

Radioactive Materials Handling Facility

Current Radiological Status

March 16, 2007

RMHF Current Radiological Status

The following radiation survey data provides an overview of the current radiological status of the various buildings and structures that comprise the Radioactive Materials Handling Facility (RMHF). The surveys include routine area surveys and remedial action support surveys.

Facility Exterior Dose Rates

General area dose rates in the areas outside of the buildings and within the RMHF fence line range from a background of 10 $\mu\text{R/hr}$ to 500 $\mu\text{R/hr}$ ¹.

Non-contaminated Buildings and Rooms

In addition to contaminated buildings, the RMHF also includes numerous buildings and temporary structures that are non-contaminated (clean). Buildings 4034, 4044, 4075, 4621, 4665, two cargo vans and the Laundry and Change Trailer have been surveyed clean. The high bay of 4022 and the former Laundry Room, former Cold Change Room and former Hot Change Room of 4021 have also been surveyed clean. These areas are surveyed on a routine basis for removable contamination and radiation dose-rate.

In the last 6 months, no removable contamination above 100 dpm/100cm² beta or 20 dpm/100cm² alpha have been detected in these clean areas². The majority of dose-rates are background level radiation. All of the dose-rates above background can be attributed to shine from adjacent contaminated areas or radioactive waste and sealed source containers. The highest dose-rate in the clean areas is 150 $\mu\text{R/hr}$ in the former 4021 Hot Change Room due to shine from the 4021 Package Room.

Surveys of upper horizontal surfaces were recently performed in the 4022 High Bay prior to vacuuming and lead paint abatement. Those areas indicated all below regulatory limits of 1,000 dpm/100cm² removable beta and 5,000 dpm/100cm² total beta³.

The above ground portions of buildings 4034, 4044, 4665, 4621, 4075 and 4022 are scheduled for additional surveys prior to release and disposal as decommissioned material.

Contaminated Buildings

4022 Vaults One Through Seven

The seven below ground vaults and the inlet and outlet ventilation tunnels were decontaminated in 2006 to levels appropriate for removal and disposal as low-level radioactive waste. The survey maps show the details of the remaining total beta activity in counts per minute (cpm).

¹ The measure of dose rate or exposure rate is micro-roentgens per hour ($\mu\text{R/hr}$) or milli-roentgens per hour (mR/hr).

² The measure of surface contamination is disintegrations per 100 square centimeters (dpm/100cm²).

³ Limits for free release of equipment or material are specified in DOE Order 5400.5 "Radiation Protection of the Public and Environment."

These numbers may be converted to dpm/100cm² by multiplying the cpm by 50 (efficiency factor of 10 and probe area factor of 5). Table 1 summarizes the activities on the vault maps.

4021 Decon Room and Package Room

The 4021 Decon Room and Package Room are posted contamination areas. Equipment in these rooms is contaminated. The most contaminated piece of equipment has a dose-rate of 30 mR/hr on contact, a total beta reading of 15,000,000 dpm/100cm² and removable beta of 600,000 dpm/100cm². The room general area dose-rates are from 0.2 to 1.6 mR/hr. General area floor contamination levels are all less than 1,000 dpm/10cm². A hot spot on the Package Room floor reads 10 mR/hr on contact.

Table 1: Total Beta Contamination in the 4022 Below-Ground Vaults

Vault #	Direct Reading Minimum β dpm/100cm ²	Direct Reading Maximum β dpm/100cm ²	Estimated Direct Reading Median β dpm/100cm ²
1	< 4170	50,000	16,667
2	< 4170	62,500	4,170
3	< 4170	1,666,667	416,667
4	< 4170	833,333	62,500
5	< 4170	333,333	25,000
6	< 4170	1,500,000	83,333
7	< 4170	1,458,333	125,000
Inlet Tunnel	< 4170	750,000	< 4,170
Exhaust Tunnel	< 4170	1,500,000	125,000

There is one small and one large floor drain in each room. The highest reading drain is 2.8 mR/hr gamma and 72 mrad/hr beta on contact. The overhead horizontal surfaces in both rooms read a maximum of 4,700 dpm/100cm² removable and 150,000 dpm/100cm² total beta.

There are six ventilation ducts, upstream of the high efficiency particulate air (HEPA) ventilation/filtration system. The highest of these ducts reads 1,200,000 dpm/100cm² removable beta and 20,000,000 dpm/100cm² total beta.

4021 Sump Drain Tank Pit

Outside of and just west of 4021 is a sub-surface pit that held the 4021 sump drain tank. The tank was removed in past remediation efforts. The maximum readings in the remaining pit are 32,000 dpm/100cm² removable beta, 380 dpm/100cm² removable alpha; 5,800,000 dpm/100cm² total beta, 6 mR/hr gamma exposure on contact, and 50 mrad/hr beta on contact.

Pending Surveys

The 4022 deep well drain sump, just outside and south of 4022 and the under-floor drain lines in 4021 are scheduled for future characterization surveys.

Exterior Fenced Yard of RMHF

FORM 732-A REV 10-2005

RMHF FACILITY SURVEY DIAGRAM

PAGE 2 OF 2

Performed By D. HICKMAN

Date 3-15-07

Instrument Used _____

BICKON EX04H002

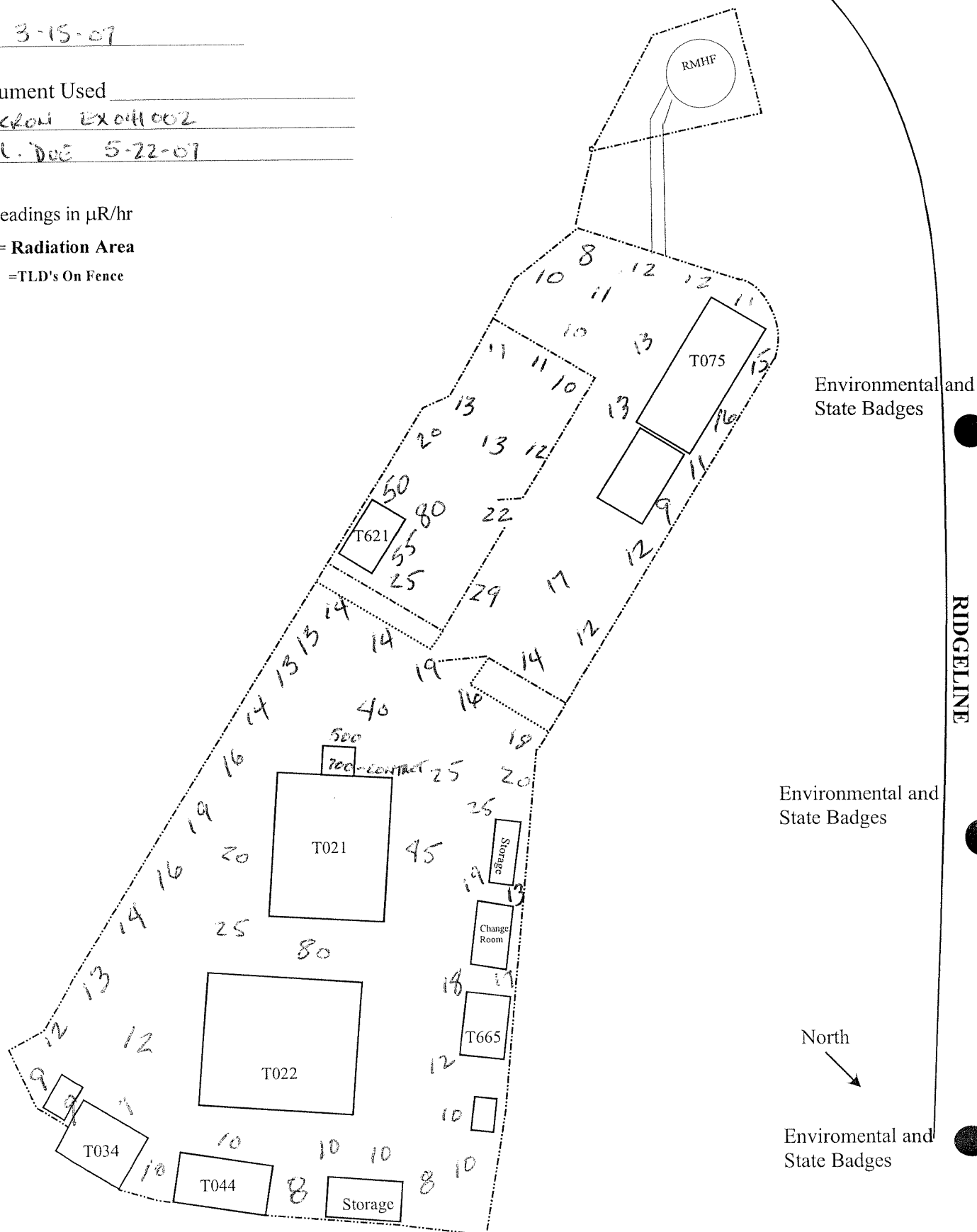
CAL. DUE 5-22-07

All Readings in $\mu\text{R/hr}$

RA = Radiation Area

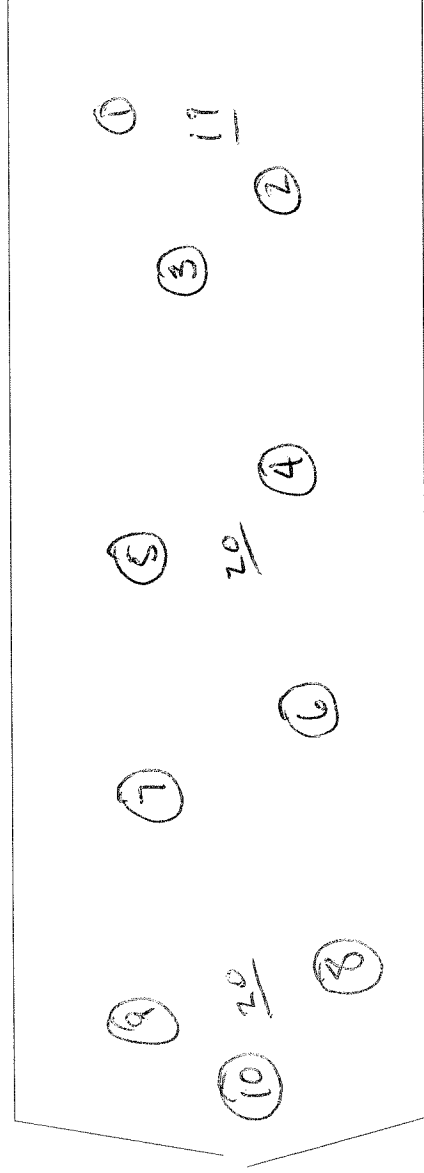
○ △ = TLD's On Fence

Environmental and
State Badges



FORM 732-A REV 10-05

RMHF STORAGE "C" VAN #2 SURVEY DIAGRAM



Facility North ↑
 # = Smear Locations
 # = Dose Rate in $\mu\text{R/hr}$

NAME: D. Hickman

DATE: 3-16-07

TENNELEC: NR001137

BICRON: EX041002

CAL. DUE 5-22-07

Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	<20	<100
2		
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Sample Report

Batch ID:	Smears 1 Minute Count - 200703160910	Count Date:	3/16/2007 9:10:03AM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	500	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	Storage "C" van

Background (cpm)		Efficiency (%)	
Alpha Rate:	0.20 ± 0.14	Alpha:	32.85 ± 0.98
Beta Rate:	4.10 ± 0.42	Beta:	38.69 ± 0.98

<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20070316091003-A1	Unknown	-0.61	0.43	14.00	7.49	6.93	26.00
20070316091134-A2	Unknown	2.44	3.08	14.00	-8.01	2.81	26.00
20070316091244-A4	Unknown	2.44	3.08	14.00	7.49	6.93	26.00
20070316091354-A3	Unknown	-0.61	0.43	14.00	10.08	7.40	26.00
20070316091514-A5	Unknown	-0.61	0.43	14.00	-5.43	3.82	26.00
20070316091624-A6	Unknown	-0.61	0.43	14.00	-5.43	3.82	26.00
20070316091734-A7	Unknown	-0.61	0.43	14.00	12.66	7.84	26.00
20070316091844-A8	Unknown	-0.61	0.43	14.00	10.08	7.40	26.00
20070316092004-A9	Unknown	2.44	3.08	14.00	7.49	6.93	26.00
20070316092114-A10	Unknown	2.44	3.08	14.00	4.91	6.43	26.00

Building 4034



RADIATION SURVEY REPORT

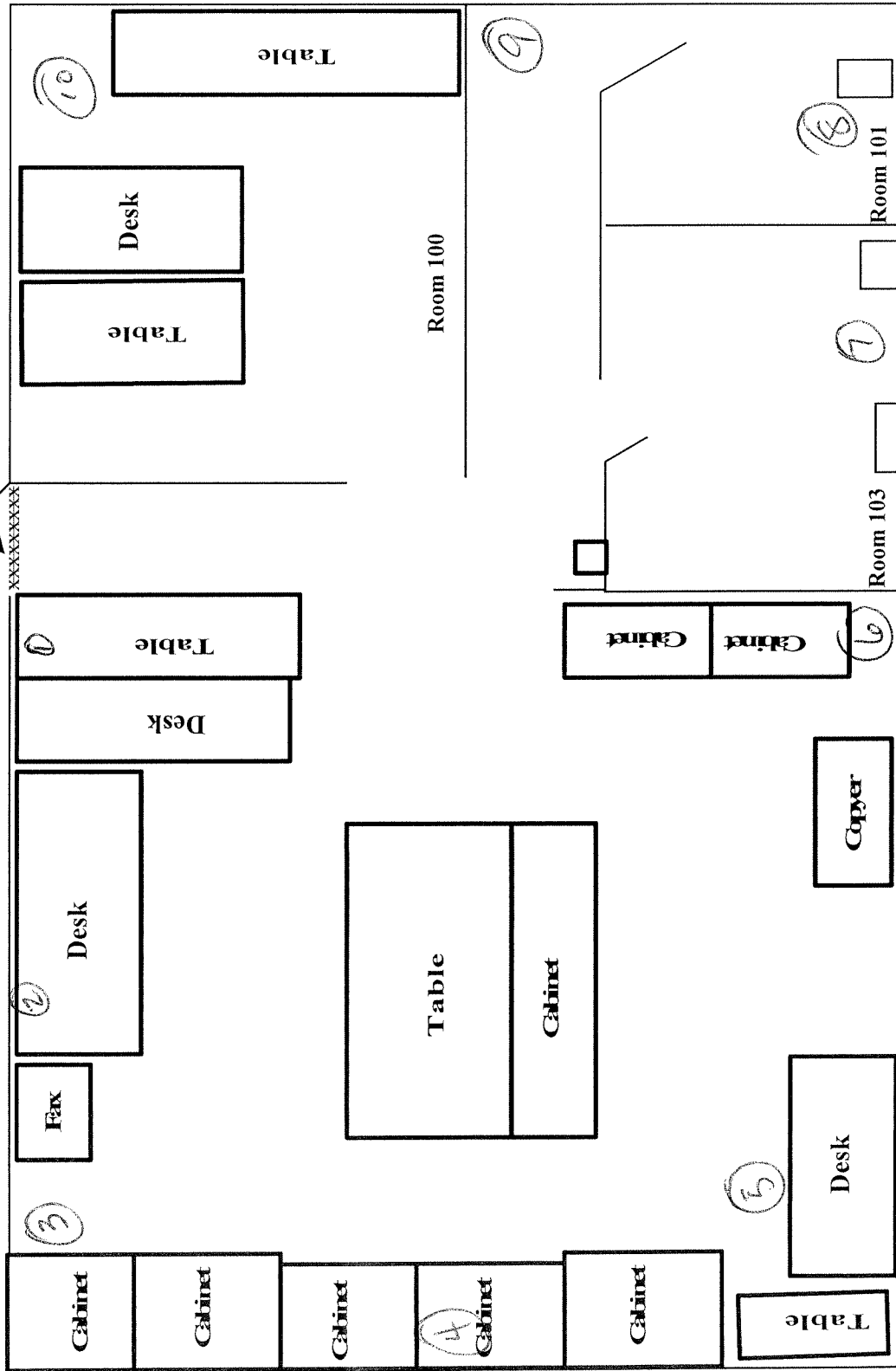
FACILITY: RMHF

LOCATION: Bldg. 034

[illegible]

RMHF T034 SURVEY DIAGRAM

Area Posted: Radioactive Material
 Restricted Area
 Authorized Personnel Only
 Film Badge or TLD Required For Entry
 Controlled Work Permit Required For Entry



Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	420	4100
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Sample Report

Batch ID:	Smears 1 Minute Count - 200611291311	Count Date:	11/29/2006 1:11:37PM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	609	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	

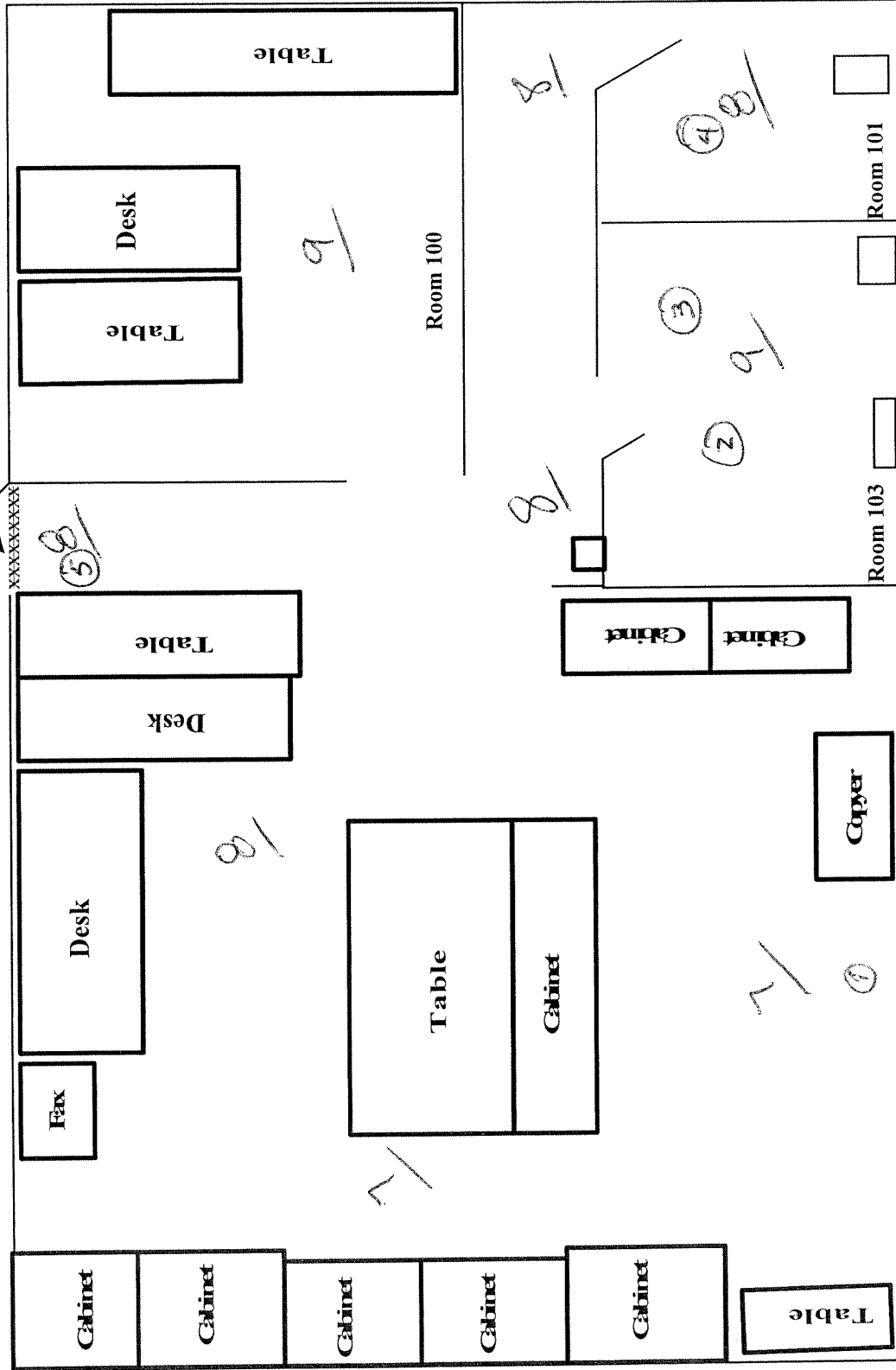
Background (cpm)		Efficiency (%)	
Alpha Rate:	0.15 ± 0.21	Alpha:	32.97 ± 0.98
Beta Rate:	3.25 ± 0.35	Beta:	38.54 ± 0.97

Sample ID	Sample Type	Alpha (dpm)	Unc	Alpha MDA (dpm)	Beta (dpm)	Unc	Beta MDA (dpm)
20061129131137-A1	Unknown	-0.45	0.64	13.00	-3.24	3.78	24.00
20061129131308-A2	Unknown	-0.45	0.64	13.00	4.54	5.88	24.00
20061129131418-A3	Unknown	5.61	4.34	13.00	4.54	5.88	24.00
20061129131538-A4	Unknown	-0.45	0.64	13.00	12.33	7.40	24.00
20061129131648-A5	Unknown	-0.45	0.64	13.00	-3.24	3.78	24.00
20061129131758-A6	Unknown	-0.45	0.64	13.00	7.14	6.42	24.00
20061129131908-A7	Unknown	-0.45	0.64	13.00	7.14	6.42	24.00
20061129132028-A8	Unknown	-0.45	0.64	13.00	-0.65	4.59	24.00
20061129132138-A9	Unknown	-0.45	0.64	13.00	14.92	7.85	24.00
20061129132248-A10	Unknown	-0.45	0.64	13.00	-3.24	3.78	24.00

[illegible]

RMHF T034 SURVEY DIAGRAM

Area Posted: Radioactive Material
Restricted Area
Authorized Personnel Only
Film Badge or TLD Required For Entry
Controlled Work Permit Required For Entry



Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	420	400
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Sample Report

Batch ID:	Smears 1 Minute Count - 200703160946	Count Date:	3/16/2007 9:46:24AM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	501	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	4034

Background (cpm)		Efficiency (%)	
Alpha Rate:	0.20 ± 0.14	Alpha:	32.85 ± 0.98
Beta Rate:	4.10 ± 0.42	Beta:	38.69 ± 0.98

<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20070316094624-A1	Unknown	-0.61	0.43	14.00	-0.26	5.28	26.00
20070316094755-A2	Unknown	-0.61	0.43	14.00	-0.26	5.28	26.00
20070316094905-A4	Unknown	-0.61	0.43	14.00	12.66	7.84	26.00
20070316095015-A3	Unknown	2.44	3.08	14.00	-2.84	4.61	26.00
20070316095135-A5	Unknown	-0.61	0.43	14.00	-2.84	4.61	26.00

Building 4044



FACILITY: RMHF

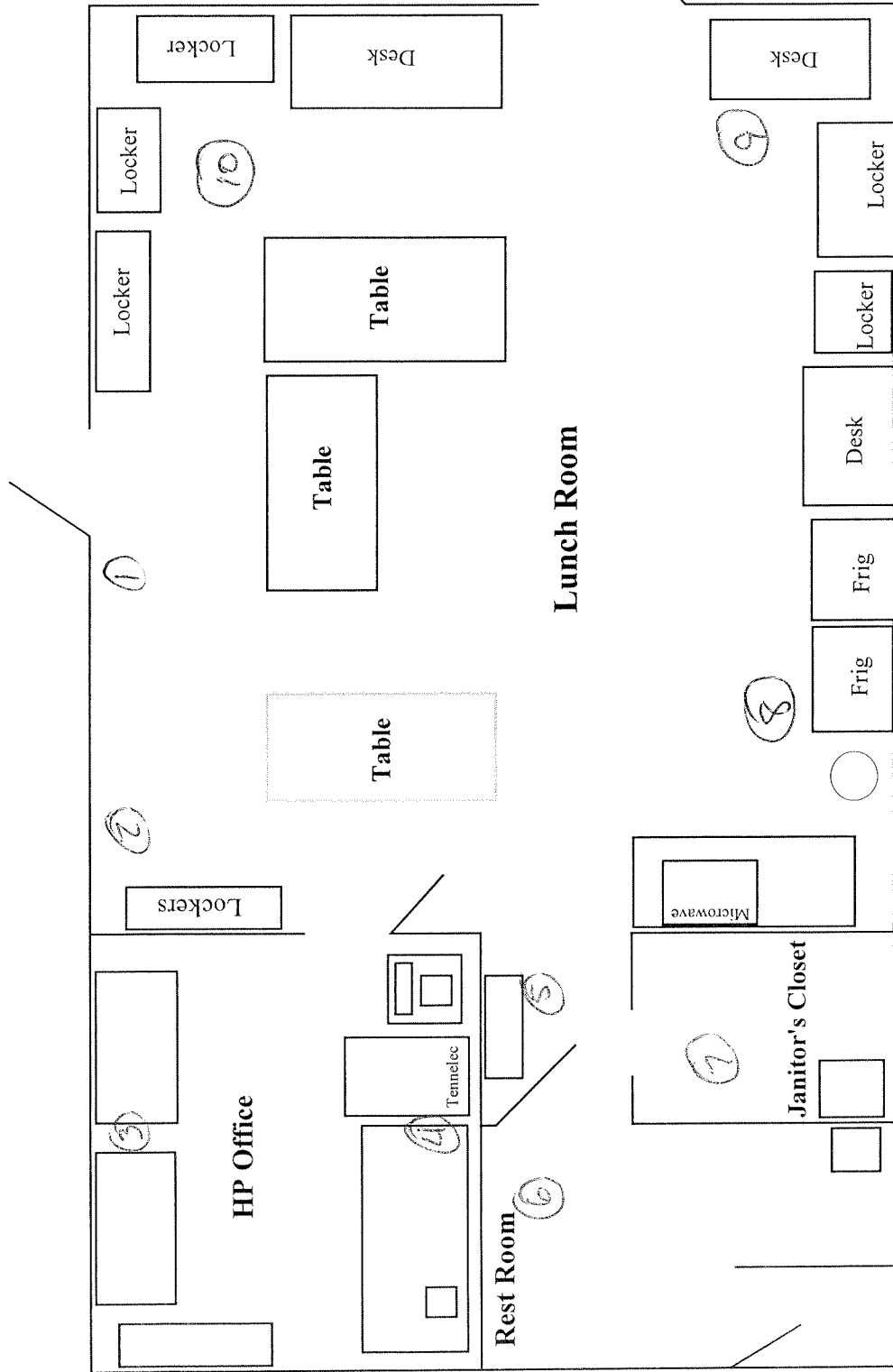
LOCATION: Bldg. 044

RADIATION SURVEY REPORT

[illegible]

RMHF T044 SURVEY DIAGRAM

Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	< 20	< 100
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C:\Documents and Settings\Canberra\Desktop\Facility Maps

NAME Hickman # = Smear Locations

DATE 11-29-06 # = Dose Rate in μR/hr

TENNELEC NR007137

Bicron micro rem NA

Facility North →

Sample Report

Batch ID:	Smears 1 Minute Count - 200611291324	Count Date:	11/29/2006 1:24:48PM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	610	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	

Background (cpm)		Efficiency (%)	
Alpha Rate:	0.15 ± 0.21	Alpha:	32.97 ± 0.98
Beta Rate:	3.25 ± 0.35	Beta:	38.54 ± 0.97

<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20061129132448-A1	Unknown	-0.45	0.64	13.00	1.95	5.27	24.00
20061129132619-A2	Unknown	-0.45	0.64	13.00	-3.24	3.78	24.00
20061129132729-A3	Unknown	-0.45	0.64	13.00	12.33	7.40	24.00
20061129132839-A4	Unknown	-0.45	0.64	13.00	1.95	5.27	24.00
20061129132959-A5	Unknown	-0.45	0.64	13.00	4.54	5.88	24.00
20061129133109-A6	Unknown	-0.45	0.64	13.00	9.73	6.93	24.00
20061129133219-A7	Unknown	-0.45	0.64	13.00	7.14	6.42	24.00
20061129133339-A8	Unknown	-0.45	0.64	13.00	9.73	6.93	24.00
20061129133449-A9	Unknown	-0.45	0.64	13.00	4.54	5.88	24.00
20061129133559-A10	Unknown	-0.45	0.64	13.00	-0.65	4.59	24.00

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RMHF T044 SURVEY DIAGRAM

Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	420	4100
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C:\Documents and Settings\Canberra\Desktop\Facility Maps

NAME D. HICKMAN

DATE 3-16-07

TENNELEC NR001137

Bicron micro rem EX041002

CALDOE 5-22-07

= Smear Locations

= Dose Rate in μR/hr

Facility North →

Sample Report

Batch ID:	Smears 1 Minute Count - 200703160835	Count Date:	3/16/2007 8:35:23AM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	499	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	4044

Background (cpm)		Efficiency (%)	
Alpha Rate:	0.20 ± 0.14	Alpha:	32.85 ± 0.98
Beta Rate:	4.10 ± 0.42	Beta:	38.69 ± 0.98

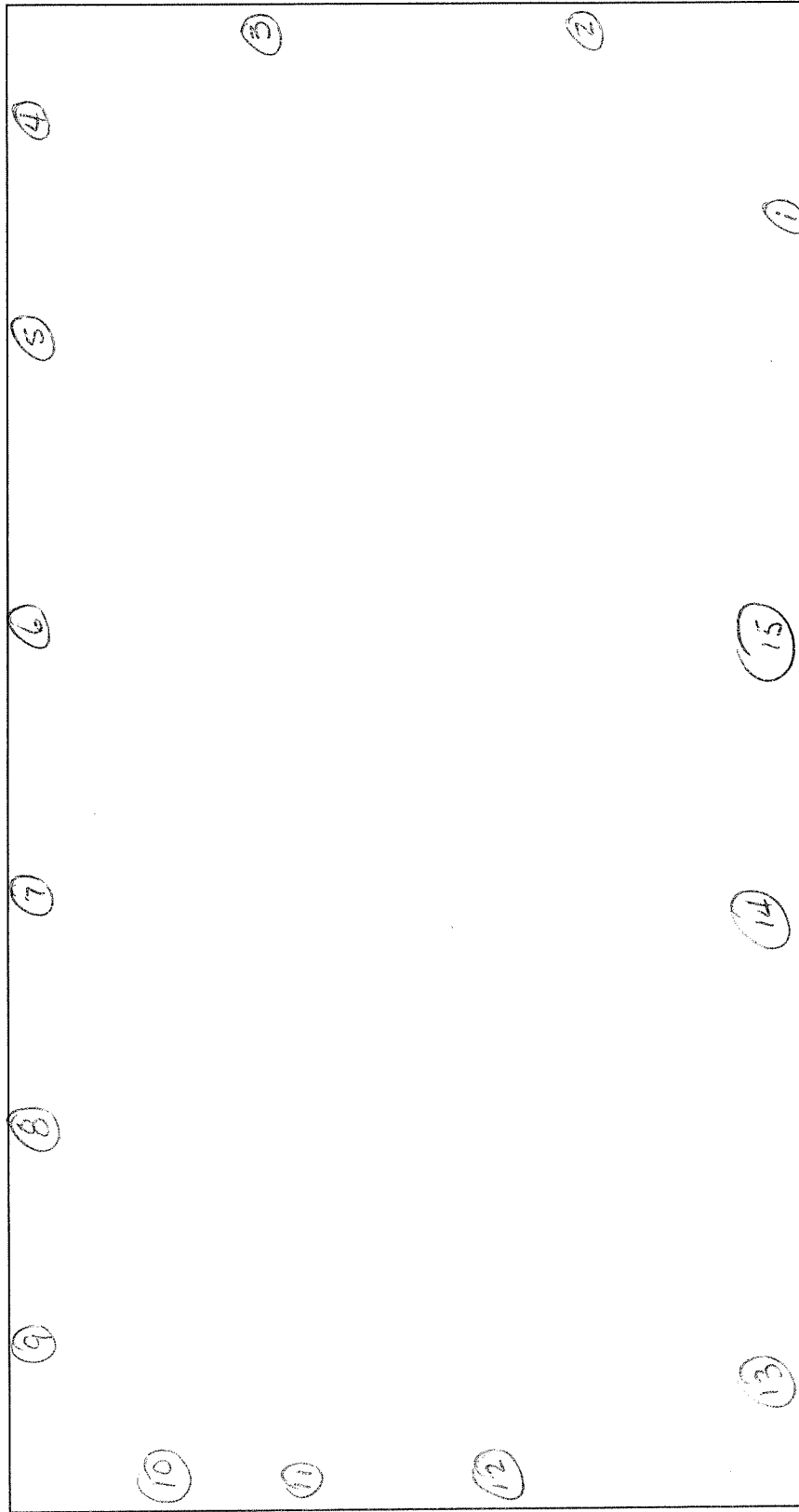
<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20070316083523-A1	Unknown	2.44	3.08	14.00	2.33	5.88	26.00
20070316083654-A2	Unknown	-0.61	0.43	14.00	10.08	7.40	26.00
20070316083804-A4	Unknown	-0.61	0.43	14.00	-0.26	5.28	26.00
20070316083914-A3	Unknown	-0.61	0.43	14.00	-2.84	4.61	26.00
20070316084034-A5	Unknown	-0.61	0.43	14.00	10.08	7.40	26.00
20070316084144-A6	Unknown	-0.61	0.43	14.00	-0.26	5.28	26.00
20070316084254-A7	Unknown	5.48	4.33	14.00	2.33	5.88	26.00
20070316084404-A8	Unknown	-0.61	0.43	14.00	4.91	6.43	26.00
20070316084524-A9	Unknown	2.44	3.08	14.00	4.91	6.43	26.00
20070316084633-A10	Unknown	-0.61	0.43	14.00	4.91	6.43	26.00
20070316084744-A11	Unknown	-0.61	0.43	14.00	2.33	5.88	26.00
20070316084854-A12	Unknown	-0.61	0.43	14.00	4.91	6.43	26.00
20070316085013-A13	Unknown	-0.61	0.43	14.00	-2.84	4.61	26.00
20070316085124-A14	Unknown	-0.61	0.43	14.00	2.33	5.88	26.00
20070316085234-A15	Unknown	-0.61	0.43	14.00	-2.84	4.61	26.00

Building 4075

FORM 732-A REV 10-2005

RMHF T075 SURVEY DIAGRAM

Note: Building Put in Inactive Status 3/1/2002



NAME HICKMAN
 DATE 11-29-06
 TENNELEC NR 007137
 Instrument _____

= Smear Locations
 # = Dose Rate in $\mu\text{R/hr}$

Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	<20	<100
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Sample Report

Batch ID:	Smears 1 Minute Count - 200611291011	Count Date:	11/29/2006 10:11:40AM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	604	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	

Background (cpm)		Efficiency (%)	
Alpha Rate:	0.15 ± 0.21	Alpha:	32.97 ± 0.98
Beta Rate:	3.25 ± 0.35	Beta:	38.54 ± 0.97

Sample ID	Sample Type	Alpha (dpm)	Unc	Alpha MDA (dpm)	Beta (dpm)	Unc	Beta MDA (dpm)
20061129101140-A1	Unknown	2.58	3.10	13.00	-3.24	3.78	24.00
20061129101311-A2	Unknown	2.58	3.10	13.00	12.33	7.40	24.00
20061129101421-A3	Unknown	2.58	3.10	13.00	9.73	6.93	24.00
20061129101541-A4	Unknown	2.58	3.10	13.00	-5.84	2.76	24.00
20061129101651-A5	Unknown	-0.45	0.64	13.00	-0.65	4.59	24.00
20061129101801-A6	Unknown	-0.45	0.64	13.00	17.52	8.27	24.00
20061129101911-A7	Unknown	-0.45	0.64	13.00	-3.24	3.78	24.00
20061129102031-A8	Unknown	-0.45	0.64	13.00	7.14	6.42	24.00
20061129102141-A9	Unknown	-0.45	0.64	13.00	14.92	7.85	24.00
20061129102251-A10	Unknown	-0.45	0.64	13.00	4.54	5.88	24.00
20061129102401-A11	Unknown	-0.45	0.64	13.00	9.73	6.93	24.00
20061129102521-A12	Unknown	-0.45	0.64	13.00	9.73	6.93	24.00
20061129102631-A13	Unknown	-0.45	0.64	13.00	4.54	5.88	24.00
20061129102741-A14	Unknown	-0.45	0.64	13.00	7.14	6.42	24.00
20061129102851-A15	Unknown	-0.45	0.64	13.00	-0.65	4.59	24.00

RADIATION SURVEY REPORT

FACILITY: RMHF

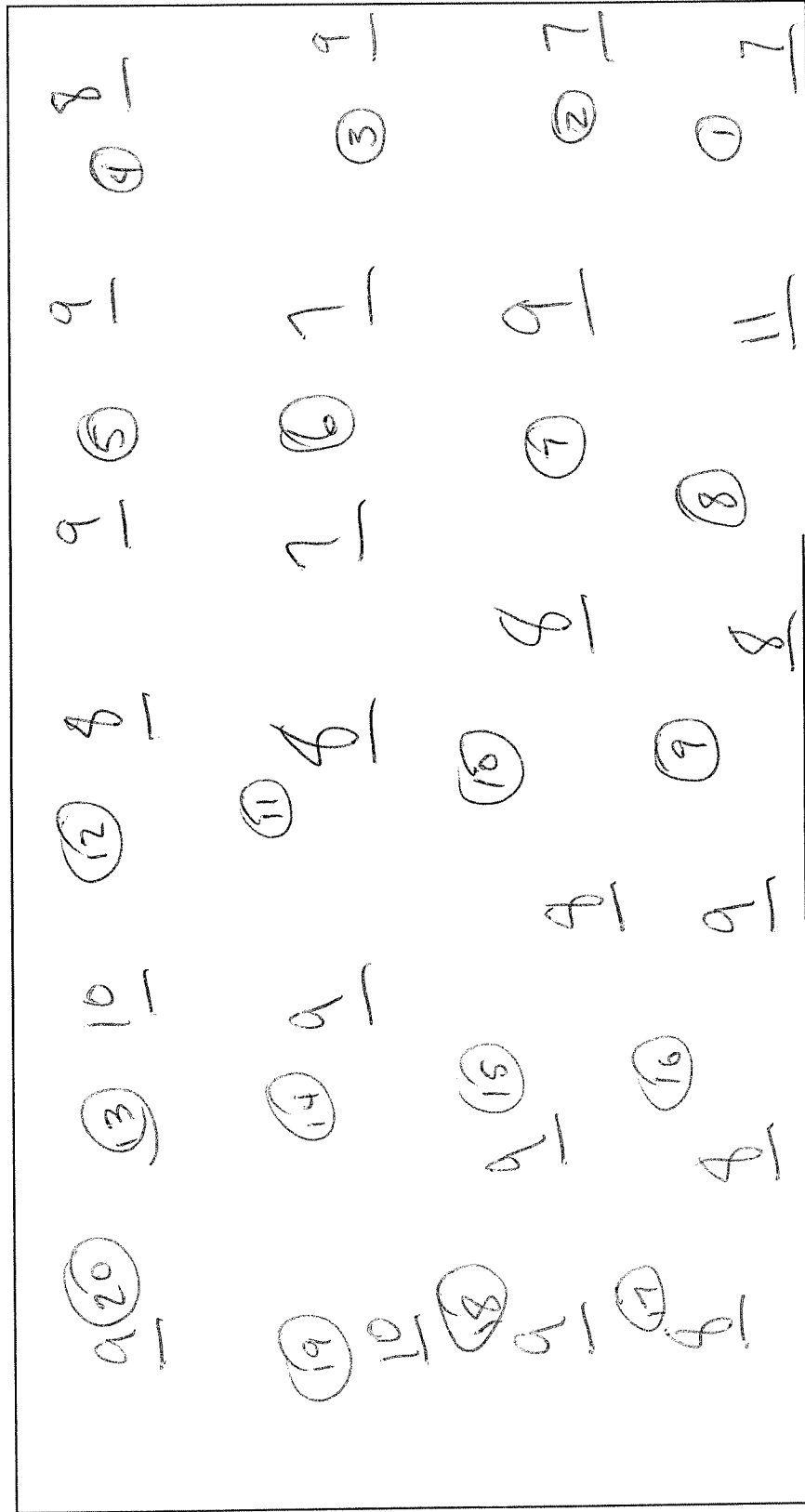
LOCATION: 4075

SAMPLE NUMBER	DATE SAMPLED	DATE ANALYZED	Purpose: Status/routine	DESCRIPTION	UNITS	α dpm/100cm sq		βγ dpm/100cm sq		uR/Hr
						20	<20	100	<100	
1	3/15/2007	3/15/2007	Status/routine Survey of Building 4075		LIMIT					See Attached
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COMMENTS: Tennelec MDA = 11 dpm/100 cm² α and 24 dpm/ 100 cm² β N/A=Not Applicable SAMPLED BY: D.W. Hickman ANALYZED BY: <i>[Signature]</i> REVIEWED BY: <i>[Signature]</i> DATE: 3-16-07	INSTRUMENT	TENNELEC	Bicron	
	IDENTIFICATION	NR007137	EX041002	
	CALIBRATION DUE	DAILY	5/22/2007	
	BACKGROUND	.05 cpm	3.25 cpm	NA
	EFFICIENCY	33.07%	38.84%	NA
	COUNT TIME	1 MIN	NA	
See Attachment ☒ Page 1 of 3				

RMHF T075 SURVEY DIAGRAM

Note: Building Put in Inactive Status 3/1/2002



= Smear Locations
 # = Dose Rate in $\mu R/hr$

NAMED: HICKMAN, D. W.

DATE: 3-15-07

TENNELEC AKLOG7137

Instrument BICKON EX041002

CAL.DUE 5-22-07

Smear Results	
#	dpm/100cm ² $\propto$ dpm/100cm ² β
1	620
2	6100
3	
4	
5	
6	
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33	
34	
35	

Sample Report

Batch ID:	Smears 1 Minute Count - 200703150842	Count Date:	3/15/2007 8:42:58AM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	491	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	4075

Background (cpm)	Efficiency (%)
Alpha Rate: 0.05 ± 0.07	Alpha: 33.07 ± 0.99
Beta Rate: 3.25 ± 0.21	Beta: 38.84 ± 0.98

<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20070315084258-A1	Unknown	-0.15	0.21	11.00	12.23	7.31	24.00
20070315084428-A2	Unknown	-0.15	0.21	11.00	9.65	6.84	24.00
20070315084539-A4	Unknown	-0.15	0.21	11.00	12.23	7.31	24.00
20070315084648-A3	Unknown	-0.15	0.21	11.00	9.65	6.84	24.00
20070315084808-A5	Unknown	2.87	3.03	11.00	-3.22	3.68	24.00
20070315084918-A6	Unknown	-0.15	0.21	11.00	4.51	5.78	24.00
20070315085028-A7	Unknown	-0.15	0.21	11.00	9.65	6.84	24.00
20070315085148-A8	Unknown	-0.15	0.21	11.00	12.23	7.31	24.00
20070315085259-A9	Unknown	-0.15	0.21	11.00	9.65	6.84	24.00
20070315085408-A10	Unknown	2.87	3.03	11.00	-0.64	4.49	24.00
20070315085518-A11	Unknown	-0.15	0.21	11.00	1.93	5.18	24.00
20070315085638-A12	Unknown	2.87	3.03	11.00	9.65	6.84	24.00
20070315085749-A13	Unknown	2.87	3.03	11.00	1.93	5.18	24.00
20070315085859-A14	Unknown	-0.15	0.21	11.00	-0.64	4.49	24.00
20070315090008-A15	Unknown	2.87	3.03	11.00	1.93	5.18	24.00
20070315090128-A16	Unknown	-0.15	0.21	11.00	-0.64	4.49	24.00
20070315090238-A17	Unknown	2.87	3.03	11.00	19.95	8.57	24.00
20070315090348-A18	Unknown	-0.15	0.21	11.00	-0.64	4.49	24.00
20070315090458-A19	Unknown	2.87	3.03	11.00	-3.22	3.68	24.00
20070315090618-A20	Unknown	2.87	3.03	11.00	-0.64	4.49	24.00

Building 4621

RADIATION SURVEY REPORT

FACILITY: RMHF

LOCATION: 4621

SAMPLE NUMBER	DATE SAMPLED	DATE ANALYZED	Purpose: Status/routine	DESCRIPTION	UNITS	α dpm/100cm sq	$\beta\gamma$ dpm/100cm sq	uR/Hr
					LIMIT	20	100	N/A
1	3/16/2007	3/16/2007	Status/routine Survey of Building 4621			<20	<100	See Attached
2								
3								
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8								
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10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

INSTRUMENT	TENNELEC	Bicron
IDENTIFICATION	NR007137	EX041002
CALIBRATION DUE	DAILY	5/22/2007
BACKGROUND	.2 cpm	4.10 cpm
EFFICIENCY	32.85%	38.69%
COUNT TIME	1 MIN	NA

COMMENTS:

Elevated dose rates at due to stored sealed sources.

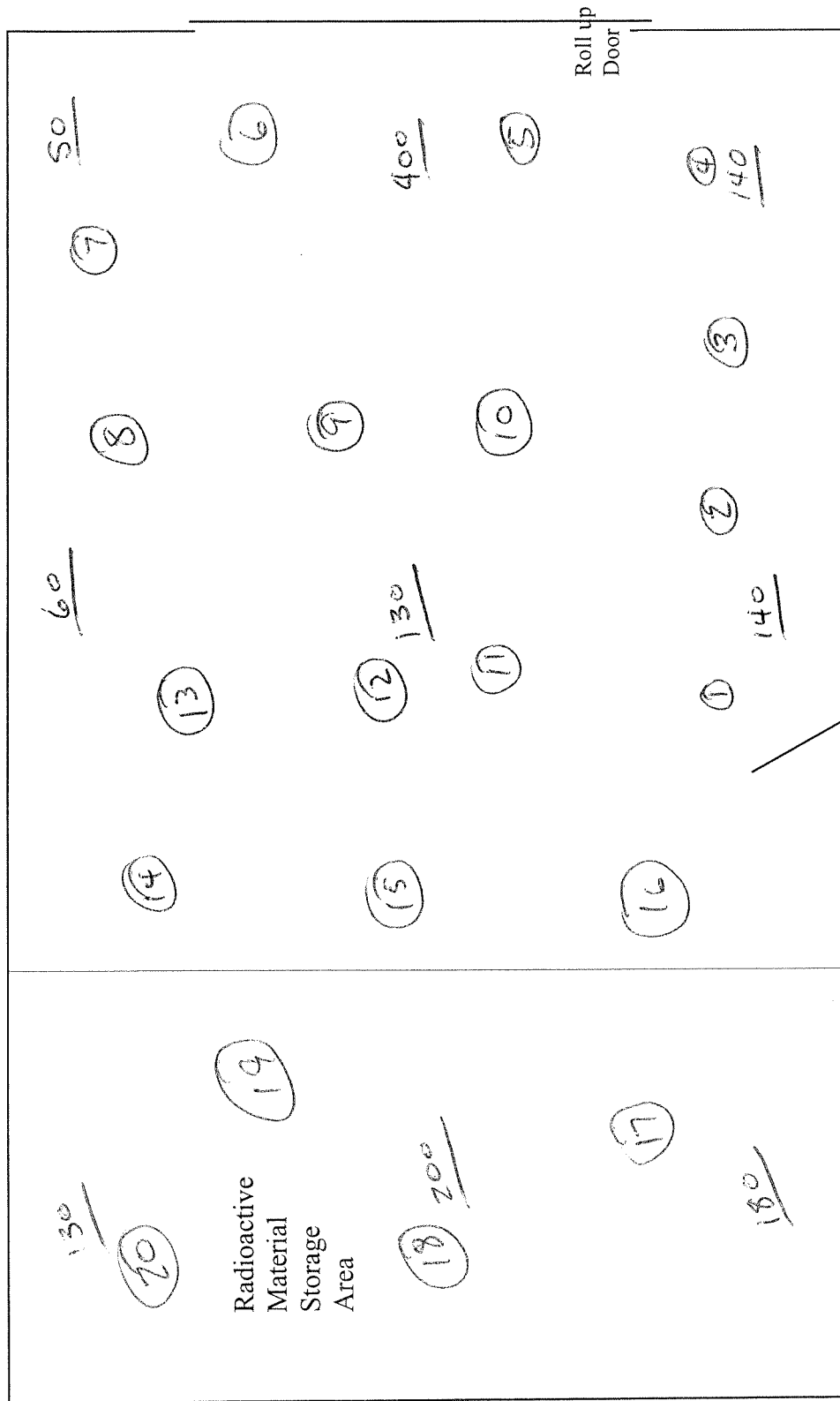
Tennelec MDA = 14 dpm/100 cm² α and 26 dpm/ 100 cm² β

NA=Not Applicable

SAMPLED BY: D.W. Hickman ANALYZED BY: *[Signature]*

REVIEWED BY: *[Signature]* DATE: 3-16-07

RMHF T621 SURVEY DIAGRAM



NAME D. Hickman

DATE 3-16-07

TENNELEC NR001137 Bicon EX041002
CAL. DUE 5-22-07

= Smear Locations

= Dose Rate in uR/hr

↓
Facility North

Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	220	2100
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
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Sample Report

Batch ID:	Smears 1 Minute Count - 200703161142	Count Date:	3/16/2007 11:42:51AM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	502	Operating Volts:	1477
Selected	Swipe/Smear Comments: Building 4621		

Background (cpm)	Efficiency (%)
Alpha Rate: 0.20 ± 0.14	Alpha: 32.85 ± 0.98
Beta Rate: 4.10 ± 0.42	Beta: 38.69 ± 0.98

<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20070316114251-A1	Unknown	2.44	3.08	14.00	7.49	6.93	26.00
20070316114422-A2	Unknown	2.44	3.08	14.00	12.66	7.84	26.00
20070316114532-A4	Unknown	2.44	3.08	14.00	-0.26	5.28	26.00
20070316114642-A3	Unknown	-0.61	0.43	14.00	-0.26	5.28	26.00
20070316114802-A5	Unknown	-0.61	0.43	14.00	4.91	6.43	26.00
20070316114912-A6	Unknown	8.52	5.30	14.00	4.91	6.43	26.00
20070316115022-A7	Unknown	5.48	4.33	14.00	2.33	5.88	26.00
20070316115132-A8	Unknown	-0.61	0.43	14.00	2.33	5.88	26.00
20070316115252-A9	Unknown	-0.61	0.43	14.00	7.49	6.93	26.00
20070316115402-A10	Unknown	2.44	3.08	14.00	25.59	9.75	26.00
20070316115512-A11	Unknown	5.48	4.33	14.00	15.25	8.25	26.00
20070316115622-A12	Unknown	2.44	3.08	14.00	4.91	6.43	26.00
20070316115742-A13	Unknown	-0.61	0.43	14.00	2.33	5.88	26.00
20070316115852-A14	Unknown	5.48	4.33	14.00	2.33	5.88	26.00
20070316120002-A15	Unknown	5.48	4.33	14.00	17.83	8.65	26.00
20070316120113-A16	Unknown	-0.61	0.43	14.00	7.49	6.93	26.00
20070316120222-A17	Unknown	-0.61	0.43	14.00	4.91	6.43	26.00
20070316120342-A18	Unknown	-0.61	0.43	14.00	-2.84	4.61	26.00
20070316120452-A19	Unknown	-0.61	0.43	14.00	-0.26	5.28	26.00
20070316120602-A20	Unknown	-0.61	0.43	14.00	7.49	6.93	26.00

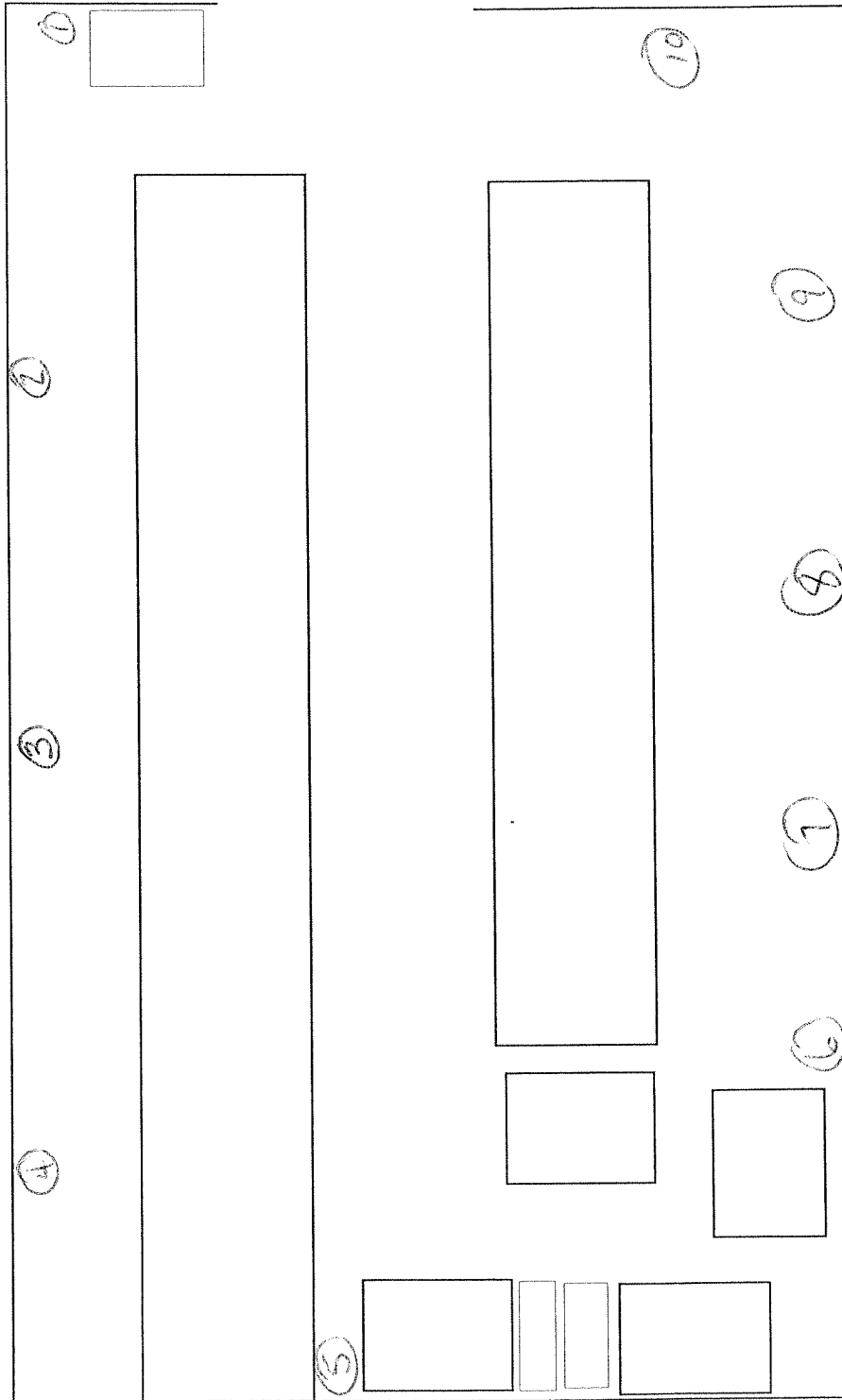
Building 4665



LOCATION: Bldg. 665

3

RMHF T665 SURVEY DIAGRAM



NAME D. HICKMAN

DATE 11-29-06

TENNELEC NK 007137

Bicron micro rem N/A

Ⓢ = Smear Locations

= Dose Rate in $\mu\text{R/hr}$

Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	< 20	< 100
2		
3		
4		
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Sample Report

Batch ID:	Smears 1 Minute Count - 200611291258	Count Date:	11/29/2006 12:58:25PM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	608	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	

Background (cpm)		Efficiency (%)	
Alpha Rate:	0.15 ± 0.21	Alpha:	32.97 ± 0.98
Beta Rate:	3.25 ± 0.35	Beta:	38.54 ± 0.97

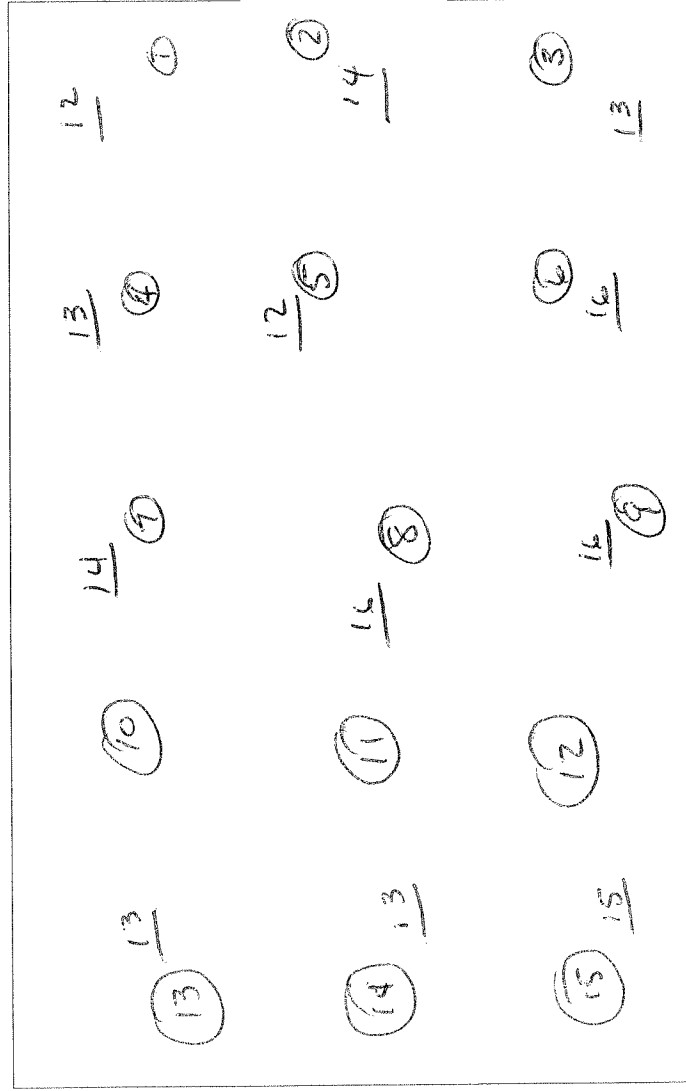
<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20061129125825-A1	Unknown	-0.45	0.64	13.00	4.54	5.88	24.00
20061129125956-A2	Unknown	-0.45	0.64	13.00	7.14	6.42	24.00
20061129130106-A3	Unknown	2.58	3.10	13.00	-0.65	4.59	24.00
20061129130226-A4	Unknown	-0.45	0.64	13.00	-3.24	3.78	24.00
20061129130336-A5	Unknown	-0.45	0.64	13.00	-0.65	4.59	24.00
20061129130446-A6	Unknown	-0.45	0.64	13.00	4.54	5.88	24.00
20061129130556-A7	Unknown	-0.45	0.64	13.00	1.95	5.27	24.00
20061129130716-A8	Unknown	-0.45	0.64	13.00	4.54	5.88	24.00
20061129130826-A9	Unknown	-0.45	0.64	13.00	9.73	6.93	24.00
20061129130936-A10	Unknown	-0.45	0.64	13.00	-5.84	2.76	24.00



RADIATION SURVEY REPORT

[illegible]

RMHF T665 SURVEY DIAGRAM



NAME: D. HICKMAN

DATE: 3-15-07

TENNELEC: NK007137

BICRON: EX041002
CALL DUE. 5-22-07

= Smear Locations

= Dose Rate in $\mu\text{R/hr}$

Facility North ↑

Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	420	4100
2		
3		
4		
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35		

Sample Report

Batch ID: Smears 1 Minute Count - 200703150924
Group: A
Device: RMHF Tennelec (NR 007137)
Batch Key: 492
Selected: Swipe/Smear

Count Date: 3/15/2007 9:24:04AM
Count Minutes: 1.00
Count Mode: Simultaneous
Operating Volts: 1477

Comments: 4665

Background (cpm)

Alpha Rate: 0.05 ± 0.07
Beta Rate: 3.25 ± 0.21

Efficiency (%)

Alpha: 33.07 ± 0.99
Beta: 38.84 ± 0.98

<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20070315092404-A1	Unknown	-0.15	0.21	11.00	1.93	5.18	24.00
20070315092535-A2	Unknown	-0.15	0.21	11.00	12.23	7.31	24.00
20070315092645-A4	Unknown	-0.15	0.21	11.00	4.51	5.78	24.00
20070315092755-A3	Unknown	-0.15	0.21	11.00	7.08	6.33	24.00
20070315092915-A5	Unknown	-0.15	0.21	11.00	9.65	6.84	24.00
20070315093025-A6	Unknown	-0.15	0.21	11.00	7.08	6.33	24.00
20070315093135-A7	Unknown	-0.15	0.21	11.00	4.51	5.78	24.00
20070315093245-A8	Unknown	-0.15	0.21	11.00	30.25	10.01	24.00
20070315093405-A9	Unknown	-0.15	0.21	11.00	9.65	6.84	24.00
20070315093515-A10	Unknown	-0.15	0.21	11.00	4.51	5.78	24.00
20070315093625-A11	Unknown	-0.15	0.21	11.00	7.08	6.33	24.00
20070315093735-A12	Unknown	-0.15	0.21	11.00	-8.37	0.59	24.00
20070315093855-A13	Unknown	-0.15	0.21	11.00	-3.22	3.68	24.00
20070315094005-A14	Unknown	-0.15	0.21	11.00	-5.79	2.64	24.00
20070315094115-A15	Unknown	2.87	3.03	11.00	-0.64	4.49	24.00

Building 4022



LOCATION: Bldg. 022

COMMENTS:Tennelec MDA: 13 dpm/100cm² α; 24 dpm/100 cm² β

SAMPLED	D. W. Hickman
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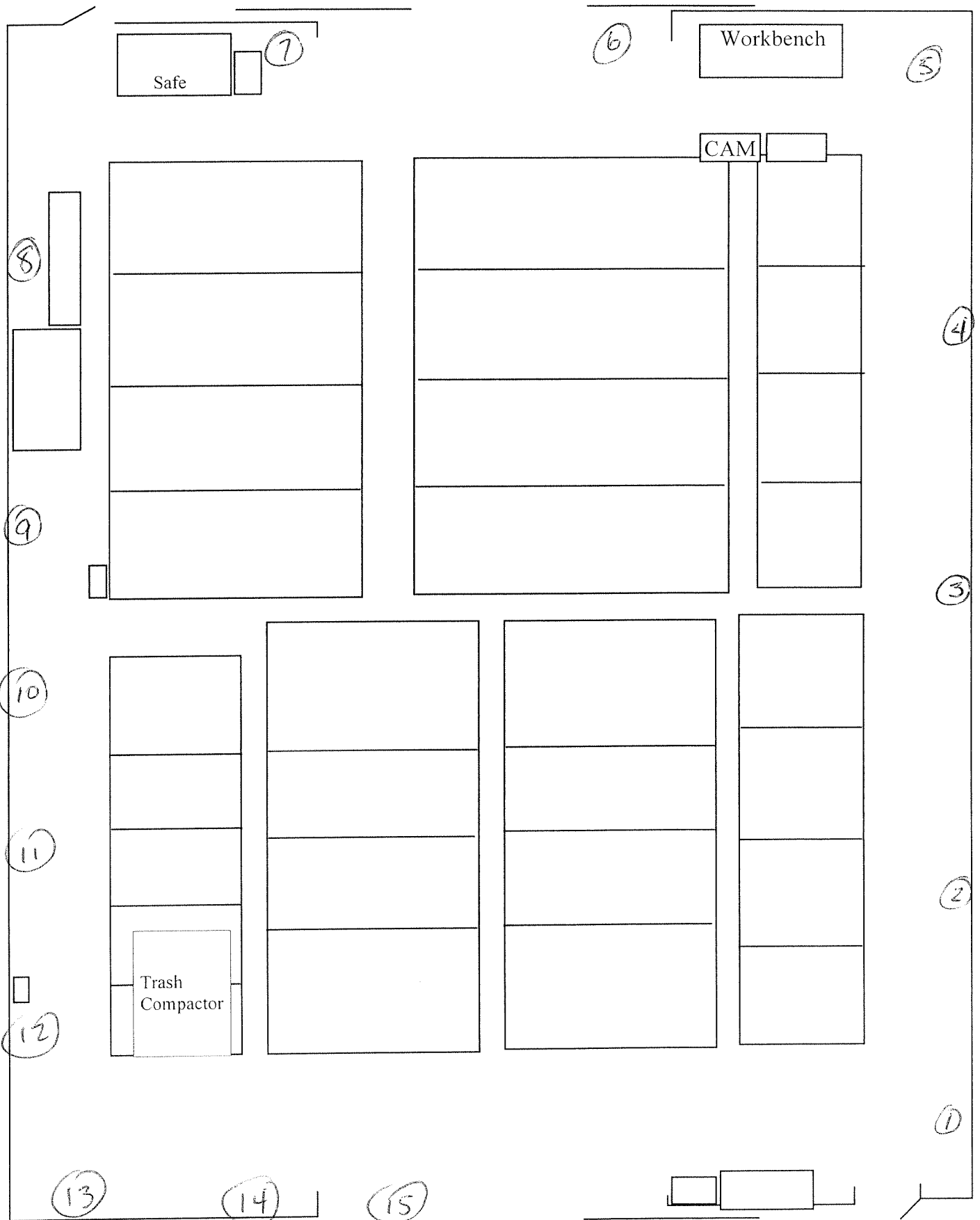
REVIEWED BY:

ANALYZED BY:

DATE: _____

RMHF T022 HIGH BAY SURVEY DIAGRAM

PAGE 2 OF 3



Facility North ↑

NAME D. Hickman DATE 11-28-06 RO-2 NA

(#) = Smear Locations
= Dose Rate in mR/hr

Sample Report

Batch ID:	Smears 1 Minute Count - 200611291237	Count Date:	11/29/2006 12:37:32PM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	607	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	

Background (cpm)		Efficiency (%)	
Alpha Rate:	0.15 ± 0.21	Alpha:	32.97 ± 0.98
Beta Rate:	3.25 ± 0.35	Beta:	38.54 ± 0.97

<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20061129123732-A1	Unknown	-0.45	0.64	13.00	9.73	6.93	24.00
20061129123903-A2	Unknown	-0.45	0.64	13.00	14.92	7.85	24.00
20061129124013-A3	Unknown	-0.45	0.64	13.00	1.95	5.27	24.00
20061129124133-A4	Unknown	-0.45	0.64	13.00	-0.65	4.59	24.00
20061129124243-A5	Unknown	-0.45	0.64	13.00	4.54	5.88	24.00
20061129124353-A6	Unknown	-0.45	0.64	13.00	4.54	5.88	24.00
20061129124503-A7	Unknown	-0.45	0.64	13.00	-3.24	3.78	24.00
20061129124623-A8	Unknown	-0.45	0.64	13.00	7.14	6.42	24.00
20061129124733-A9	Unknown	-0.45	0.64	13.00	9.73	6.93	24.00
20061129124843-A10	Unknown	-0.45	0.64	13.00	-0.65	4.59	24.00
20061129124953-A11	Unknown	-0.45	0.64	13.00	1.95	5.27	24.00
20061129125113-A12	Unknown	2.58	3.10	13.00	-5.84	2.76	24.00
20061129125223-A13	Unknown	-0.45	0.64	13.00	-0.65	4.59	24.00
20061129125333-A14	Unknown	-0.45	0.64	13.00	1.95	5.27	24.00
20061129125443-A15	Unknown	-0.45	0.64	13.00	1.95	5.27	24.00

Sample Report

Batch ID:	Smears 1 Minute Count - 200703051238	Count Date:	3/5/2007 12:38:58PM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	434	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	high bay upper horizontals

Background (cpm)		Efficiency (%)	
Alpha Rate:	0.25 ± 0.07	Alpha:	33.40 ± 1.00
Beta Rate:	4.30 ± 0.57	Beta:	38.74 ± 0.98

<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20070305123858-A1	Unknown	5.24	4.24	14.00	32.78	10.77	26.00
20070305124029-A2	Unknown	2.25	3.00	14.00	35.36	11.08	26.00
20070305124139-A3	Unknown	-0.75	0.21	14.00	22.46	9.44	26.00
20070305124249-A4	Unknown	-0.75	0.21	14.00	37.95	11.39	26.00
20070305124409-A5	Unknown	-0.75	0.21	14.00	12.13	7.89	26.00
20070305124519-A6	Unknown	-0.75	0.21	14.00	35.36	11.08	26.00
20070305124629-A7	Unknown	5.24	4.24	14.00	25.04	9.79	26.00
20070305124749-A8	Unknown	2.25	3.00	14.00	40.53	11.68	26.00
20070305124859-A9	Unknown	-0.75	0.21	14.00	9.55	7.45	26.00

**Building 4022
Sub-Grade Vaults**

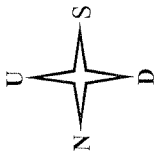
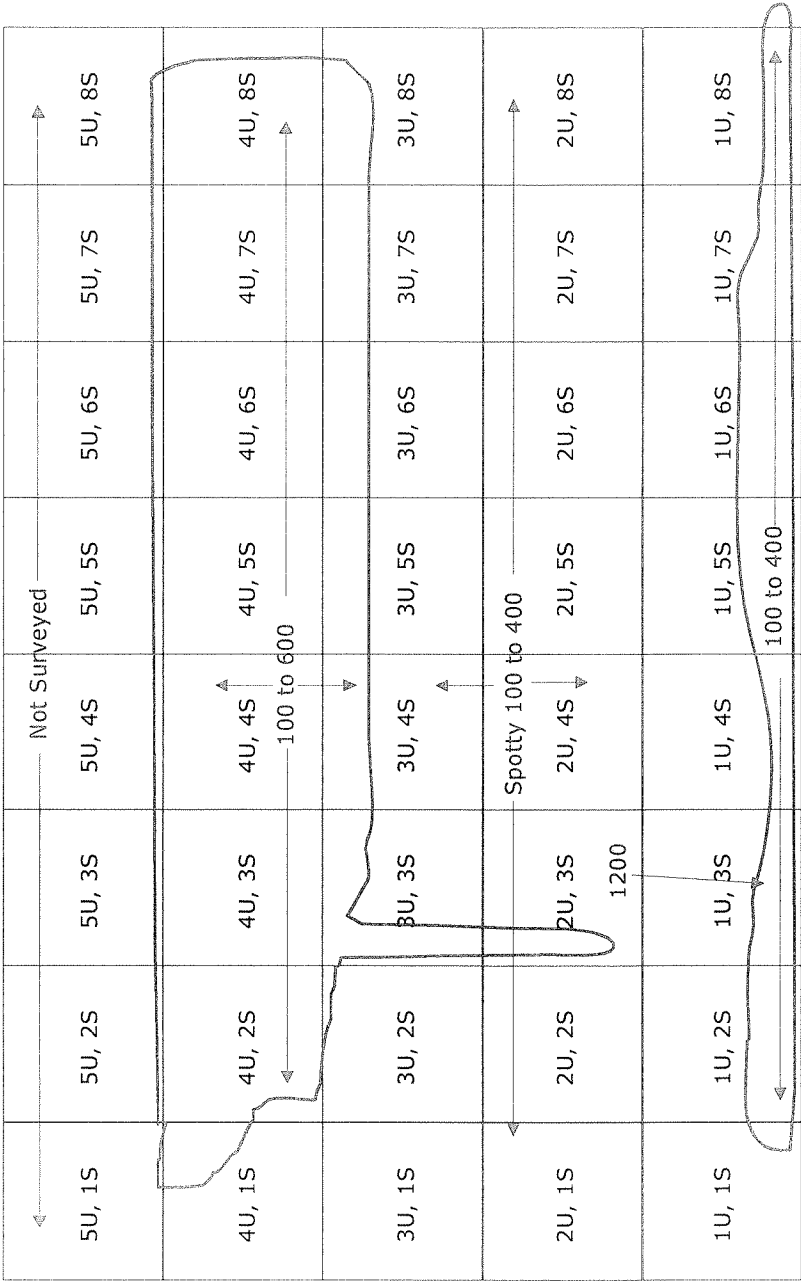
RMHF Remaining Contamination Levels

Vault #	Direct Reading Minimum β dpm/100cm ²	Direct Reading Maximum β dpm/100cm ²	Estimated Direct Reading Median β dpm/100cm ²	Direct Reading Limit β dpm/100cm ²	Estimated Removable Minimum β dpm/100cm ²	Estimated Removable Maximum β dpm/100cm ²
1	< 4170	50,000	16,667	6,250,000	< 100	500
2	< 4170	62,500	4,170	6,250,000	< 100	600
3	< 4170	1,666,667	416,667	6,250,000	< 100	3000
4	< 4170	833,333	62,500	6,250,000	< 100	1500
5	< 4170	333,333	25,000	6,250,000	< 100	1200
6	< 4170	1,500,000	83,333	6,250,000	< 100	2500
7	< 4170	1,458,333	125,000	6,250,000	< 100	2500
Inlet Tunnel	< 4170	750,000	< 4,170	6,250,000	< 100	1200
Exhaust Tunnel	< 4170	1,500,000	125,000	6,250,000	< 100	2500

Note 1: Alpha contamination for all 7 vaults is < 74 dpm/100cm² direct reading and < 20 dpm/100cm² removable.
Alpha direct reading limit is 740 dpm/100cm².

Note 2: Drain Line from Vault 6 to outside sump has unknown contamination levels (inaccessible)

Vault 1 East Wall Grid Key



1 meter by 1 meter grids

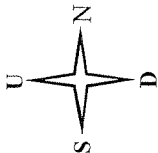
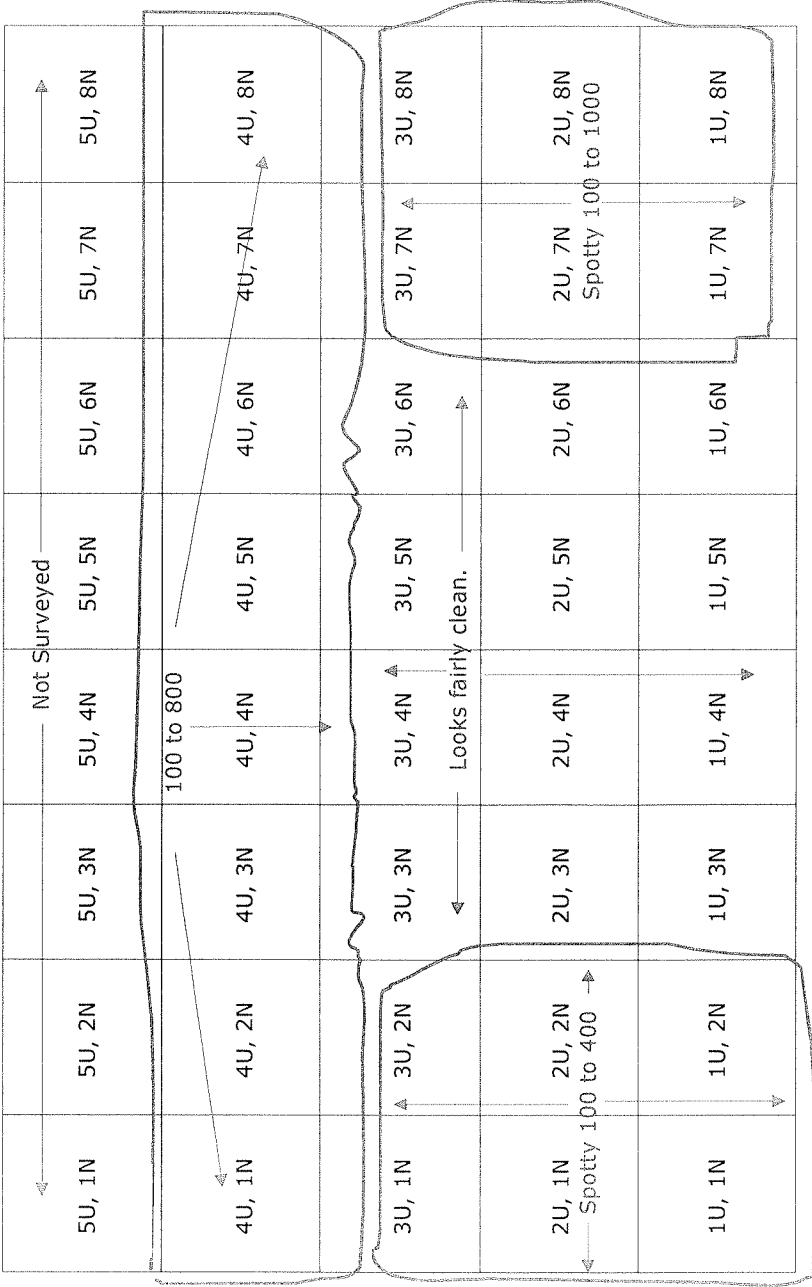
Vault 1 South Wall Grid Key

← 5U, 1W	5U, 2W	Not Surveyed	5U, 4W →	5U, 5W →
4U, 1W ←	4U, 2W	100 to 800 ↑ 4U, 3W ↓	4U, 4W →	4U, 5W →
3U, 1W	3U, 2W	3U, 3W	3U, 4W	3U, 5W
← 2U, 1W	2U, 2W	Spotty 100 to 400 ↑ 2U, 3W ↓	2U, 4W →	2U, 5W →
1U, 1W	1U, 2W	1U, 3W ↓	1U, 4W	1U, 5W



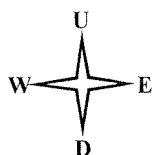
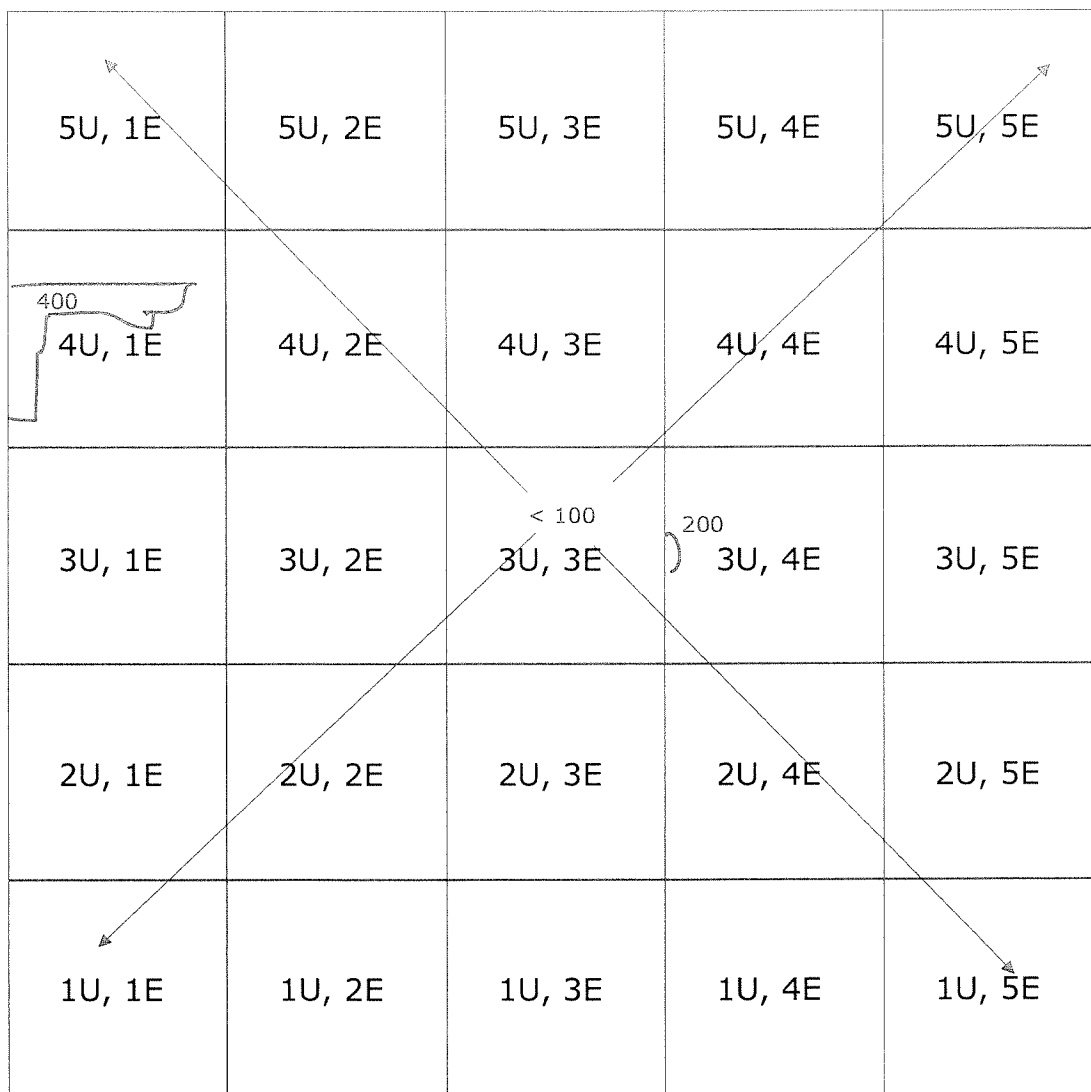
1 meter by 1 meter grids

Vault 1 West Wall Grid Key



1 meter by 1 meter grids

Vault 1 North Wall Grid Key

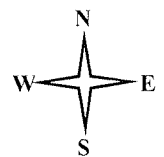


1 meter by 1 meter grids

Vault 1 Floor Grid Key

8N, 1E	8N, 2E	8N, 3E	8N, 4E	8N, 5E
7N, 1E	7N, 2E	7N, 3E	7N, 4E	7N, 5E
6N, 1E	6N, 2E 100	6N, 3E	200 6N, 4E	6N, 5E
5N, 1E	5N, 2E	5N, 2E	5N, 4E	5N, 5E
← Spotty 100 to 400 →				
4N, 1E	4N 2E	4N 3E	4N 4E	4N 5E
3N, 1E	3N, 2E	3N, 3E	3N, 4E	3N, 5E
2N, 1E	2N, 2E	2N, 3E	2N, 4E	2N, 5E
1N, 1E	1N, 2E	1N, 3E	1N, 4E	1N, 5E

150 (crack)



1 meter by 1 meter grids.

Vault 2 Floor Grid Initial Scan

Color Code, Max Readings (net cpm)

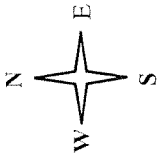
- < 100
- 100 to 199
- 200 to 299
- > = 300
- Hot Spot

8N, 1E < 100 TO 100	8N, 2E < 100 TO 100	8N, 3E < 100 TO 100	8N, 4E < 100 TO 100	8N, 5E < 100 TO 100	8N, 6E < 100 TO 100
7N, 1E 100 TO 120	7N, 2E < 100 TO 100	7N, 3E < 100 TO 100	7N, 4E < 100 TO 100	7N, 5E < 100 TO 100	7N, 6E < 100 TO 100
6N, 1E 100 TO 160	6N, 2E < 100 TO 120	6N, 3E < 100 TO 100	6N, 4E < 100 TO 100	6N, 5E < 100 TO 100	6N, 6E < 100 TO 100
5N, 1E 160 TO 200	5N, 2E 100 TO 140	5N, 3E < 100 TO 100	5N, 4E < 100 TO 100	5N, 5E < 100 TO 100	5N, 6E < 100 TO 160
4N, 1E 200 TO 300	4N, 2E 100 TO 200	4N, 3E 100 TO 120	4N, 4E < 100 TO 100	4N, 5E < 100 TO 100	4N, 6E < 100 TO 100
3N, 1E 160 TO 240	3N, 2E 100 TO 160	3N, 3E < 100 TO 140	3N, 4E < 100 TO 100	3N, 5E < 100 TO 100	3N, 6E 100 TO 120
2N, 1E 100 TO 300	2N, 2E 100 TO 160	2N, 3E 100 TO 160	2N, 4E < 100 TO 100	2N, 5E < 100 TO 140	2N, 6E 100 TO 120
1N, 1E 100 TO 400	1N, 2E 100 TO 200	1N, 3E 100 TO 200	1N, 4E < 100 TO 100	1N, 5E 100 TO 300	1N, 6E 100 TO 200

500 to 1500

1 meter by 1 meter grids
(except for remnants).

All scan readings in net cpm



Vault 2 South Wall Initial Scan

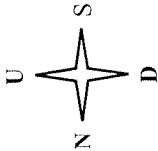
Floor Above Vault 1200

5U, 1W < 100	5U, 2W < 100	5U, 3W < 100	5U, 4W < 100	5U, 5W < 100	5U, 6W < 100
4U, 1W < 100	4U, 2W < 100	4U, 3W < 100	4U, 4W < 100	4U, 5W < 100	4U, 6W < 100
3U, 1W < 100	3U, 2W < 100	3U, 3W < 100	3U, 4W < 100	3U, 5W < 100	3U, 6W < 100
2U, 1W < 100	2U, 2W < 100	2U, 3W < 100	2U, 4W < 100	2U, 5W < 100	2U, 6W < 100
1U, 1W < 100	1U, 2W < 100	1U, 3W < 100 TO 100	1U, 4W < 100 TO 100	1U, 5W < 100 TO 100	1U, 6W < 100 TO 100

Color Code, Max Readings (net cpm)

- < 100
- 100 to 199
- 200 to 299
- >= 300
- Hot Spot

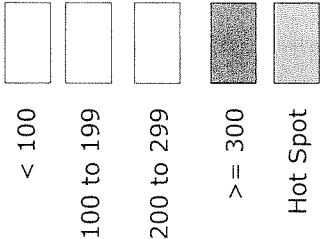
All scan readings in net cpm



1 meter by 1 meter grids except for remnants

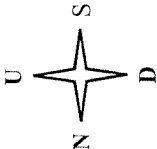
Vault 2 North Wall Initial Scan

Color Code, Max Readings (net cpm)



All scan readings in net cpm

5U, 1E < 100	5U, 2E < 100	5U, 3E < 100	5U, 4E < 100	5U, 5E < 100	5U, 6E < 100
4U, 1E < 100	4U, 2E < 100	4U, 3E < 100	4U, 4E < 100	4U, 5E < 100	4U, 6E < 100
3U, 1E < 100	3U, 2E < 100	3U, 3E < 100	3U, 4E < 100	3U, 5E < 100	3U, 6E < 100
2U, 1E < 100	2U, 2E < 100	2U, 3E < 100 TO 100	2U, 4E < 100	2U, 5E < 100	2U, 6E < 100
1U, 1E < 100	1U, 2E < 100	1U, 3E < 100 TO 100	1U, 4E < 100	1U, 5E < 100	1U, 6E < 100



1 meter by 1 meter grids

Vault 2 West Wall Grid Initial Scan

5U, 1N < 100	5U, 2N < 100	5U, 3N < 100	5U, 4N < 100	5U, 5N < 100	5U, 6N < 100	5U, 7N < 100	5U, 8N < 100
4U, 1N < 100	4U, 2N < 100	4U, 3N < 100	4U, 4N < 100	4U, 5N < 100	4U, 6N < 100	4U, 7N < 100	4U, 8N < 100
3U, 1N < 100	3U, 2N < 100	3U, 3N < 100	3U, 4N < 100	3U, 5N < 100	3U, 6N < 100	3U, 7N < 100	3U, 8N < 100
2U, 1N < 100	2U, 2N < 100	2U, 3N < 100	2U, 4N < 100	2U, 5N < 100	2U, 6N < 100	2U, 7N < 100	2U, 8N < 100
1U, 1N < 100 TO 100	1U, 2N < 100 TO 140	1U, 3N < 100 TO 100	200 TO 300		1U, 6N < 100	1U, 7N < 100	1U, 8N < 100

200 TO 1200

Color Code, Max Readings (net cpm)

- < 100

100 to 199

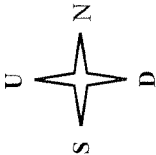
200 to 299

> = 300

Hot Spot

All scan readings in net cpm

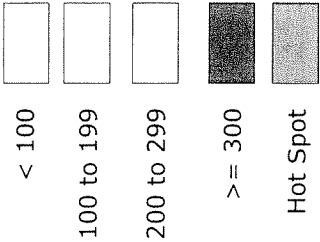
1 meter by 1 meter grids



Vault 2 East Wall Initial Scan

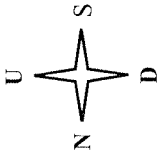
5U, 1S < 100	5U, 2S < 100	5U, 3S < 100	5U, 4S < 100	5U, 5S < 100	5U, 6S < 100	5U, 7S < 100	5U, 8S < 100
4U, 1S < 100	4U, 2S < 100	4U, 3S < 100	4U, 4S < 100	4U, 5S < 100	4U, 6S < 100	4U, 7S < 100	4U, 8S < 100
3U, 1S < 100	3U, 2S < 100	3U, 3S < 100	3U, 4S < 100	3U, 5S < 100	3U, 6S < 100	3U, 7S < 100	3U, 8S < 100
2U, 1S < 100	2U, 2S < 100	2U, 3S < 100	2U, 4S < 100	2U, 5S < 100	2U, 6S < 100	2U, 7S < 100	2U, 8S < 100
1U, 1S < 100	1U, 2S < 100	1U, 3S < 100	1U, 4S < 100	1U, 5S < 100	1U, 6S < 100	1U, 7S < 100	1U, 8S < 100

Color Code, Max Readings (net cpm)



All scan readings in net cpm

1 meter by 1 meter grids



Vault 3 Floor Scan After Decon

Color Code, Max Readings (net cpm)

< 100 

100 to 999 

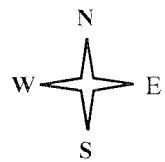
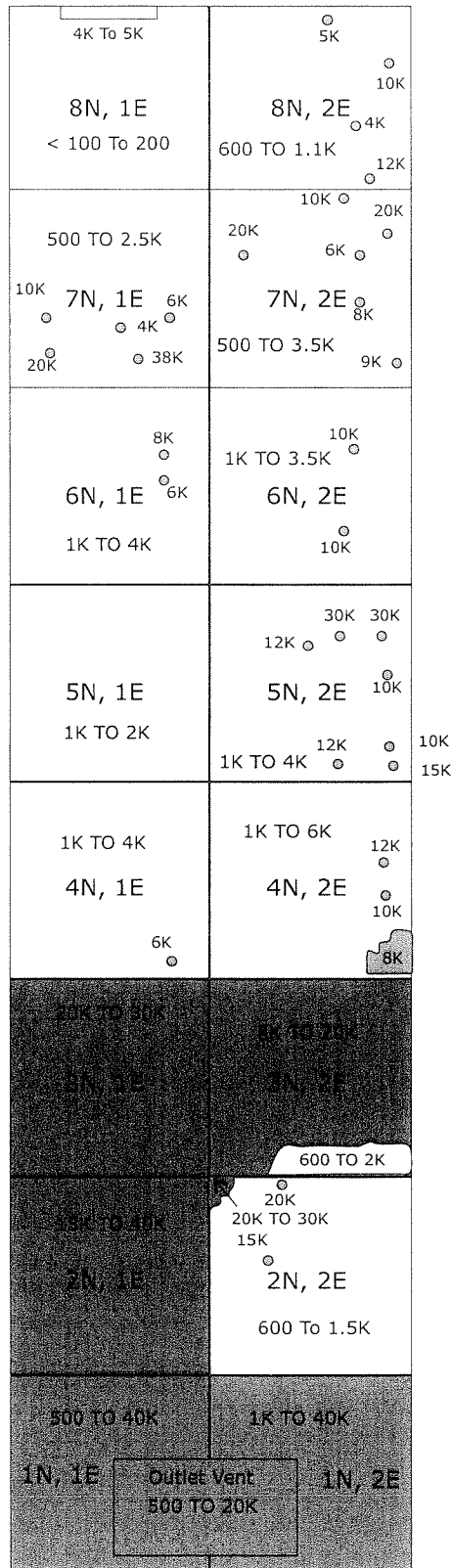
1000 to 9.999K 

>= 10K 

Hot Spot 

K = 1000

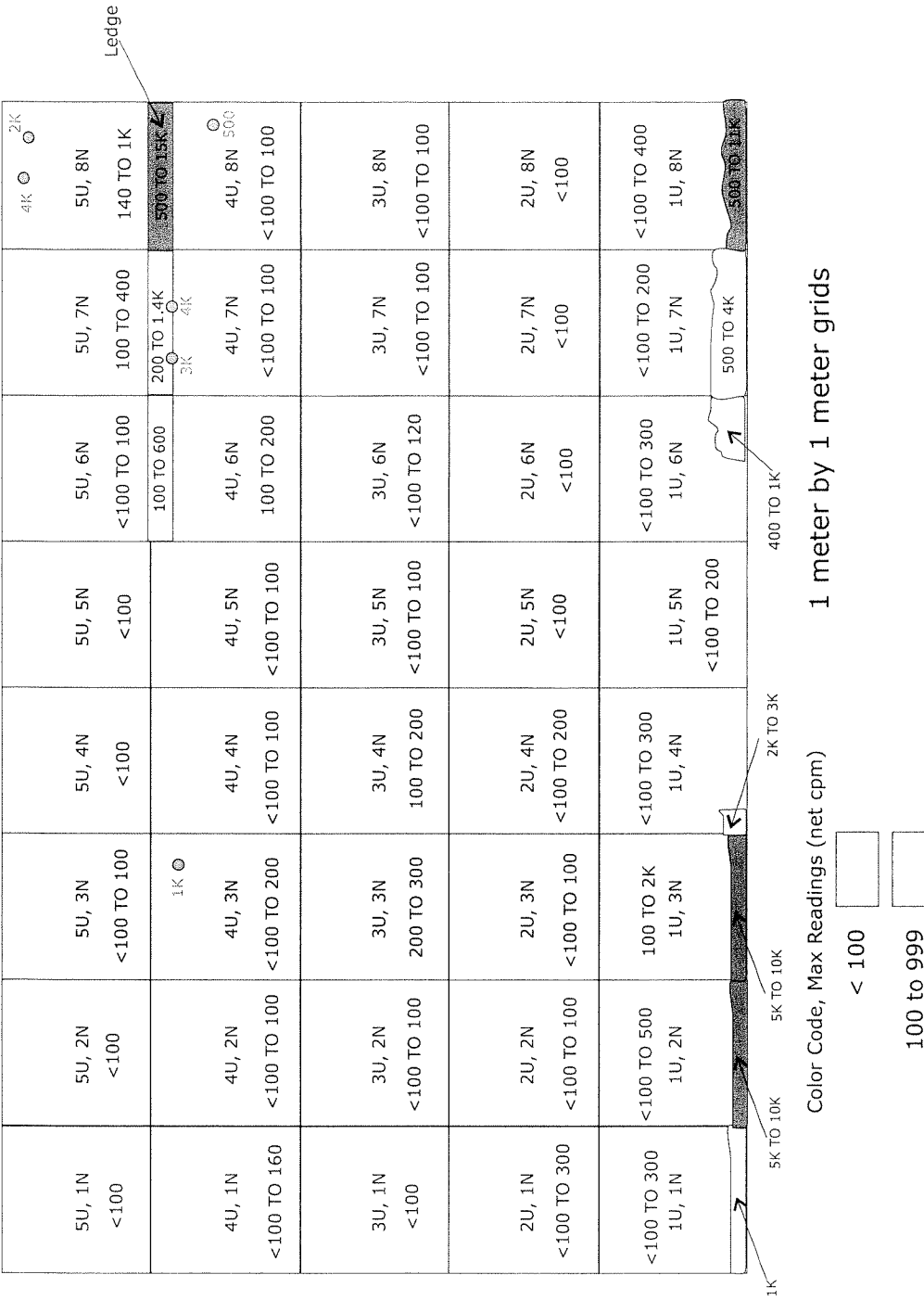
All scan readings in net cpm



1 meter by 1 meter grids

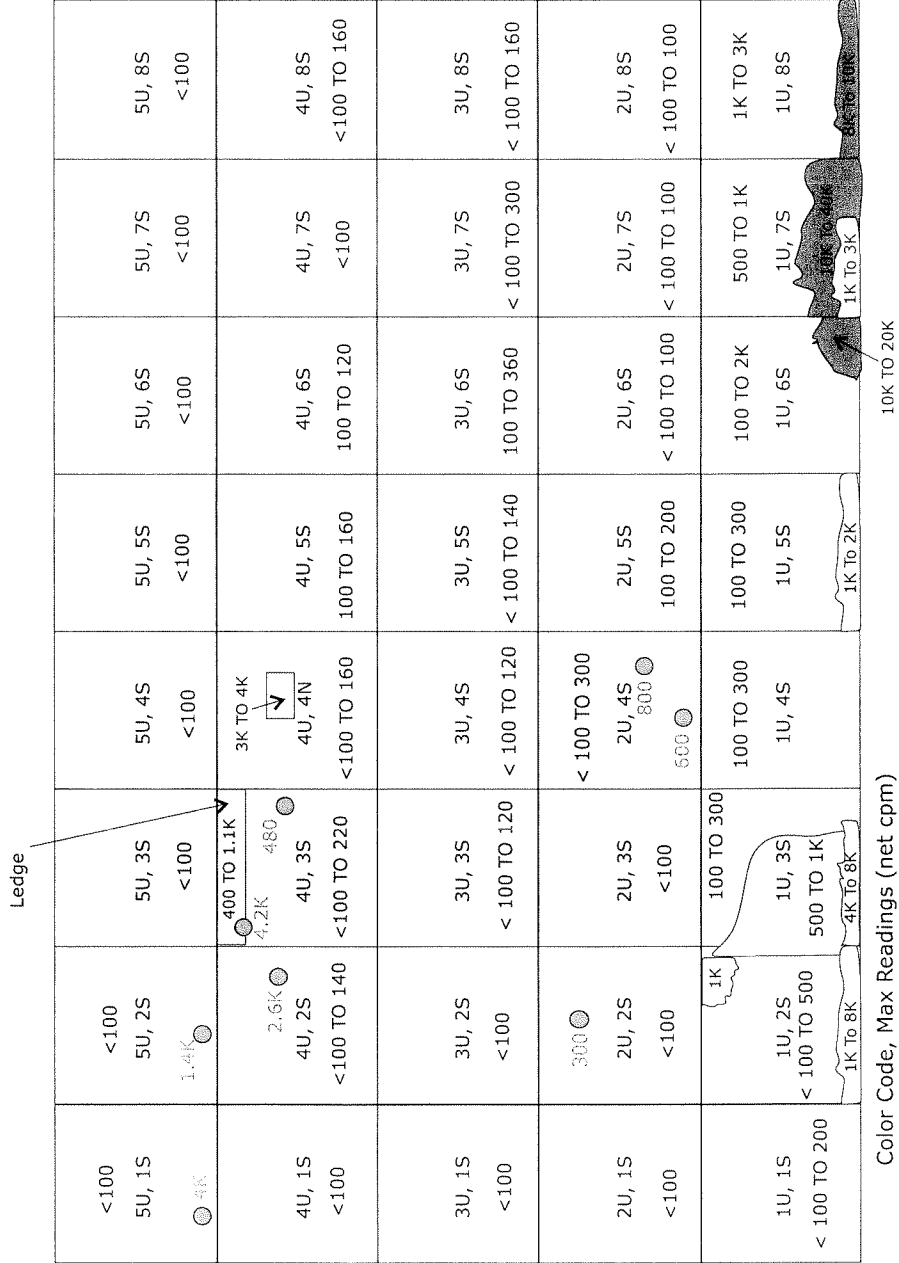
Page ____ of ____

Vault 3 West Wall Scan After Decon



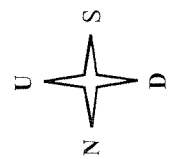
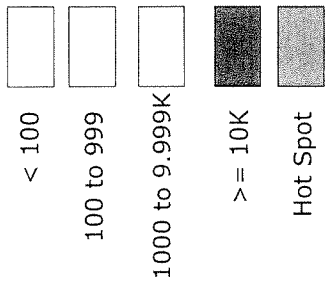
K = 1000
All scan readings in net cpm

Vault 3 East Wall Scan After Decon



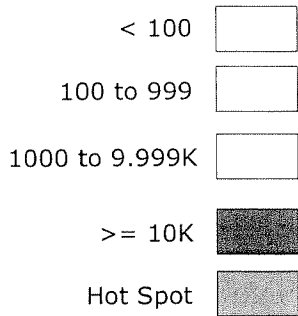
1 meter by 1 meter grids

K = 1000
All scan readings in net cpm

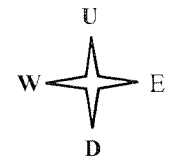
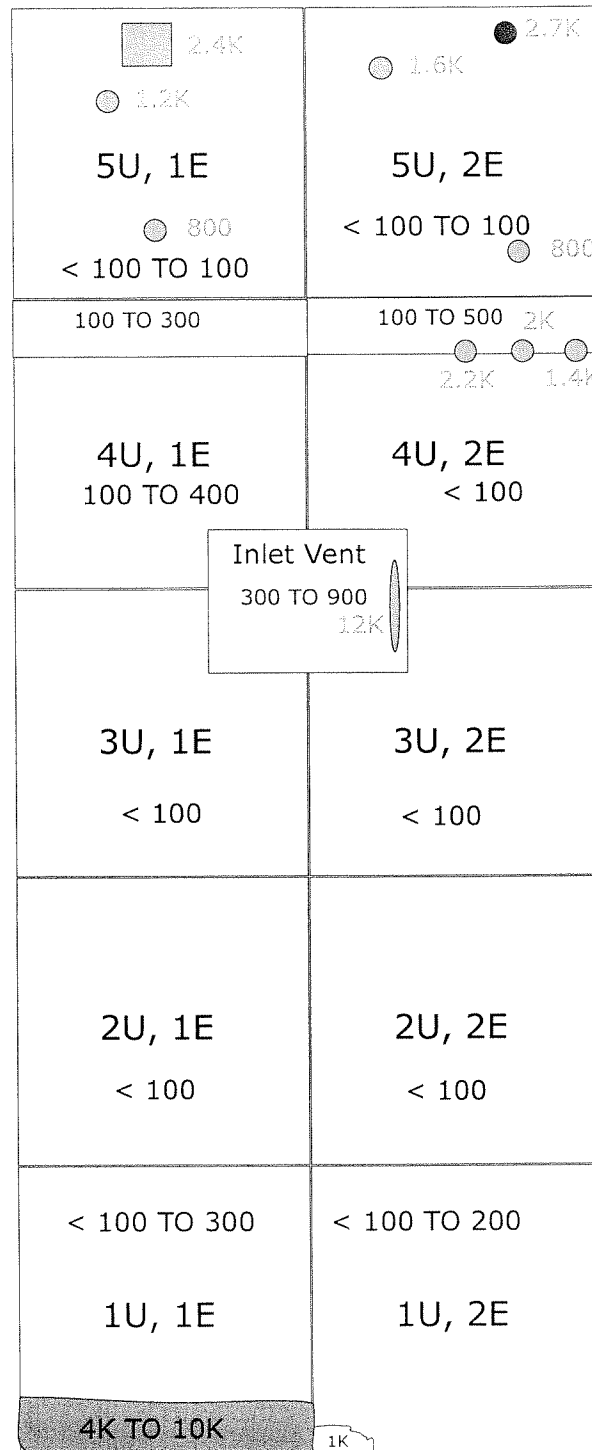


Vault 3 North Wall Scan After Decon

Color Code, Max Readings (net cpm)



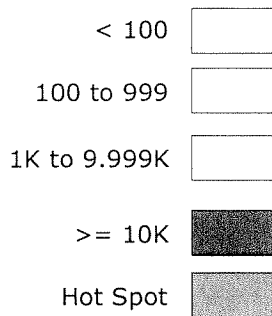
K = 1000
All scan readings in net cpm



1 meter by 1 meter grids

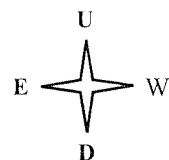
Vault 3 South Wall Scan After Decon

Color Code, Max Readings (net cpm)



K = 1000
All scan readings in net cpm

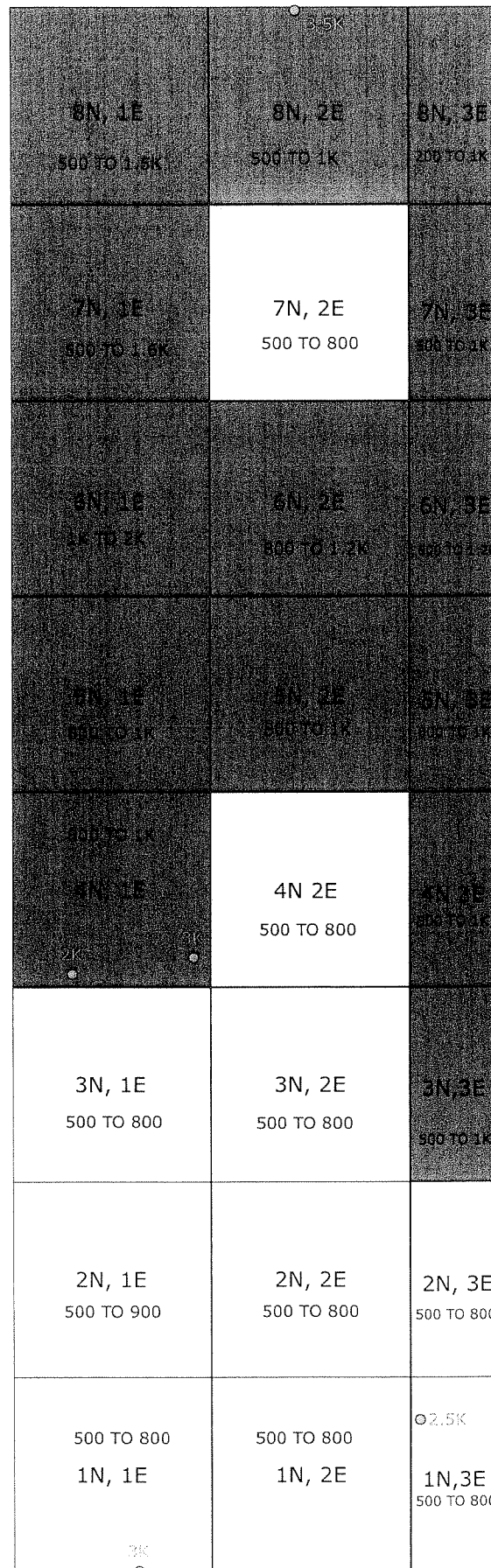
5U, 1W < 100	5U, 2W < 100
4U, 1W < 100	4U, 2W < 100
3U, 1W < 100 TO 140	3U, 2W < 100
2U, 1W 100 TO 200	2U, 2W 100 TO 200
< 100 TO 300  1K 1U, 1W  2K 1K TO 5K	1U, 2W 200 TO 800



Vault 4 Floor Scan After Decon

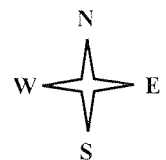
Color Code, Max Readings (net cpm)

< 100	
100 to 499	
500 to 999	
>= 1000	
Hot Spot	



1 meter by 1 meter grids
(except for remnants).

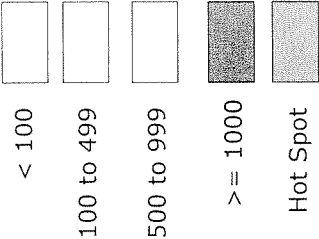
K = 1000
All scan readings in net cpm



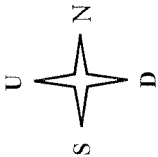
Vault 4 West Wall Scan After Decon

8U, 1N <100	8U, 2N <100	8U, 3N <100	8U, 4N <100	8U, 5N <100	8U, 6N <100	8U, 7N <100	8U, 8N <100
7U, 1N <100	<100 7U, 2N 700 1K	7U, 3N <100	7U, 4N <100	<100 7U, 5N 1.7K	7U, 6N <100	7U, 7N <100 TO 120	7U, 8N <100
6U, 1N <100	450 4.8K 6U, 2N <100	2.8K 2.4K 6U, 3N 2.2K <100 TO 100	4.8K 6U, 4N <100	6U, 5N <100	6U, 6N <100	6U, 7N <100	6U, 8N <100
5U, 1N <100	<100 5U, 2N 900	4.8K 5U, 3N <100	5U, 4N <100	5U, 5N <100	5U, 6N <100	5U, 7N <100	5U, 8N <100
4U, 1N <100	4U, 2N <100	4U, 3N <100	4U, 4N <100	4U, 5N <100	4U, 6N <100	4U, 7N <100	4U, 8N <100
3U, 1N <100	3U, 2N <100	3U, 3N <100	1.8K 1.9K 3U, 4N <100 1K	3U, 5N <100	3U, 6N <100	<100 3U, 7N 2.3K 2.4K	3U, 8N <100
2U, 1N <100	2U, 2N <100	2U, 3N <100	2U, 4N <100	2U, 5N <100	<100 2U, 6N	<100 TO 1K 2K 2U, 7N 3K	2U, 8N <100
<100	<100	3K 1U, 3N <100	<100 1U, 4N	1U, 5N <100	2.2K 1U, 6N <100 TO 140	1U, 7N <100 TO 800	1U, 8N <100 TO 100

Color Code, Max Readings (net cpm)



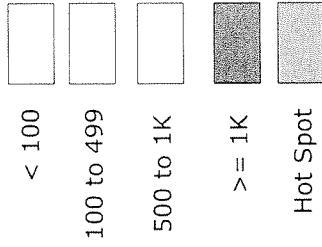
K = 1000
All scan readings in net cpm



1 meter by 1 meter grids

Vault 4 East Wall Scan After Decon

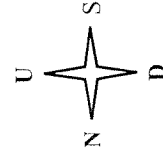
Color Code, Max Readings (net cpm)



K = 1000
All scan readings in net cpm

8U, 1S <100	8U, 2S <100	8U, 3S <100	8U, 4S <100	8U, 5S <100	8U, 6S <100	8U, 7S <100	8U, 8S <100
7U, 1S <100	7U, 2S <100	7U, 3S <100	7U, 4S <100	7U, 5S 1.8K	7U, 6S <100	7U, 7S <100	7U, 8S <100
6U, 1S <100	6U, 2S <100	6U, 3S <100	6U, 4S 1K	6U, 5S <100	6U, 6S <100	6U, 7S <100	6U, 8S <100
5U, 1S <100	5U, 2S 3.4K	5U, 3S 1K	5U, 4S <100	5U, 5S <100	5U, 6S <100	5U, 7S <100	5U, 8S <100
4U, 1S <100	4U, 2S <100	4U, 3S <100	4U, 4S 400	4U, 5S <100	4U, 6S <100	4U, 7S <100	4U, 8S <100
3U, 1S <100 TO 100	3U, 2S <100	3U, 3S <100	3U, 4S 4K	3U, 5S 1K	3U, 6S <100	3U, 7S <100	3U, 8S <100
2U, 1S 500	2U, 2S <100	2U, 3S <100	2U, 4S 900	2U, 5S <100	2U, 6S <100	2U, 7S <100	2U, 8S <100
1U, 1S 200	1U, 2S <100	1U, 3S <100	1U, 4S 4K	1U, 5S <100	1U, 6S <100	1U, 7S <100	1U, 8S 1K

1 meter by 1 meter grids

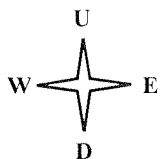


Vault 4 North Wall Scan After Decon

Color Code, Max Readings (net cpm)

< 100	
100 to 499	
500 to 999	
>= 1000	
Hot Spot	

K = 1000
All scan readings in net cpm



8U, 1E <100	8U, 2E <100	8U, 3E <100
7U, 1E <100	7U, 2E <100	7U, 3E <100
6U, 1E <100	6U, 2E <100	6U, 3E <100
5U, 1E <100	5U, 2E <100	5U, 3E <100
4U, 1E <100	4U, 2E <100 500 ●	4U, 3E <100
3U, 1E <100	3U, 2E <100	3U, 3E <100
2U, 1E <100	Outlet Vent 300 TO 900 20K 2K ● 2.5K ● 300 ● 300 ●	2U, 3E <100
<100 1U, 1E	1U, 2E <100	<100 1U, 3E

300 To 400

800 TO 2K

1 meter by 1 meter grids
(except for remnants).

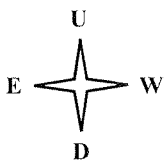
Vault 4 South Wall Scan After Decon

Color Code, Max Readings (net cpm)

< 100	
100 to 499	
500 to 999	
>= 1000	
Hot Spot	

K = 1000

All scan readings in net cpm



8U, 1W < 100	8U, 2W < 100	8U, 3W < 100
7U, 1W < 100	7U, 2W < 100	7U, 3W ● 600
< 100	6U, 2W ● 500	6U, 3W < 100
6U, 1W	Inlet Duct < 100 TO 100	< 100
5U, 1W < 100	5U, 2W < 100	5U, 3W < 100
4U, 1W < 100	4U, 2W < 100	4U, 3W < 100
3U, 1W < 100 TO 120	3U, 2W < 100	3U, 3W < 100
2U, 1W < 100	2U, 2W < 100	2U, 3W < 100
1U, 1W < 100	1U, 2W < 100	1U, 3W < 100

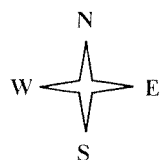
300 TO 800

1 meter by 1 meter grids
(except for remnants).

Vault 5 Floor Grid Key

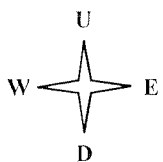
8N, 1E	8N, 2E	8N, 3E	8N, 4E
7N, 1E	7N, 2E	7N, 3E	7N, 4E
6N, 1E	6N, 2E	6N, 3E	6N, 4E
5N, 1E	5N, 2E	5N, 3E	5N, 4E
4N, 1E	4N, 2E	4N, 3E	4N, 4E
3N, 1E	3N, 2E	3N, 3E	3N, 4E
2N, 1E	2N, 2E	2N, 3E	2N, 4E
1N, 1E	1N, 2E	1N, 3E	1N, 4E

1 meter by 1 meter grids
(except for remnants).



Vault 5 North Wall Grid Key

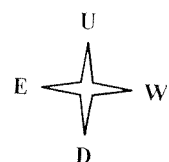
8U, 1E	8U, 2E	8U, 2E	8U, 2E
7U, 1E	7U, 2E	7U, 3E	7U, 4E
6U, 1E	6U, 2E	6U, 3E	6U, 4E
6U, 1E	6U, 2E	6U, 3E	6U, 4E
5U, 1E	5U, 2E	5U, 3E	5U, 4E
4U, 1E	4U, 2E	4U, 3E	4U, 4E
3U, 1E	3U, 2E	3U, 3E	3U, 4E
2U, 1E	2U, 2E	2U, 3E	2U, 4E
1U, 1E	1U, 2E	1U, 3E	1U, 4E



1 meter by 1 meter grids
(except for remnants).

Vault 5 South Wall Grid Key

8U, 1W	8U, 2W	8U, 3W	8U, 4W
7U, 1W	7U, 2W	7U, 3W	7U, 4W
6U, 1W	6U, 2W	6U, 3W	6U, 4W
6U, 1W	6U, 2W	6U, 3W	6U, 4W
5U, 1W	5U, 2W	5U, 3W	5U, 4W
4U, 1W	4U, 2W	4U, 3W	4U, 4W
X 3U, 1W	X 3U, 2W	X 3U, 3W	X 3U, 4W
X 2U, 1W	X 2U, 2W	X 2U, 3W	X 2U, 4W
X 1U, 1W	X 1U, 2W	X 1U, 3W	X 1U, 4W

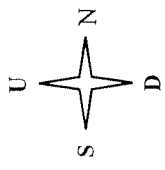


Vault 5 West Wall Grid Key

8U, 1N	8U, 2N	8U, 3N	8U, 4N	8U, 5N	8U, 6N	8U, 7N	8U, 8N
7U, 1N	7U, 2N	7U, 3N	7U, 4N	7U, 5N	7U, 6N	7U, 7N	7U, 8N
6U, 1N	6U, 2N	6U, 3N	6U, 4N	6U, 5N	6U, 6N	6U, 7N	6U, 8N
5U, 1N	5U, 2N	5U, 3N	5U, 4N	5U, 5N	5U, 6N	5U, 7N	5U, 8N
4U, 1N	4U, 2N	4U, 3N	4U, 4N	4U, 5N	4U, 6N	4U, 7N	4U, 8N
3U, 1N	3U, 2N	3U, 3N	3U, 4N	3U, 5N	3U, 6N	3U, 7N	3U, 8N
2U, 1N	2U, 2N	2U, 3N	2U, 4N	2U, 5N	2U, 6N	2U, 7N	2U, 8N
1U, 1N	1U, 2N	1U, 3N	1U, 4N	1U, 5N	1U, 6N	1U, 7N	1U, 8N

100-200

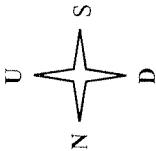
100-200



1 meter by 1 meter grids
(except for remnants).

Vault 5 East Wall Grid Key

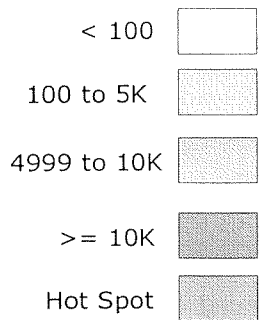
8U, 1S	8U, 2S	8U, 3S	8U, 4S	8U, 5S	8U, 6S	8U, 7S	8U, 8S
7U, 1S	7U, 2S	7U, 3S	7U, 4S	7U, 5S	7U, 6S	7U, 7S	7U, 8S
6U, 1S	6U, 2S	6U, 3S	6U, 4S	6U, 5S	6U, 6S	6U, 7S	6U, 8S
5U, 1S	5U, 2S	5U, 3S	5U, 4S	5U, 5S	5U, 6S	5U, 7S	5U, 8S
4U, 1S	4U, 2S	4U, 3S	4U, 4S	4U, 5S	4U, 6S	4U, 7S	4U, 8S
3U, 1S	3U, 2S	3U, 3S	3U, 4S	3U, 5S	3U, 6S	3U, 7S	3U, 8S
2U, 1S	2U, 2S	2U, 3S	2U, 4S	2U, 5S	2U, 6S	2U, 7S	2U, 8S
1U, 1S	1U, 2S	1U, 3S	1U, 4S	1U, 5S	1U, 6S	1U, 7S	1U, 8S



1 meter by 1 meter grids
(except for remnants).

Vault 6 Floor After Decon Survey

Color Code, Max Readings (net cpm)

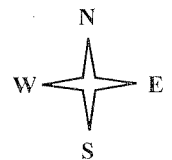
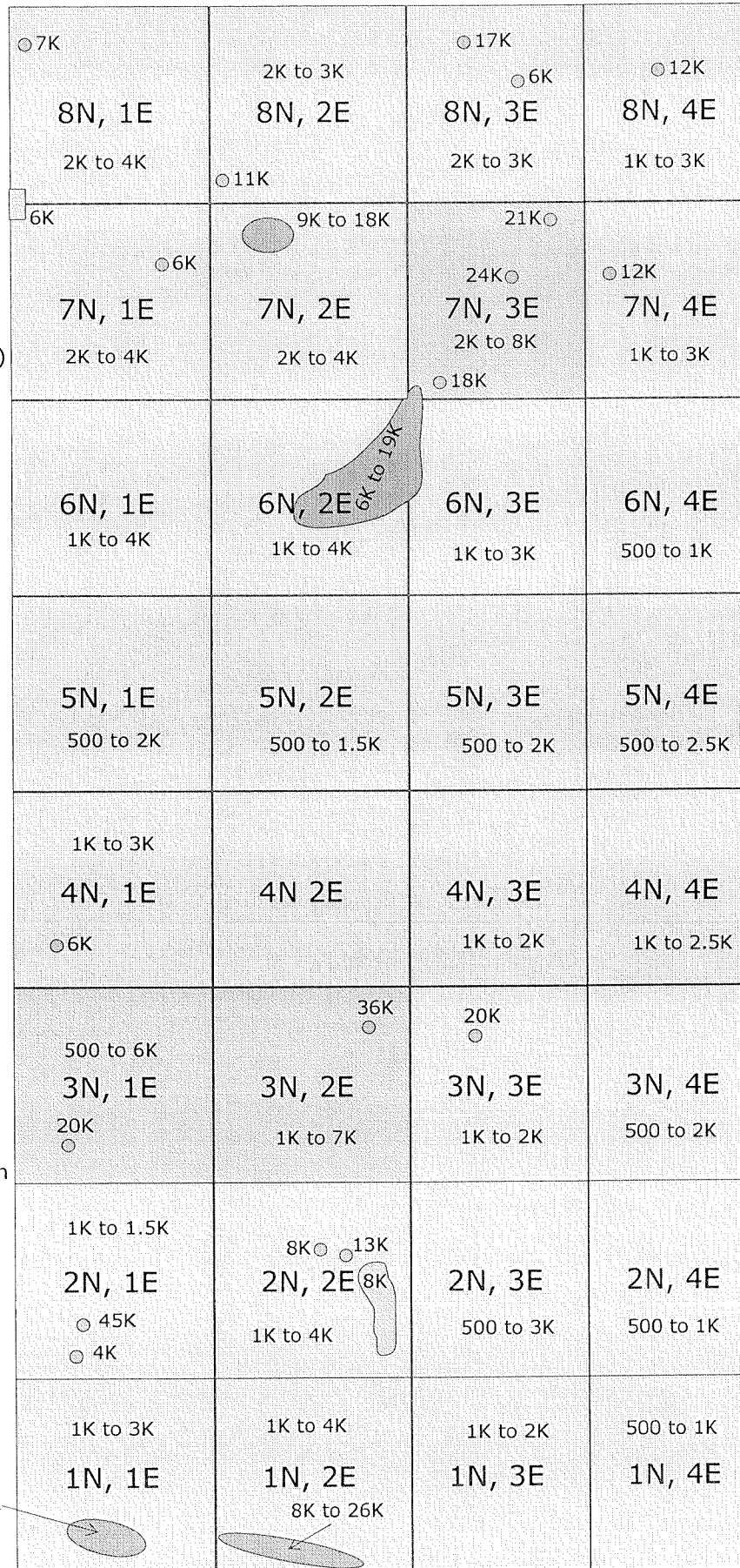


1 meter by 1 meter grids
(except for remnants).

K = 1000

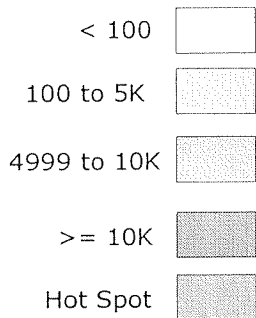
All scan readings in net cpm

All alpha readings were < 200 cpm



Vault 6 Floor Initial Scan Survey

Color Code, Max Readings (net cpm)

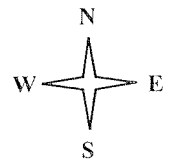
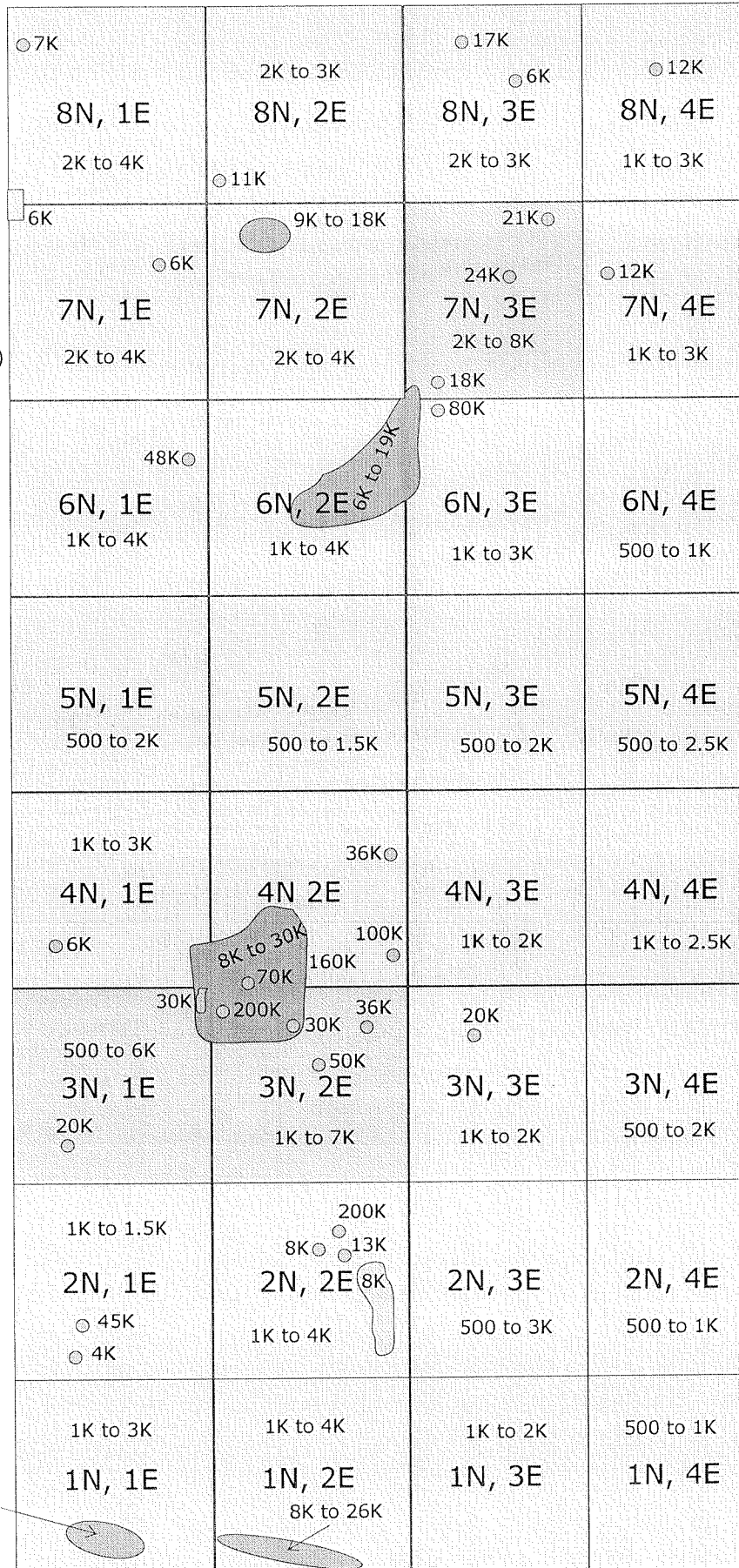


1 meter by 1 meter grids
(except for remnants).

K = 1000

All scan readings in net cpm

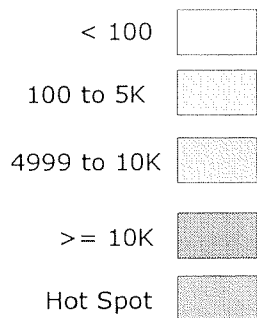
5K to 36K



Vault 6 North Wall Initial and Final Survey

8U, 1E < 100	8U, 2E < 100	8U, 2E < 100	8U, 2E < 100
< 100 7U, 1E	< 100 7U, 2E ● 500	< 100 7U, 3E ● 100 to 600	< 100 7U, 4E
6U, 1E < 100	6U, 2E < 100 ● 900	6U, 3E < 100	6U, 4E < 100
5U, 1E < 100	5U, 2E < 100	5U, 3E < 100	5U, 4E < 100
4U, 1E < 100	4U, 2E < 100	4U, 3E < 100	4U, 4E < 100
3U, 1E < 100	< 100 3U, 2E	< 100 3U, 3E 300 100 to 200	< 100 3U, 4E
2U, 1E < 100	2U, 2E < 100 VENT < 100 to 400	2U, 3E < 100	2U, 4E < 100
< 100 1U, 1E	< 100 1U, 2E	< 100 1U, 3E	< 100 1U, 4E
1K	1K to 2K	1K to 2K	1K

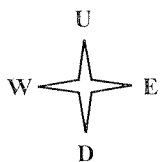
Color Code, Max Readings (net cpm)



1 meter by 1 meter grids
(except for remnants).

K = 1000

All scan readings in net cpm
All alpha readings < 200 cpm



1 meter by 1 meter grids
(except for remnants).

Vault 6 South Wall Initial and Final Survey

8U, 1W < 100	8U, 2W < 100	8U, 3W < 100	8U, 4W < 100
7U, 1W < 100	7U, 2W < 100	7U, 3W < 100	7U, 4W < 100
< 100 6U, 1W	6U, 2W < 100	6U, 3W < 100	< 100 6U, 4W
	< 100 to 200 Outlet Duct		
5U, 1W < 100	5U, 2W < 100	5U, 3W < 100	5U, 4W < 100
4U, 1W < 100	4U, 2W < 100	4U, 3W < 100	4U, 4W < 100
3U, 1W < 100	3U, 2W < 100	3U, 3W < 100	3U, 4W < 100
2U, 1W < 100	2U, 2W < 100	2U, 3W < 100	2U, 4W < 100
< 100 1U, 1W	< 100 1U, 2W	< 100 1U, 3W	< 100 1U, 4W
1K to 2K			

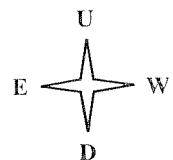
Color Code, Max Readings (net cpm)

< 100	
100 to 5K	
4999 to 10K	
>= 10K	
Hot Spot	

1 meter by 1 meter grids
(except for remnants).

K = 1000

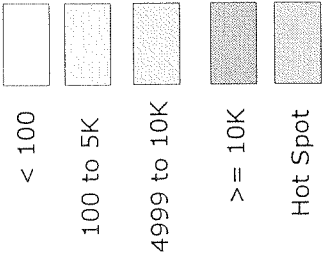
All scan readings in net cpm
All alpha readings < 200 cpm



1 meter by 1 meter grids
(except for remnants).

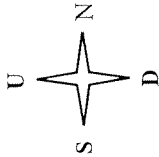
Vault 6 West Wall Initial and Final Survey

Color Code, Max Readings (net cpm)



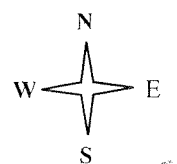
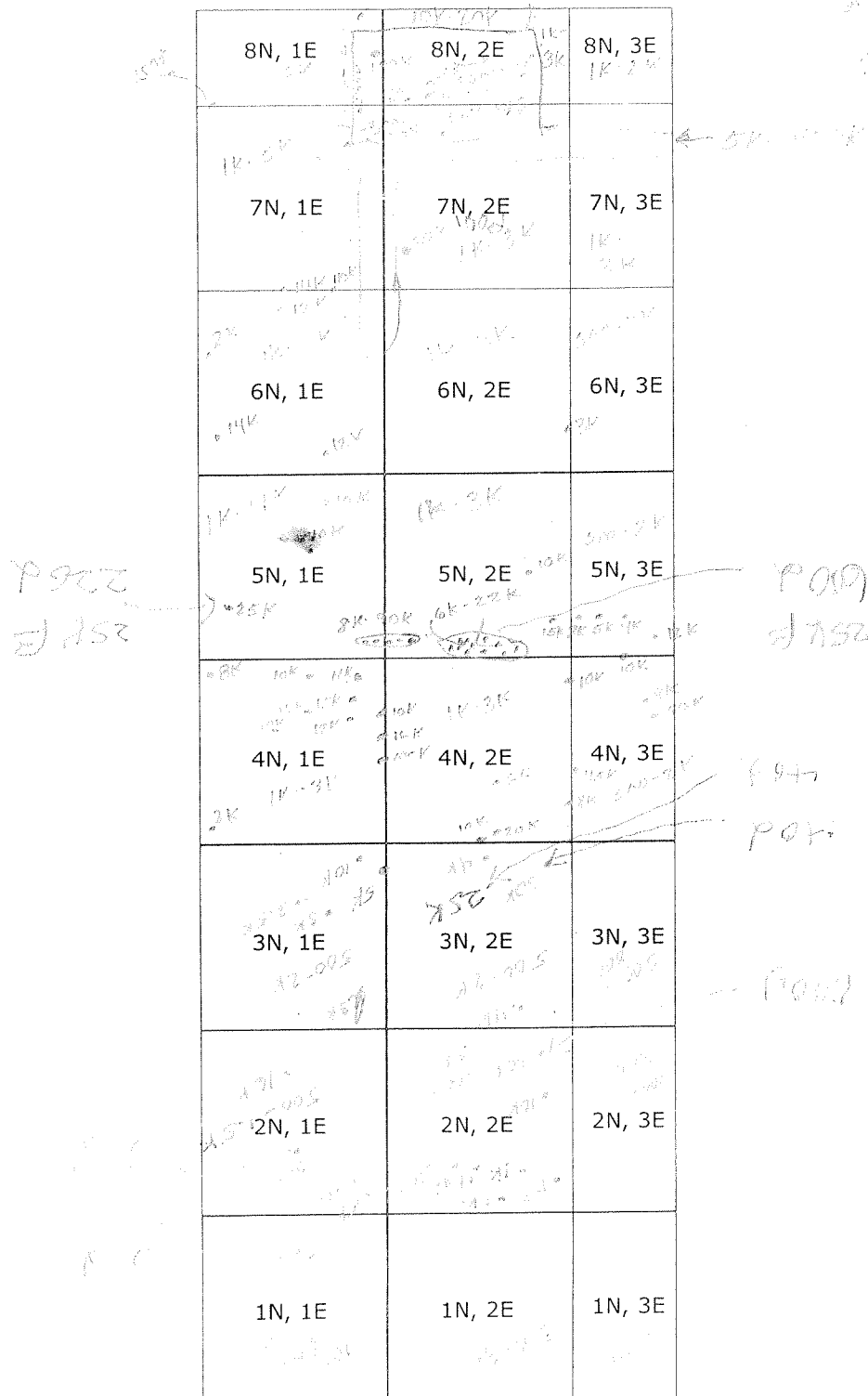
K = 1000
All scan readings in net cpm
All alpha readings < 200 cpm

8U, 1N < 100	8U, 2N < 100	8U, 3N < 100	8U, 4N < 100	8U, 5N < 100	8U, 6N < 100	8U, 7N < 100	8U, 8N < 100
< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
7U, 1N < 300	7U, 2N	7U, 3N	7U, 4N	7U, 5N	7U, 6N	7U, 7N	7U, 8N 2K 460 3.4K
							3.4K
6U, 1N < 100	6U, 2N < 100	6U, 3N < 100	6U, 4N < 100	6U, 5N < 100	6U, 6N < 100	6U, 7N < 100	6U, 8N < 100
5U, 1N < 100	5U, 2N < 100	5U, 3N < 100	5U, 4N < 100	5U, 5N < 100	5U, 6N < 100	5U, 7N < 100	5U, 8N < 100
4U, 1N < 100	4U, 2N < 100	4U, 3N < 100	4U, 4N < 100	4U, 5N < 100	4U, 6N < 100	4U, 7N < 100	4U, 8N < 100
100 to 300 3U, 1N < 100	900 3U, 2N < 100	3U, 3N < 100	3U, 4N < 100	3U, 5N < 100	3U, 6N < 100	3U, 7N < 100	3U, 8N < 100
2U, 1N < 100	2U, 2N < 100	2U, 3N < 100	2U, 4N < 100	2U, 5N < 100	2U, 6N < 100	2U, 7N < 100	2U, 8N < 100
< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
1U, 1N	1U, 2N	1U, 3N	1U, 4N	1U, 5N	1U, 6N	1U, 7N	1U, 8N



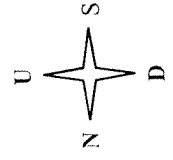
1 meter by 1 meter grids
(except for remnants).

Vault 7 Floor Grid Key



Vault 7 East Wall Grid Key

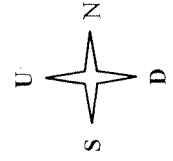
5U, 1S	5U, 2S	5U, 3S	5U, 4S	5U, 5S	5U, 6S	5U, 7S	5U, 8S
4U, 1S	4U, 2S	4U, 3S	4U, 4S	4U, 5S	4U, 6S	4U, 7S	4U, 8S
3U, 1S	3U, 2S	3U, 3S	3U, 4S	3U, 5S	3U, 6S	3U, 7S	3U, 8S
2U, 1S	2U, 2S	2U, 3S	2U, 4S	2U, 5S	2U, 6S	2U, 7S	2U, 8S
1U, 1S	1U, 2S	1U, 3S	1U, 4S	1U, 5S	1U, 6S	1U, 7S	1U, 8S



1 meter by 1 meter grids

Vault 7 West Wall Grid Key

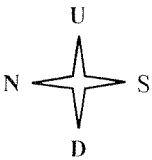
5U, 1N 2100	5U, 2N 2100	5U, 3N 2100	5U, 4N 2100	5U, 5N 2100	5U, 6N 2100	5U, 7N 2100	5U, 8N 2100
4U, 1N 2100	4U, 2N 2100-2000 500	4U, 3N 2100-2000 500	4U, 4N 2100-2000 500	4U, 5N 2100-2000 500	4U, 6N 2100-2000 500	4U, 7N 2100-2000 500	4U, 8N 2100-2000 500
3U, 1N 2100	3U, 2N 2100	3U, 3N 2100-1000 500	3U, 4N 2100-1000 500	3U, 5N 2100-1000 500	3U, 6N 2100-1000 500	3U, 7N 2100-1000 500	3U, 8N 2100-1000 500
2U, 1N 2100	2U, 2N 2100	2U, 3N 2100	2U, 4N 2100	2U, 5N 2100	2U, 6N 2100	2U, 7N 2100	2U, 8N 2100
1U, 1N 2100	1U, 2N 2100	1U, 3N 2100	1U, 4N 2100	1U, 5N 2100	1U, 6N 2100	1U, 7N 2100	1U, 8N 2100



1 meter by 1 meter grids

Vault 7 North Wall Grid Key

<i>< 100</i> 5U, 1E	<i>< 100</i> 5U, 2E	<i>< 100</i> 5U, 3E
<i>< 100</i> 4U, 1E	<i>< 100</i> 4U, 2E	<i>< 100</i> 4U, 3E
<i>< 100</i> 3U, 1E	<i>< 100</i> 3U, 2E	<i>< 100</i> 3U, 3E
<i>< 100</i> 2U, 1E	<i>< 100 - 100</i> 2U, 2E	<i>< 100 - 100</i> 2U, 3E
<i>< 100 - 300</i> 1U, 1E	<i>< 100 - 200</i> 1U, 2E	<i>< 100 - 200</i> 1U, 3E



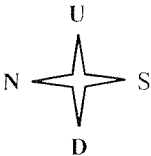
1 meter by 1 meter grids

Vault 7 South Wall Grid Key

<i><100</i> 5U, 1W	<i><100</i> 5U, 2W	<i><100</i> 5U, 3W
<i><100</i> 4U, 1W	<i><100</i> 4U, 2W	<i><100</i> 4U, 3W
<i><100</i> 3U, 1W	<i><100</i> 3U, 2W <i>100-300</i> <i><100</i>	<i><100</i> 3U, 3W
2U, 1W	<i><100</i> 2U, 2W	2U, 3W
<i><100</i> 1U, 1W	<i><100</i> 1U, 2W	<i><100</i> 1U, 3W

1 meter by 1 meter grids

1 meter by 1 meter grids



[illegible]

North Wall	Floor	South Wall	Ceiling
16	1	1	1
15	2	2	2
14	3	3	3
13	4	4	4
12	5	5	5
11	6	6	6
10	7	7	7
9	8	8	8
8	9	9	9
7	10	10	10
6	11	11	11
5	12	12	12
4	13	13	13
3	14	14	14
2	15	15	15
1	16	16	16

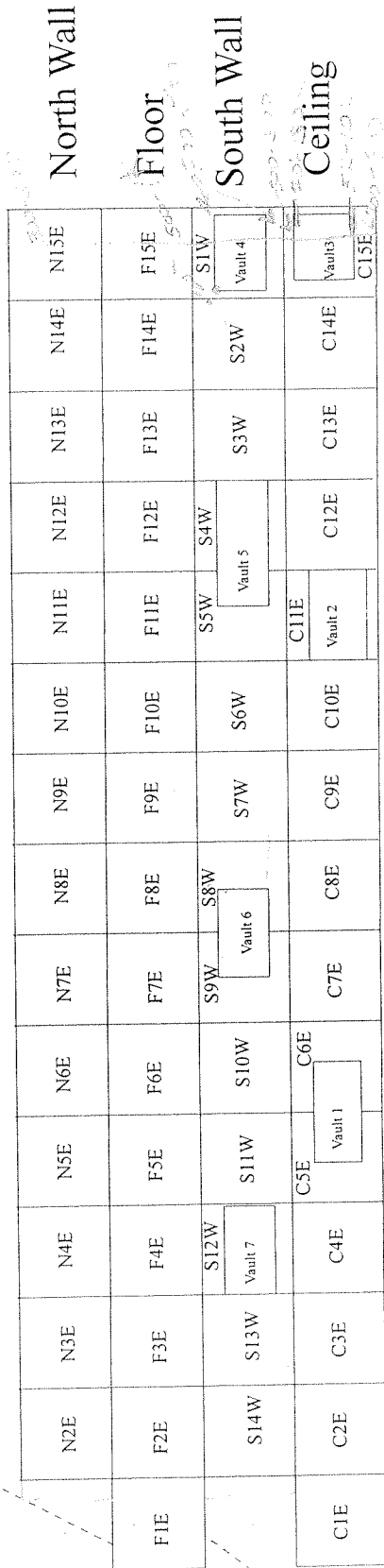
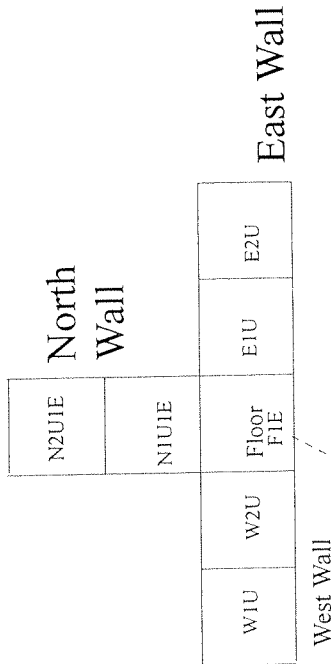
2001

102-25

2500-1K

Smith Wall

T022 Exhaust Tunnel



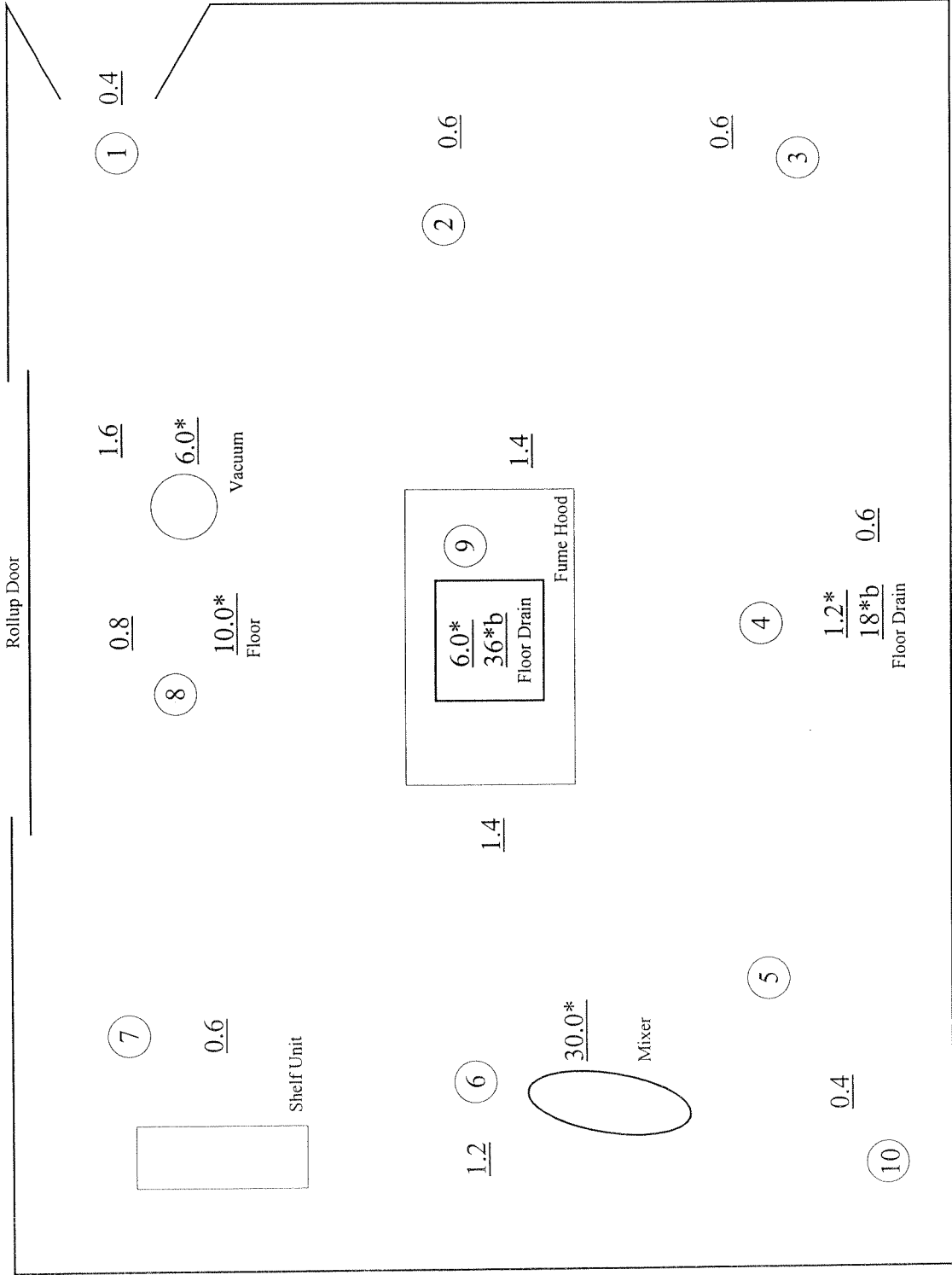
1 Meter



Building 4021

FORM 732-A REV 10-2005

RMHF T021 PACKAGE ROOM SURVEY DIAGRAM



= Smear Locations
= Dose Rate mR/ hr
#b = Beta Dose Rate mrad/ hr
#* = Contact Dose Rate

DATE 3/9/2007
NAME Ray McGinnis
TENNELEC NR007137
INSTRUMENT Ludlum 9 # 236214 CDD 5/22/2007

Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	< 20	150
2		230
3		900
4		690
5		310
6		150
7		960
8		< 100
9		590
10		200
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		

Sample Report

Batch ID:	Smears 1 Minute Count - 200703091058	Count Date:	3/9/2007 10:58:37AM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	462	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	Package Room

Background (cpm)

Alpha Rate: 0.15 ± 0.07
Beta Rate: 3.65 ± 0.35

Efficiency (%)

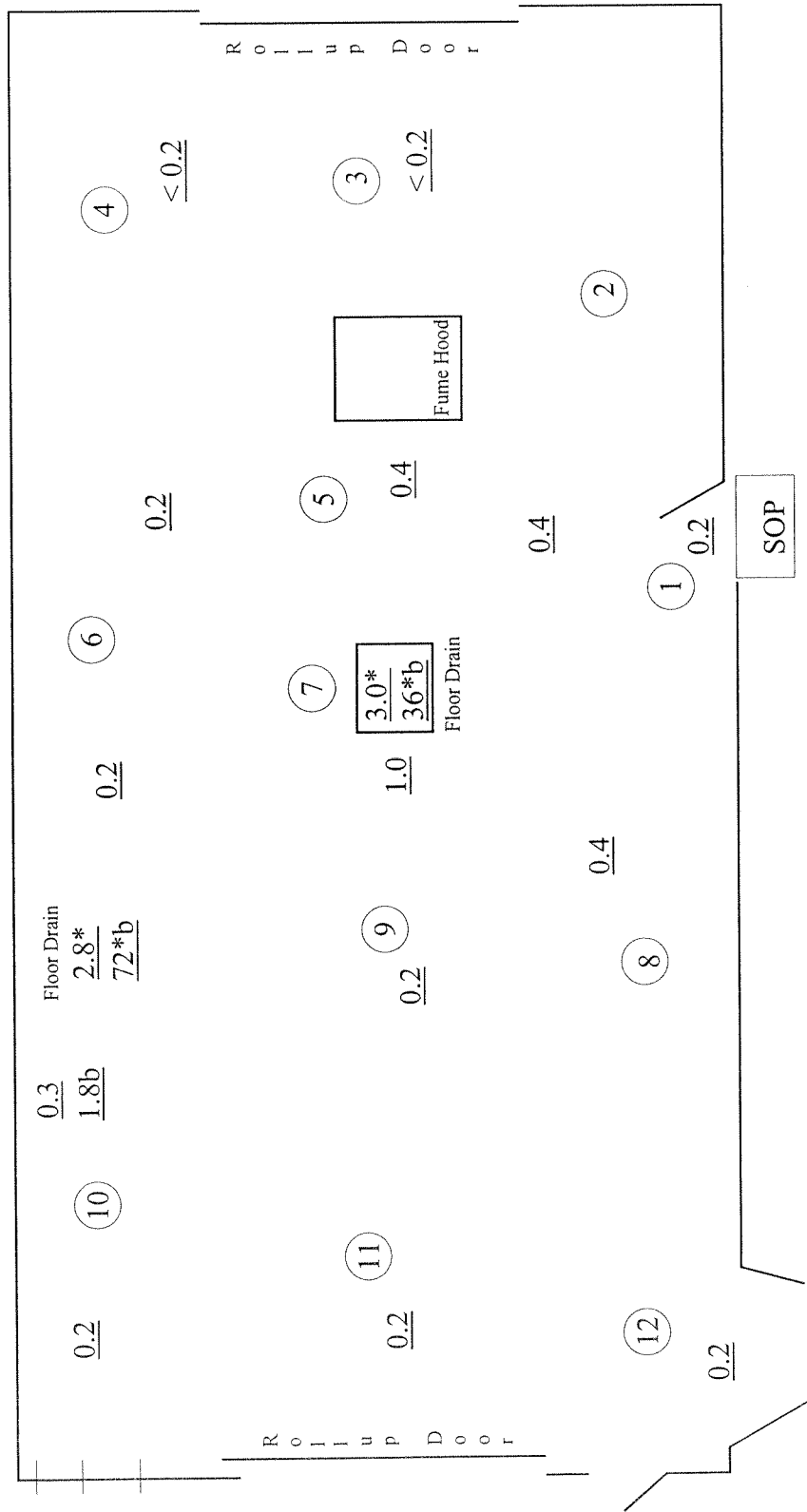
Alpha: 32.68 ± 0.97
Beta: 38.99 ± 0.99

<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20070309105837-A1	Unknown	2.60	3.07	13.00	149.66	20.57	24.00
20070309110007-A2	Unknown	5.66	4.34	13.00	226.61	25.28	24.00
20070309110117-A3	Unknown	5.66	4.34	13.00	906.31	53.62	24.00
20070309110228-A4	Unknown	-0.46	0.22	13.00	690.86	45.85	24.00
20070309110347-A5	Unknown	2.60	3.07	13.00	308.69	29.62	24.00
20070309110458-A6	Unknown	-0.46	0.22	13.00	149.66	20.57	24.00
20070309110608-A7	Unknown	-0.46	0.22	13.00	960.18	55.47	24.00
20070309110718-A8	Unknown	2.60	3.07	13.00	88.10	15.99	24.00
20070309110837-A9	Unknown	-0.46	0.22	13.00	593.39	42.10	24.00
20070309110948-A10	Unknown	-0.46	0.22	13.00	198.40	23.64	24.00

FORM 732-A REV 10-2005

RMHF T021 DECON ROOM SURVEY DIAGRAM

Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	< 20	220
2		< 100
3		160
4		< 100
5		< 100
6		230
7		250
8		< 100
9		
10		
11		
12	✓	✓
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		



DATE 3/9/2007
 NAME Ray McGinnis
 TENNELEC NR007137
 INSTRUMENT Ludlum 9 # 236214 CDD 5/22/2007

- # = Smear Locations
- # = Dose Rate mR/ hr
- #b = Beta Dose Rate mrad/ hr
- #* = Contact Dose Rate

Facility North

Sample Report

Batch ID:	Smears 1 Minute Count - 200703091038	Count Date:	3/9/2007 10:38:56AM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	461	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	Decon Room

Background (cpm)			Efficiency (%)		
Alpha Rate:	0.15	± 0.07	Alpha:	32.68	± 0.97
Beta Rate:	3.65	± 0.35	Beta:	38.99	± 0.99

Sample ID	Sample Type	Alpha (dpm)	Unc	Alpha MDA (dpm)	Beta (dpm)	Unc	Beta MDA (dpm)
20070309103856-A1	Unknown	2.60	3.07	13.00	224.05	25.13	24.00
20070309104027-A2	Unknown	-0.46	0.22	13.00	93.23	16.42	24.00
20070309104137-A3	Unknown	5.66	4.34	13.00	159.92	21.25	24.00
20070309104257-A4	Unknown	2.60	3.07	13.00	18.85	8.57	24.00
20070309104407-A5	Unknown	-0.46	0.22	13.00	65.02	13.94	24.00
20070309104517-A6	Unknown	2.60	3.07	13.00	231.74	25.57	24.00
20070309104627-A7	Unknown	5.66	4.34	13.00	254.82	26.83	24.00
20070309104747-A8	Unknown	-0.46	0.22	13.00	62.46	13.69	24.00
20070309104857-A9	Unknown	5.66	4.34	13.00	67.59	14.18	24.00
20070309105007-A10	Unknown	-0.46	0.22	13.00	41.94	11.56	24.00
20070309105117-A11	Unknown	2.60	3.07	13.00	21.42	8.95	24.00
20070309105237-A12	Unknown	-0.46	0.22	13.00	98.36	16.83	24.00



RADIATION SURVEY REPORT

[illegible]

Sample Report

Batch ID:	Smears 1 Minute Count - 200701150851	Count Date:	1/15/2007 8:51:49AM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	231	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	Decon Room Horizontals and Equipment

Background (cpm)			Efficiency (%)		
Alpha Rate:	0.15	± 0.07	Alpha:	32.95	± 0.98
Beta Rate:	3.90	± 0.57	Beta:	38.60	± 0.98

Sample ID	Sample Type	Alpha (dpm)	Unc	Alpha MDA (dpm)	Beta (dpm)	Unc	Beta MDA (dpm)
20070115085149-A1	Unknown	8.65	5.27	13.00	642.69	44.24	25.00
20070115085320-A2	Unknown	2.58	3.04	13.00	1160.79	62.43	25.00
20070115085440-A3	Unknown	2.58	3.04	13.00	834.39	51.33	25.00
20070115085550-A4	Unknown	8.65	5.27	13.00	689.32	46.02	25.00
20070115085700-A5	Unknown	2.58	3.04	13.00	684.14	45.83	25.00
20070115085810-A6	Unknown	39.00	11.01	13.00	3290.15	124.41	25.00
20070115085930-A7	Unknown	48.10	12.23	13.00	4720.09	162.82	25.00
20070115090040-A8	Unknown	23.82	8.62	13.00	3828.97	139.02	25.00
20070115090150-A9	Unknown	8.65	5.27	13.00	3686.49	135.18	25.00
20070115090310-A10	Unknown	20.79	8.06	13.00	2448.25	101.02	25.00
20070115090420-A11	Unknown	-0.46	0.22	13.00	430.28	35.52	25.00
20070115090530-A12	Unknown	5.61	4.30	13.00	3170.99	121.15	25.00
20070115090640-A13	Unknown	5.61	4.30	13.00	285.21	28.62	25.00
20070115090800-A14	Unknown	20.79	8.06	13.00	2134.80	92.06	25.00
20070115090910-A15	Unknown	5.61	4.30	13.00	1994.92	87.99	25.00
20070115091020-A16	Unknown	5.61	4.30	13.00	1282.54	66.36	25.00

RADIATION SURVEY REPORT

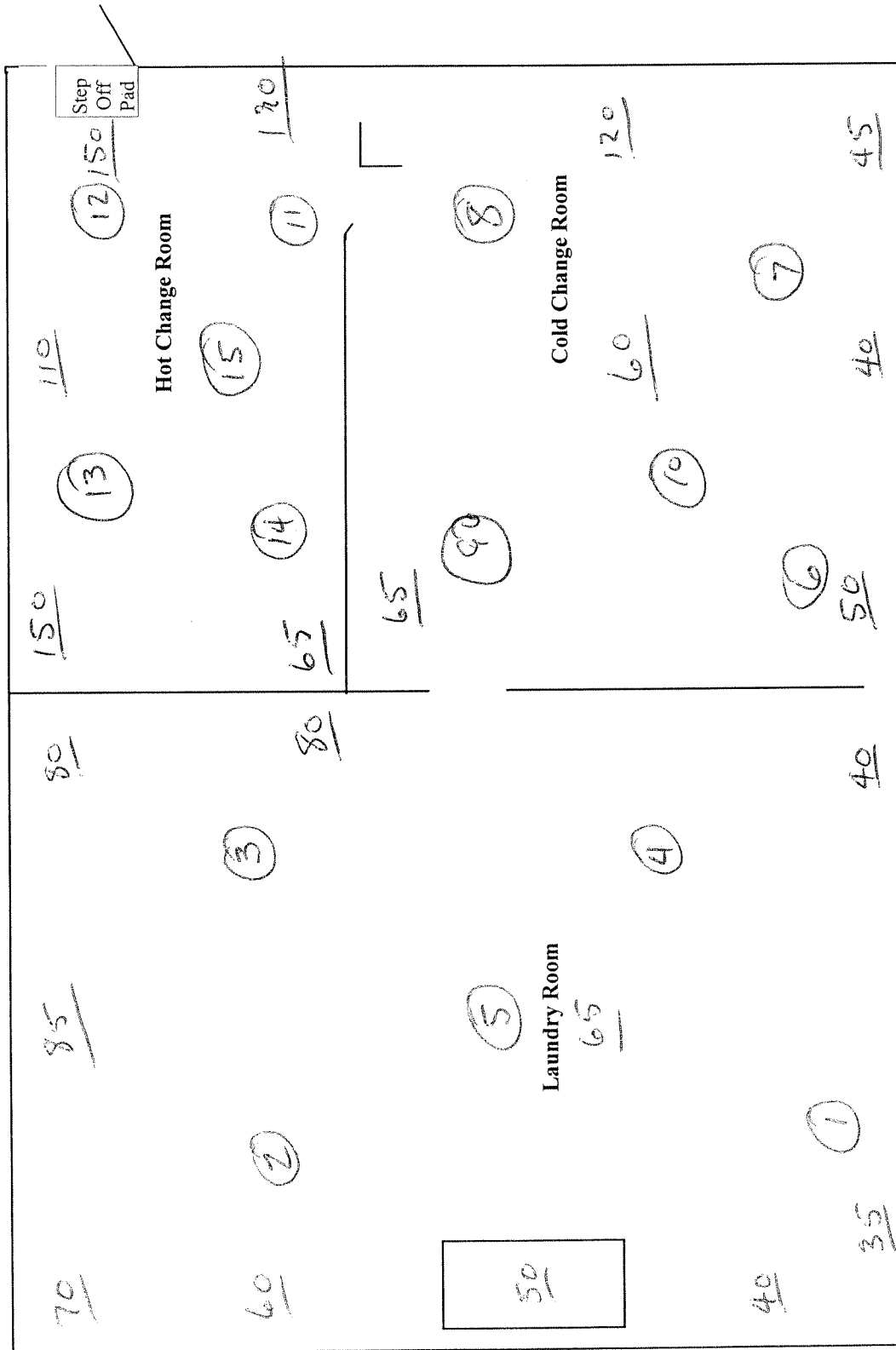
FACILITY: RMHF

LOCATION: 4021 Decon and Packaging Room

[illegible]

FORM 732-A REV 10-05

RMHF T021 LAUNDRY AND CHANGE ROOM SURVEY DIAGRAM



Smear Results		
#	dpm/100cm ² α	dpm/100cm ² β
1	220	2100
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
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DATE 3-15-07

NAME: D. Hickman

INSTRUMENT: BICRON EX041002
CAL. DUE 5-22-07

= Smear Locations
= Dose Rate in ___/hr

Sample Report

Batch ID:	Smears 1 Minute Count - 200703151226	Count Date:	3/15/2007 12:26:59PM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	493	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	Change room bldg 21

Background (cpm)	Efficiency (%)
Alpha Rate: 0.05 ± 0.07	Alpha: 33.07 ± 0.99
Beta Rate: 3.25 ± 0.21	Beta: 38.84 ± 0.98

<u>Sample ID</u>	<u>Sample Type</u>	<u>Alpha</u> <u>(dpm)</u>	<u>Unc</u>	<u>Alpha MDA</u> <u>(dpm)</u>	<u>Beta</u> <u>(dpm)</u>	<u>Unc</u>	<u>Beta MDA</u> <u>(dpm)</u>
20070315122659-A1	Unknown	-0.15	0.21	11.00	7.08	6.33	24.00
20070315122829-A2	Unknown	-0.15	0.21	11.00	7.08	6.33	24.00
20070315122939-A4	Unknown	-0.15	0.21	11.00	7.08	6.33	24.00
20070315123050-A3	Unknown	-0.15	0.21	11.00	7.08	6.33	24.00
20070315123209-A5	Unknown	-0.15	0.21	11.00	4.51	5.78	24.00
20070315123320-A6	Unknown	-0.15	0.21	11.00	7.08	6.33	24.00
20070315123430-A7	Unknown	-0.15	0.21	11.00	4.51	5.78	24.00
20070315123540-A8	Unknown	-0.15	0.21	11.00	14.80	7.75	24.00
20070315123700-A9	Unknown	5.90	4.29	11.00	-0.64	4.49	24.00
20070315123810-A10	Unknown	2.87	3.03	11.00	19.95	8.57	24.00
20070315123919-A11	Unknown	-0.15	0.21	11.00	4.51	5.78	24.00
20070315124029-A12	Unknown	-0.15	0.21	11.00	1.93	5.18	24.00
20070315124150-A13	Unknown	-0.15	0.21	11.00	35.40	10.67	24.00
20070315124259-A14	Unknown	-0.15	0.21	11.00	27.67	9.67	24.00
20070315124410-A15	Unknown	-0.15	0.21	11.00	25.10	9.32	24.00

Building 4021
Drain Tank Pit



LOCATION: Outside of 4021

FORM 732-A REV 10-2005



RADIATION SURVEY REPORT

[illegible]

Sample Report

Batch ID:	Smears 1 Minute Count - 200610130909	Count Date:	10/13/2006 9:09:21AM
Group:	A	Count Minutes:	1.00
Device:	RMHF Tennelec (NR 007137)	Count Mode:	Simultaneous
Batch Key:	362	Operating Volts:	1477
Selected	Swipe/Smear	Comments:	4021 RA Liquid Waste Drain Tank Pit

Background (cpm)

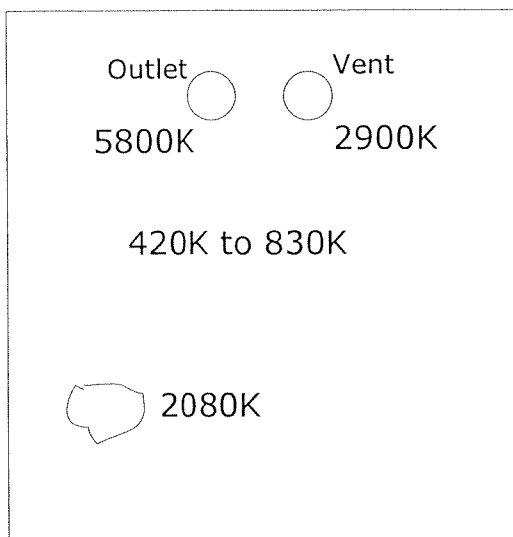
Alpha Rate: 0.10 ± 0.14
Beta Rate: 3.55 ± 0.49

Efficiency (%)

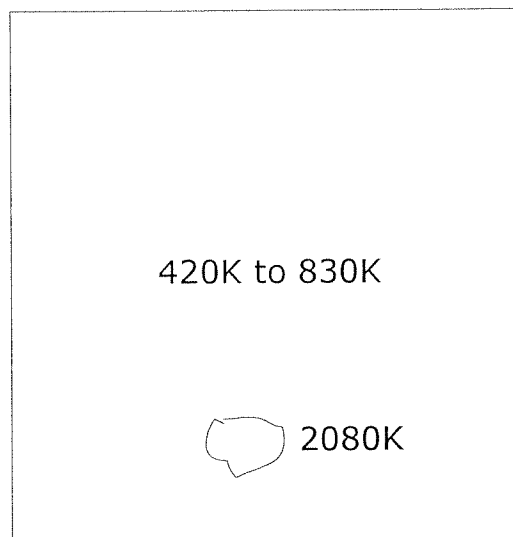
Alpha: 33.68 ± 1.00
Beta: 38.59 ± 0.98

Sample ID	Sample Type	Alpha (dpm)	Unc	Alpha MDA (dpm)	Beta (dpm)	Unc	Beta MDA (dpm)
20061013090921-A92	1 Unknown	-0.30	0.42	12.00	68.55	14.36	24.00
20061013091052-A94	2 Unknown	14.55	6.67	12.00	275.88	28.09	24.00
20061013091203-A37	3 Unknown	5.64	4.22	12.00	229.23	25.56	24.00
20061013091312-A20	4 Unknown	2.67	3.00	12.00	283.65	28.50	24.00
20061013091432-A71	5 Unknown	2.67	3.00	12.00	138.52	19.92	24.00
20061013091542-A13	6 Unknown	11.58	5.96	12.00	628.34	43.66	24.00
20061013091652-A83	7 Unknown	-0.30	0.42	12.00	348.44	31.72	24.00
20061013091802-A8	8 Unknown	5.64	4.22	12.00	571.32	41.41	24.00
20061013091922-A17	9 Unknown	2.67	3.00	12.00	363.99	32.46	24.00
20061013092032-A55	10 Unknown	5.64	4.22	12.00	200.72	23.91	24.00
20061013092142-A60	11 Unknown	8.61	5.17	12.00	174.80	22.32	24.00
20061013092253-A22	12 Unknown	-0.30	0.42	12.00	195.54	23.59	24.00
20061013092402-A15	13 Unknown	5.64	4.22	12.00	148.89	20.63	24.00
20061013092522-A9	14 Unknown	2.67	3.00	12.00	164.44	21.66	24.00
20061013092632-A11	15 Unknown	2.67	3.00	12.00	286.24	28.63	24.00
20061013092742-A88	16 Unknown	5.64	4.22	12.00	374.36	32.94	24.00
20061013092852-A7	17 Unknown	17.52	7.30	12.00	1374.72	69.26	24.00
20061013093012-A16	18 Unknown	-0.30	0.42	12.00	672.39	45.36	24.00
20061013093122-A63	19 Unknown	23.45	8.44	12.00	2489.11	102.18	24.00
20061013093232-A2	20 Unknown	14.55	6.67	12.00	941.92	55.08	24.00
20061013093343-A66	21 Unknown	29.39	9.44	12.00	7724.16	241.28	24.00
20061013093502-A6	22 Unknown	382.67	35.60	12.00	32243.37	865.33	24.00

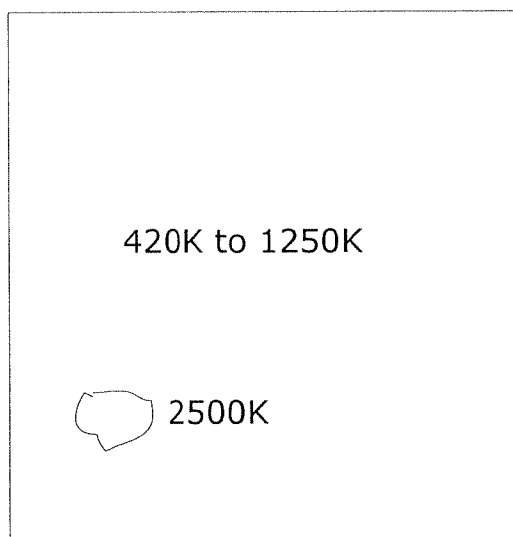
Beta Readings (net dpm/100cm²)



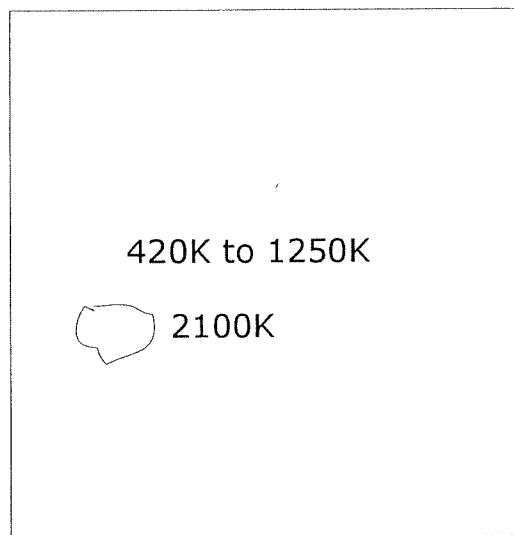
East Wall



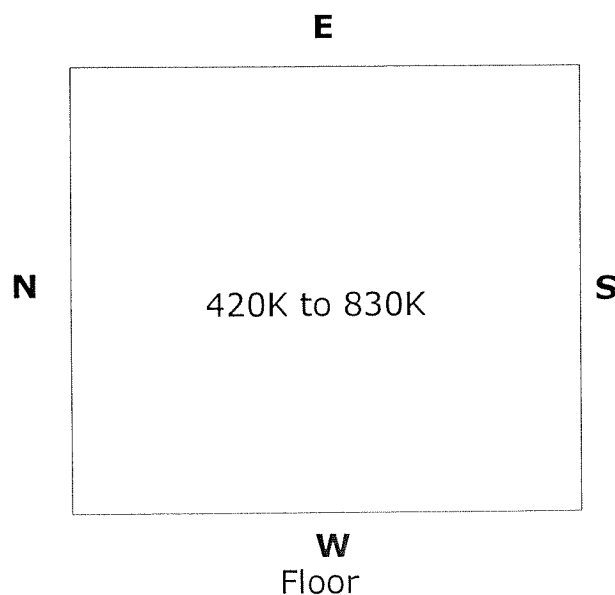
North Wall



West Wall

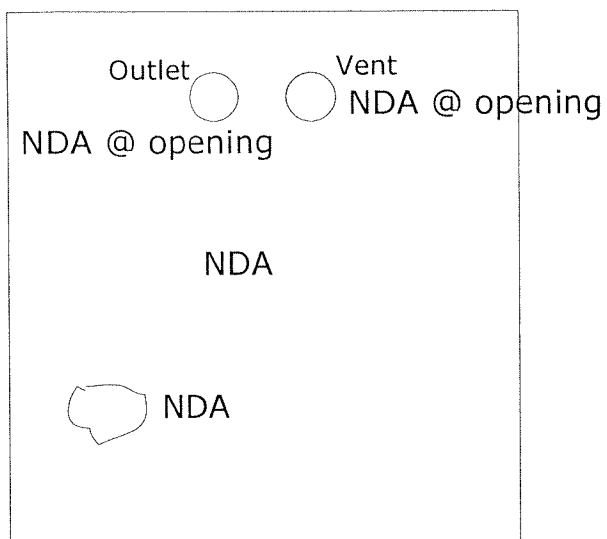


South Wall

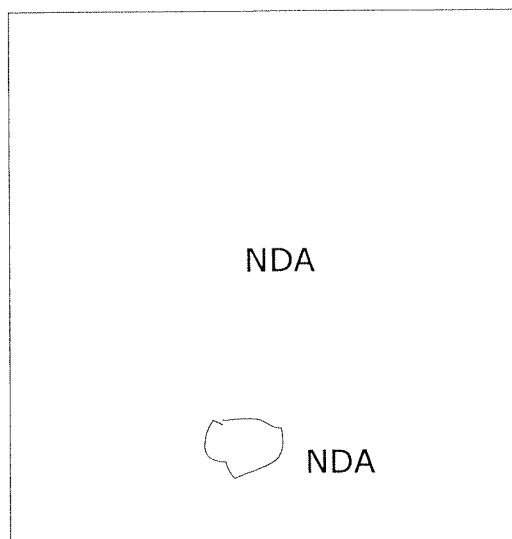


Floor

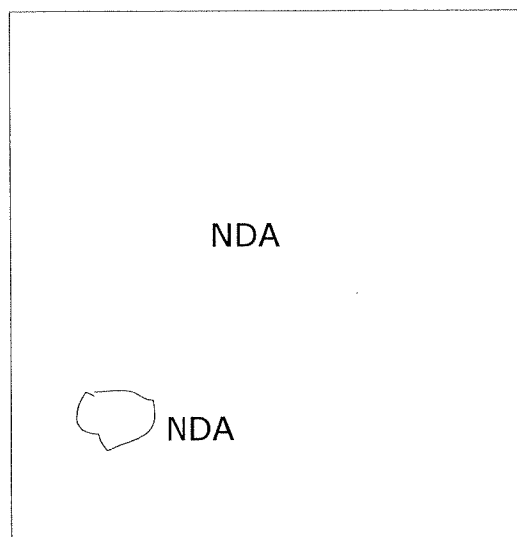
Alpha Readings (net dpm/100cm²)



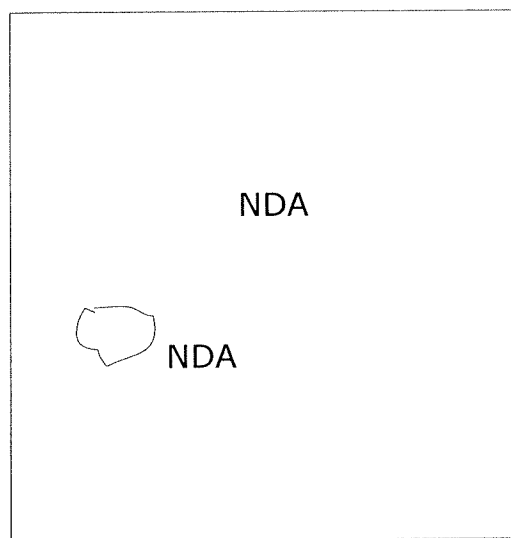
East Wall



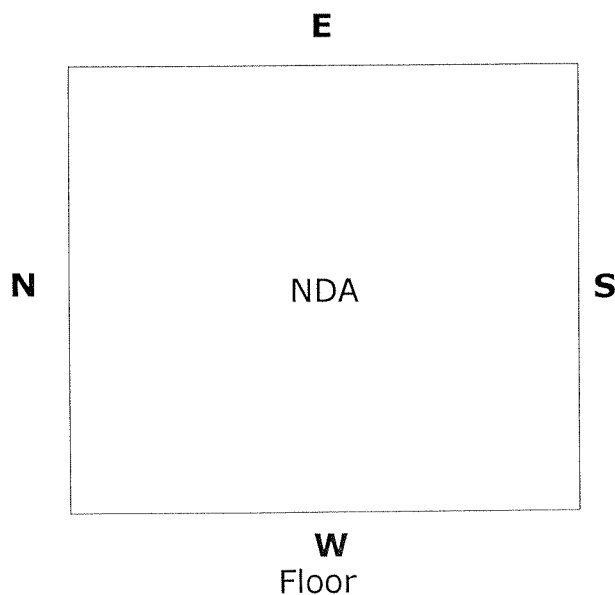
North Wall



West Wall

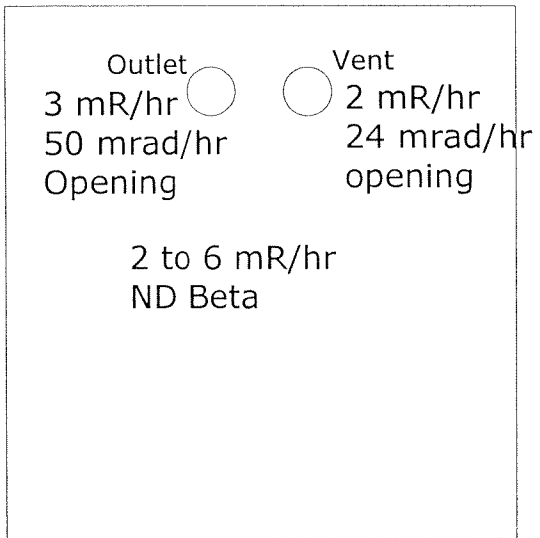


South Wall

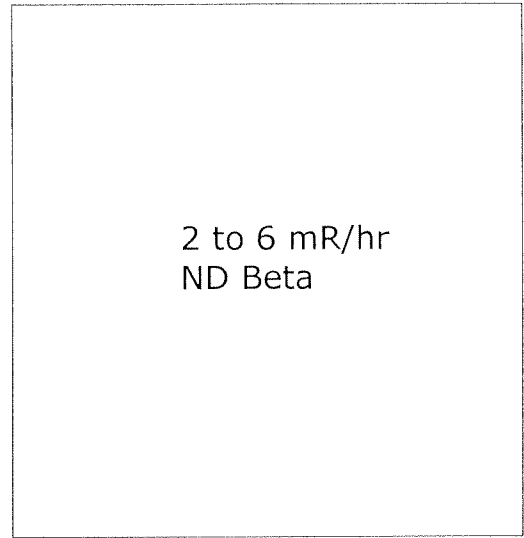


Floor

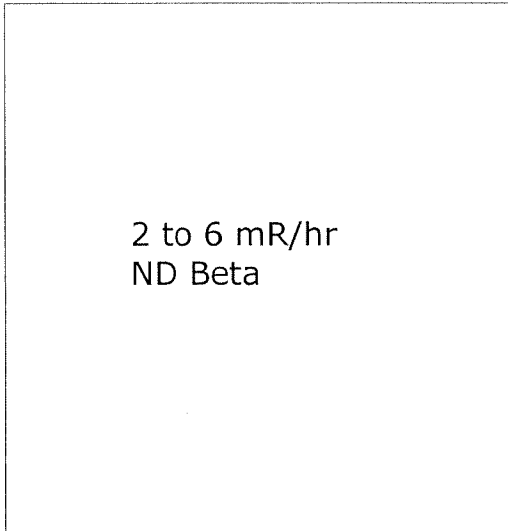
Dose-Rate Readings (mR/hr & mrad/hr)



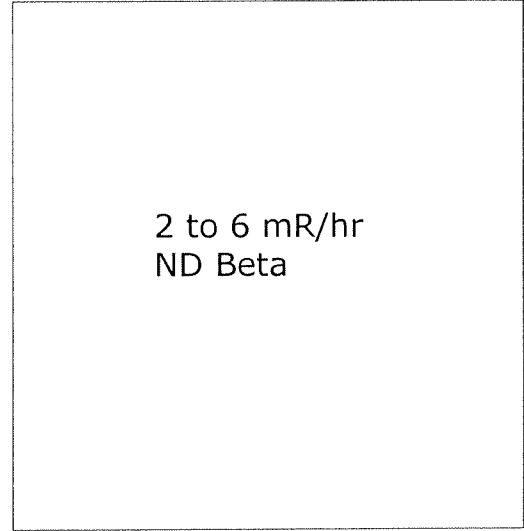
East Wall



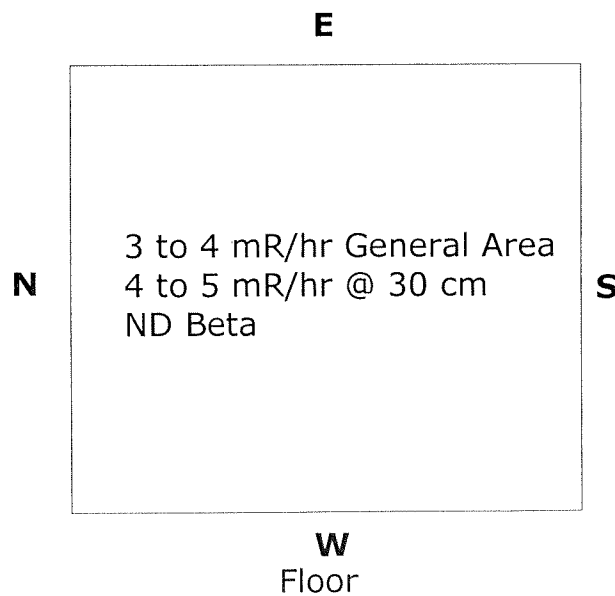
North Wall



West Wall



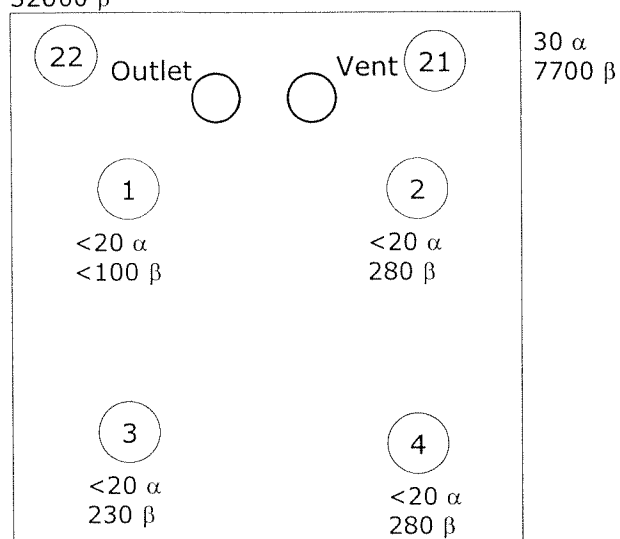
South Wall



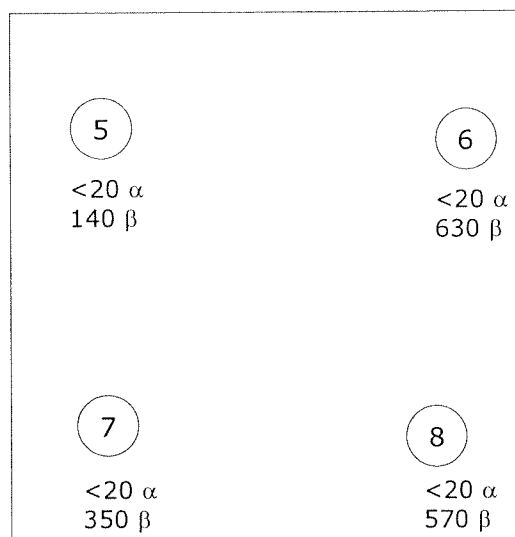
W
Floor

Removable Readings (dpm/100 cm²)

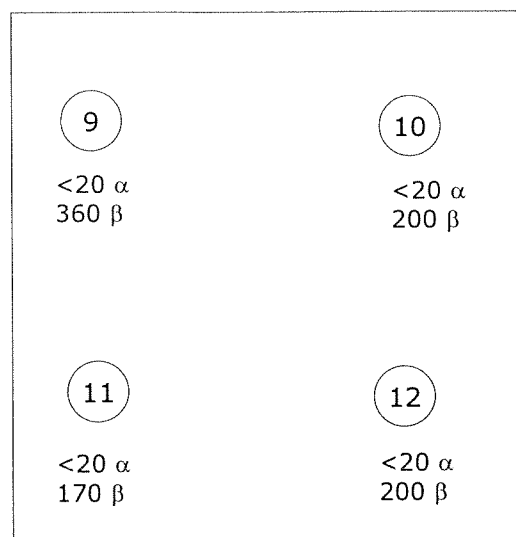
380 α
32000 β



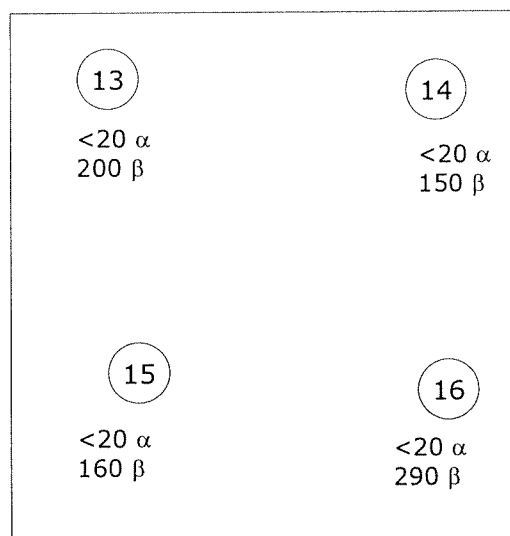
East Wall



North Wall



West Wall



South Wall

