUNT TIME (MIN)	1 MIN	1 MIN
SAMPLE COUNT TIME (MIN)	1 MIN	1 MIN

WALL SURVEY PATTERN: *A B* E* C* D* ↑ UP

FACING GRID

W. JESKE
C. HALLAM

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION	GROSS CPM α	GROSS CPM βγ
1	V4	~~BEAM~~ NORTH STAIRWELL		28
2		CEILING (C)	1	64
3		B		54
4		B		50
5		C		64
6	B6	B SOUTH STAIRWELL		60
7		B	2	64
8		C		68
9		B		59
10		B		~~50~~ 48
11	A0/AA	A* WEST WALL		55
12		B*		66
13		C*	0	74
14		D*		49
15		E*		59
16				
17				
18				
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39				
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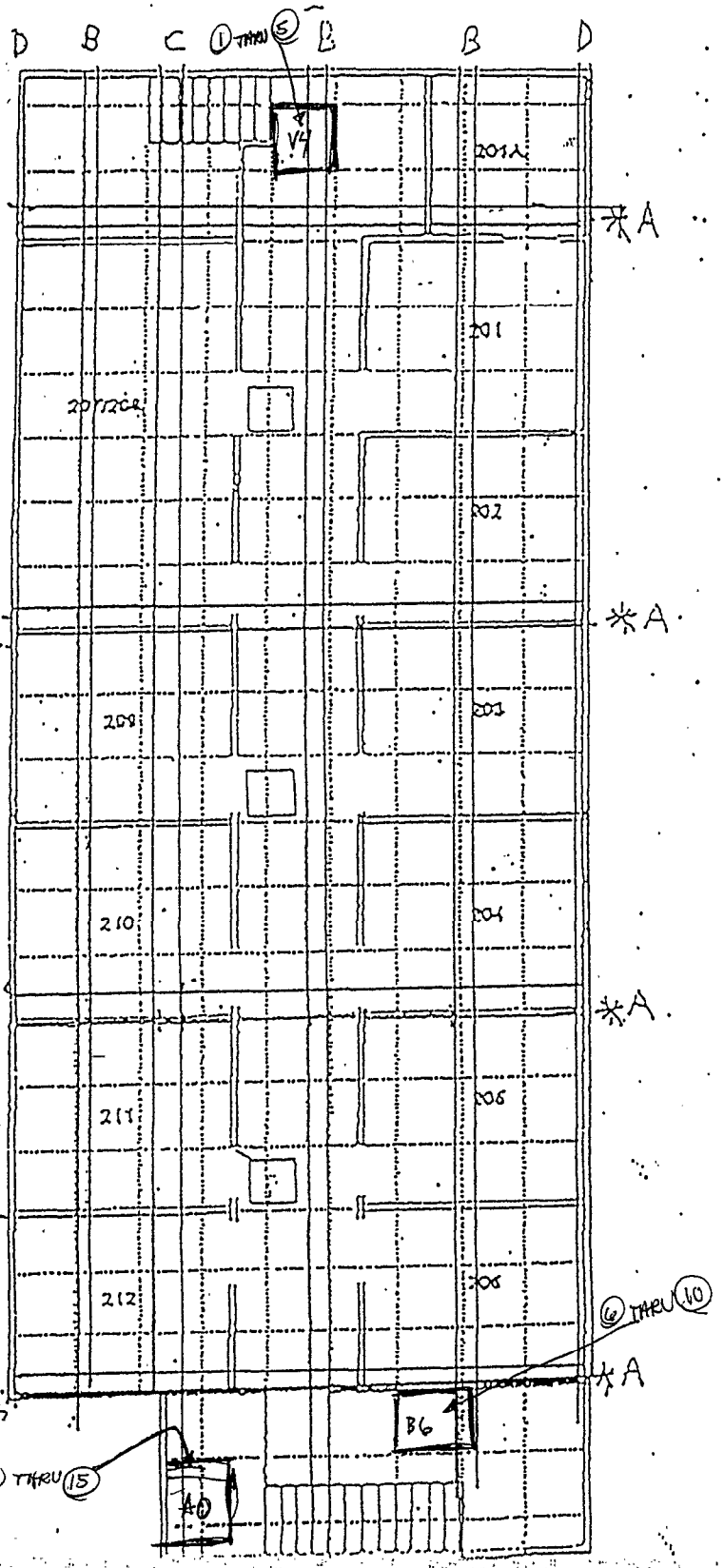
41				
42				
43				
44				
45				

	α	βγ
Instrument Model & S/N	ESP-1/F	L2221/91935
Detector Model & S/N	43-5	44-9/091747
Calibration Date:	2-10-97	3-4-97
Efficiency	0.12 cpm / dpm based on Sr/Y90	0.19
Detector Area	60 cm2	15.5



A 2FL WOH 3 / D2FLSTR.XLS

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HILBERT ASSOCIATES, INC.

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

4121

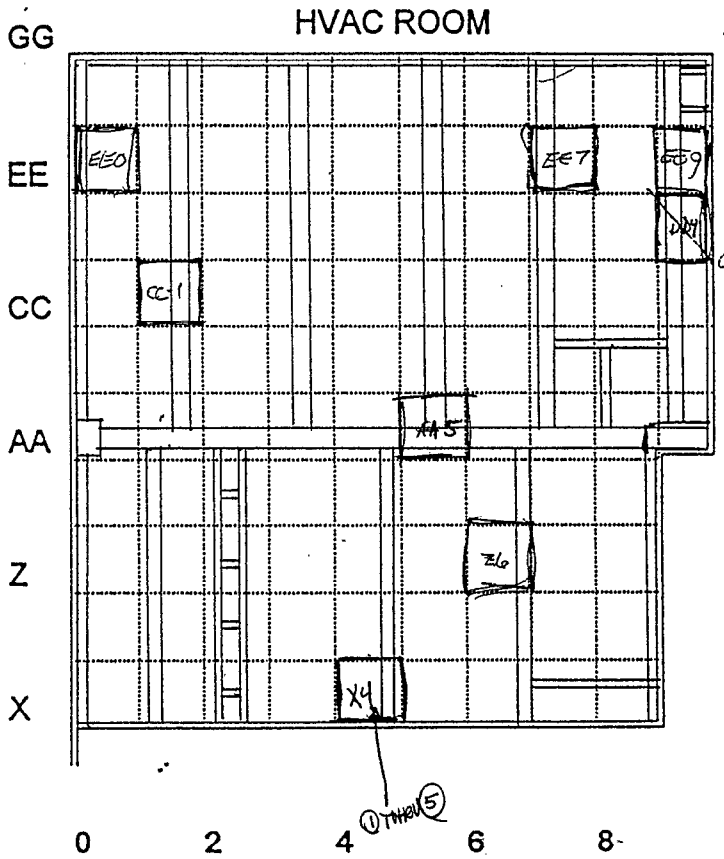
SAMPLE DATE: 4-10-97
LOCATION: B14 2ND FLOOR HVAC ROOM
DIRECT SURVEY VERIFICATION OF OVHD

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

	α	βγ
TOTAL BACKGROUND COUNTS	0	77
BACKGROUND COUNT TIME (MIN)	1 MIN	1 MIN
SAMPLE COUNT TIME (MIN)	1 MIN	1 MIN

W. TESKE
C. HARLAM

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION		GROSS SAMPLE COUNTS α	GROSS SAMPLE COUNTS βγ
1	X4	BEAM (B)	OVHD		84
2		B		2	75
3		CEILING (C)			134
4		B			88
5		B			81
6	AA5	B	OVHD		102
7		B		1	105
8		C			180
9		B			75
10		B			79
11	~~DD7~~ EE9	B	OVHD	1	92
12		C			142
13		B			63
14		C			172
15		B			64
16	CC1	B	OVHD		73
17		C			124
18		B		3	126
19		C			148
20		B			89
21	EE7	B	OVHD	0	102
22		C			126
23		B			72
24		C			191
25		B			52
26	EE0	B	OVHD	3	82
27		C			145
28		B			61
29		C			138
30		B			82
31	Z6	B	OVHD		72
32		C			114
33		B			71
34		C			117
35		B			73
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					



	α	βγ
Instrument Model & s/n:	ESP-1 / F	L2221 / 91935
Detector Model & s/n:	43-5 / F	44-9 / 09M17
Calibration Date:	2-10-97	3-4-97
Efficiency	0.12 cpm / dpm based on S/Y90	0.19
Detector Area	50 cm2	15.5

HILBERT ASSOCIATES, INC.

SURVEY BY
W. JESKE
C. HALLAM

DIRECT SURFACE MEASUREMENT ANALYSIS REPORT
(scaler measurement)

4122

SAMPLE DATE: 4-10-97
LOCATION: B/4 2ND FLOOR HVAC ROOM
DIRECT SURVEY VERIFICATION OF FLOOR & WALLS

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

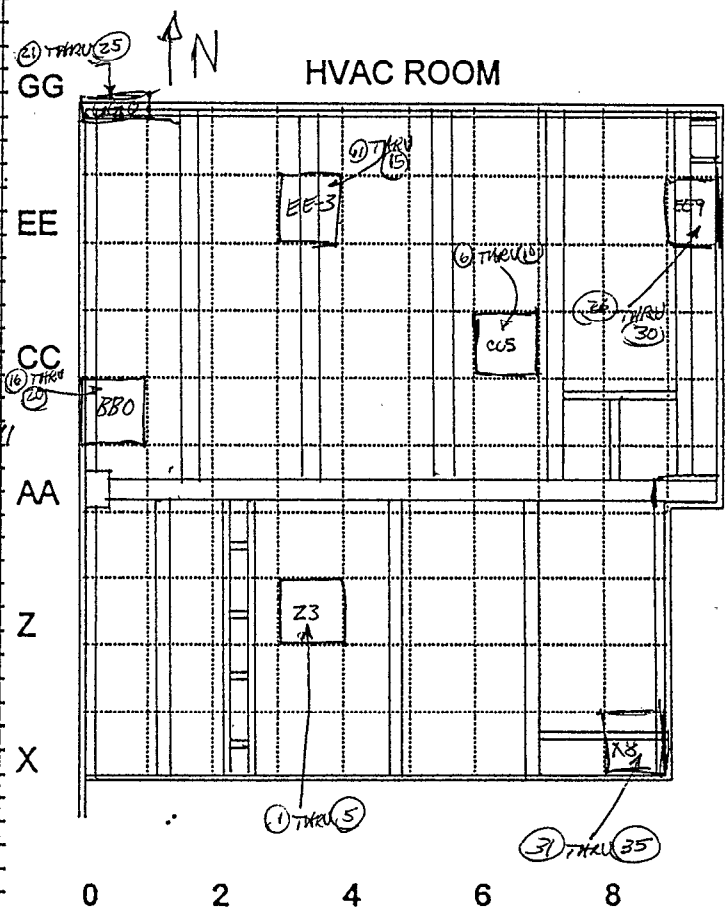
	α	βγ
TOTAL BACKGROUND COUNTS	0	64
BACKGROUND COUNT TIME (MIN)	1 MIN	1 MIN
SAMPLE COUNT TIME (MIN)	1 MIN	1 MIN

SURVEY PATTERN

A	E	B
C		D

↑ UP (WALLS)
↑ NORTH (FLOOR)
(FACING GRID)

SAMPLE #	LOCATION CODE	LOCATION DESCRIPTION		GROSS SAMPLE COUNTS α	GROSS SAMPLE COUNTS βγ
1	Z3	A	FLOOR		54
2		B			57
3		C		2	71
4		D			75
5		E			74
6	CC5	A	FLOOR		65
7		B		1	68
8		C			81
9		D			74
10		E			78
11	EE3	A	FLOOR		73
12		B		2	71
13		C			55
14		D			71
15		E			70
16	BB0/BB	A	WEST WALL		71
17		B			82
18		C			73
19		D			88
20		E			91
21	GG0/CC	A	NORTH WALL	1	141
22		B			83
23		C			94
24		D			78
25		E			121
26	EE7/BB	A	EAST WALL	0	97
27		B			122
28		C			73
29		D			78
30		E			92
31	X8/AA	A	EAST WALL		92
32		B		3	101
33		C			73
34		D			82
35		E			71
36					
37					
38					
39					
40					



	α	βγ
Instrument Model & s/n:	ESP-1/F	L2221/91935
Detector Model & s/n:	43-5	44-9/091747
Calibration Date:	2-10-97	3-4-97
Efficiency	0.12 cpm / dpm based on S/Y90	0.19
Detector Area	50 cm2	15.5

D.HVAC / G.HVAC