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DEFENSE DISTRIBUTION CENTER
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NEW CUMBERLAND, PA 17070-5000

Q-9

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Mr. Steven Hammann
Commercial and R&D Branch
Division of Nuclear Materials Safety
Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, PA 19406-1415

Docket No. 030-33261
License No. 37-30062-01

Dear Mr. Hammann:

We are submitting the attached Final Status Survey for Building 108, located at our facility in Jacksonville, Florida. The US Navy, owner of the property, has requested that we turn the building back over to the Naval Air Station, Jacksonville for their use.

The attached survey reports did not indicate that there was residual contamination distinguishable from radiation measurements recorded in the reference area.

Please address any further questions or comments to myself or Mr. David Collins. We can be reached at (717) 770-4762/5623 or dave.mack@dla.mil and david.m.collins@dla.mil.

Sincerely,

David C. Mack
Radiation Safety Officer

Enclosure:
Final Status Survey for DDJF Building 108

144171

NPSC/RCM WATER.ALS-002

Final Status Survey Report
Defense Depot – Jacksonville, Florida
Warehouse 108 Bay 2

Background:

The Defense Distribution Depot – Jacksonville (DDJF) is a field activity of the Defense Logistics Agency's Defense Distribution Center headquartered in New Cumberland, Pennsylvania. The depot occupies a variety of buildings within the boundaries of both the Naval Air Station-Jacksonville, and Naval Station Mayport located in Jacksonville, Florida. The depot operates under a "Tenant" status meaning that the physical property belongs to the Navy Installations and is "leased" to DDJF. DDJF operates as an authorized use area under the Defense Distribution Center's Nuclear Regulatory Commission (NRC) License Number 37-30062-01. In complying with the recent Base Realignment and Closure (BRAC) requirements DDJF is actively evaluating space utilization and returning all excess building space back under the host control.

Building 108, Bay 2 has been used by DDJF as a receiving area for packaging and preservation for long-term storage. Receipt occurs in dock areas on the ground floor of Building 108, where packages containing radioactive material are identified, segregated, and staged prior to transfer to a secure area on the first floor of Building 175.

Building is a general warehouse measuring approximately 100' x 300' constructed of a concrete floor and brick walls. The bay used for radioactive material processing was located in the third bay from the north end of the building and measured approximately 40 x 100 feet. The typical radionuclides processed through this area were primarily alpha and beta emitting to include Cobalt-60, Cesium-137, Promethium-147, Thorium-232, and Americium-241 all contained in military commodities. No maintenance or demilitarization was conducted while under the control of DDJF.

Survey Methodology:

The final status survey was conducted using the Defense Distribution Center Radiological Health Implementation Procedure for Close-Out Surveys which is based on the MARSSIM Appendix B, Simplified Procedure for Certain Users of Sealed Sources, Short Half-Life Material and Small Quantities. Data evaluations were accomplished using Microsoft Excel spreadsheets as suggested in MARSSIM Appendix I.

The adjacent bay immediately to the north of the Radioactive Material Receiving Area was selected for the reference area. A grid overlay was developed using a grid size of approximately 1 meter square creating 429 sample locations in both the sample and reference area. A random number generator developed in Microsoft Excel was used to select 30 sample locations in both the reference and survey areas. Each select point was surveyed with a Ludlum Model 2360 Ratemeter/Scaler connected to a

Ludlum 43-1-1 126 cm² Alpha/Beta Scintillation Probe. An area approximately 1 meter square was scanned with the ratemeter/scaler prior to selecting a point within the grid for the static reading. The static measurement was collected using a 2 minute count time which resulted in a field MDA of 6.61 dpm/100 cm² and 43 dpm/100 cm² for alpha and beta detection respectively. Radiation Dose level measurements were also recorded in each of the sample locations using a Fluke Model 451P Pressurized Ionization Chamber.

Collected data was inputted into the DDC Radioactive Material Use Area Close-Out Spreadsheet and evaluated for compliance with release criteria. Initially the Mean Reference Area measurements are subtracted from the Mean Survey Area measurements and if a negative number is received it is assumed that the area is free from residual contamination distinguishable from the reference area measurements. Additionally the Sum of the Survey Area Ranks is evaluated against the established WRS Critical Value. If the Sum of the Ranks is less than the Critical Value it is assumed that the survey unit passes. Finally, each selected point in the Survey Unit also was evaluated for removable contamination using a dry wipe technique as the only radionuclides of concern were alpha and mid-range beta/gamma emitters. The wipes were analyzed using a Ludlum Model 3030 Alpha Beta Sample Counter for detectable alpha and beta contamination with a reported MDA of 4.1 dpm for alpha and 69.9 dpm for beta.

Survey Results:

A review of the static radiation measurements recorded in the reference and survey areas indicated that there was no detectable radiation distinguishable from the background measurements. The evaluations of the Mean Reference Area Measurements subtracted from the Mean Survey Area Measurement resulted in -0.45 and -34.6 for alpha and beta measurements respectively. Additionally the Sum of the Ranked Measurement from the Survey Unit (490 for the alpha and 465 for the beta) was less than the Critical Value of 949. Analysis of the wipe samples for removable contamination recorded the highest measurements of 3 dpm/100 cm² for alpha and 69 dpm/100 cm² for beta radiations all well below the established action levels for removable contamination.

Conclusion:

Based on the evaluation of the static radiation measurements, as well as samples taken for removable contamination, the survey area meets the criteria for release from radiological controls. It is recommended that all signs and controls be removed prior to releasing this area for use outside of the Radiological Health Program.

Facility Close-Out Survey, Defense Depot - Jacksonville, Florida, Building 108 Bay 2, 8 August 2009

Portable Radiation Detection Equipment Quality Control Worksheet

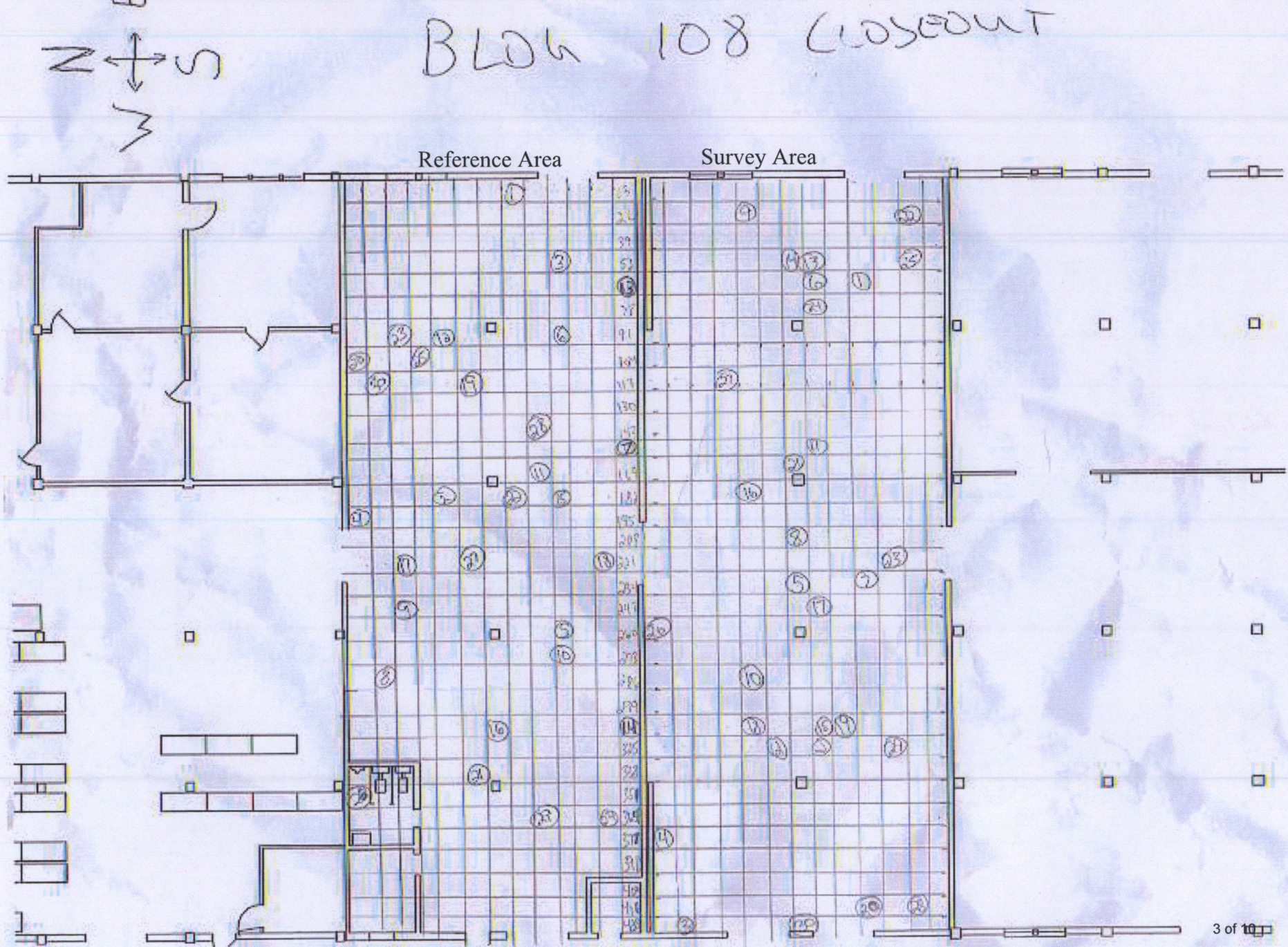
Counting Instrument:		Ludlum 2360	Detector:		Ludlum 43-1-1	Calibration Date:				3/27/2009				
Serial #:		215313	Serial #:		PR235233	12 month calibration:				OK				
Detector Active Area or Area Covered by Smear (cm ²):						126								
	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T _{1/2} (yr)	Source Decayed Activity	Required MDA (DPM/100cm ²)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source Sample Count Time	Control Chart bkg Average a/b cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average a/b cpm	Control Chart source 1 sigma, cpm
Alpha	0.2771	Th230	2167	7,850	9/11/1996	7.54E+04	7849.0945	15	10	2	0.09	0.07	2174.7	34.27
Beta	0.3288	Tc99	2165	10,700	9/16/1996	2.11E+05	10,700	250	10	2	43.22	1.56	3518.4	26.09

Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail		MDA α (dpm)	MDA β (dpm)	α MDA OK?	β MDA OK?	H.P. Technician	RPO Review
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta						
8/8/2009	1	401	4343	7106	0.1	40	2171.4	3512.9	PASS	PASS	PASS	PASS	6.61	43	Yes	Yes	ELB	ELB

Facility Close-Out Survey, Defense Depot - Jacksonville, Florida, Building 108 Bay 2, 8 August 2009
 Portable Radiation Detection Equipment Quality Control Worksheet (cont)

Initial Background and Source Counts for Control Chart								
#	Initial bkg counts				Initial source plus bkg counts			
	Alpha	cpm	Beta	cpm	Alpha	cpm	Beta	cpm
1	2	0.2	451	45.1	4376	2188	7038	3519
2	1	0.1	423	42.3	4396	2198	7128	3564
3	0	0	429	42.9	4319	2159.5	7072	3536
4	1	0.1	425	42.5	4298	2149	7210	3605
5	0	0	423	42.3	4310	2155	7126	3563
6	1	0.1	452	45.2	4318	2159	7165	3582.5
7	2	0.2	458	45.8	4384	2192	7071	3535.5
8	1	0.1	423	42.3	4507	2253.5	7125	3562.5
9	0	0	427	42.7	4316	2158	7123	3561.5
10	1	0.1	411	41.1	4271	2135.5	7174	3587
Mean		0.09		43.2		2174.8		3561.6
S _(n-1)		0.07		1.56		34.27		26.09
-3 sigma		-0.13		38.53		2071.94		3483.34
+3 sigma		0.31		47.91		2277.56		3639.86
-2 sigma		-0.06		40.09		2106.21		3509.42
+2 sigma		0.24		46.35		2243.29		3613.78
					Mean-bkg	2174.7		3518.4
					S _(n-1)	34.27		26.09
				Mean-bkg	-3 sigma	2071.85		3440.12
				Mean-bkg	+3 sigma	2277.47		3596.64
				Mean-bkg	-2 sigma	2106.12		3466.20
				Mean-bkg	+2 sigma	2243.20		3570.56
						2187.8		3473.9
						2197.9		3521.7
						2159.5		3493.1
						2148.9		3562.5
						2155		3520.7
						2158.9		3537.3
						2191.8		3489.7
						2253.4		3520.2
						2158		3518.8
						2135.4		3545.9
Chi-Square Acceptable Values			2.18	17.5				
Alpha Chi-Square=	9.72			PASS				
Beta Chi-Square =	3.44			PASS				

Graphic Representation of Reference and Survey Unit



Random Number Generator for Reference Area

**Random Number Generator
for Sample Selection**

Instruction: Determine the size of your survey/reference area (width x length)
 Size should be calculated either in yards or meters (whole numbers only)
 Input the dimensions into the data slots below and hit enter
 The generator will identify 60 random numbers between 1 and the total number of
 Select the first 30 unique (not duplicated) numbers for your sample grids

Once you have entered the Width and Length press the F9 key

Width of Area

Length of Area

Total Number of Available Grids

Note: if the total number of grids is ≤ 30 each grid will be sampled

RANDOM GRID SELECTOR

1	8	21	110	41	324
2	174	22	92	42	7
3	49	23	331	43	101
4	183	24	177	44	414
5	257	25	8	45	42
6	88	26	81	46	33
7	156	27	363	47	12
8	275	28	95	48	211
9	8	29	339	49	209
10	237	30	215	50	194
11	270	31	139	51	57
12	165	32	360	52	80
13	83	33	106	53	261
14	65	34	118	54	347
15	312	35	246	55	30
16	179	36	19	56	322
17	156	37	329	57	284
18	306	38	77	58	36
19	212	39	117	59	209
20	220	40	391	60	87

**Random Number Generator
 for Sample Selection**

**Instruction: Determine the size of your survey/reference area (width x length)
 Size should be calculated either in yards or meters (whole numbers only)
 Input the dimensions into the data slots below and hit enter
 The generator will identify 60 random numbers between 1 and the total number of
 Select the first 30 unique (not duplicated) numbers for your sample grids**

*****Once you have entered the Width and Length press the F9 key*****

Width of Area

Length of Area

Total Number of Available Grids

Note: if the total number of grids is ≤ 30 each grid will be sampled

RANDOM GRID SELECTOR

1	61	21	413	41	284
2	322	22	163	42	356
3	418	23	25	43	396
4	365	24	219	44	226
5	228	25	72	45	295
6	59	26	50	46	243
7	231	27	248	47	418
8	202	28	108	48	365
9	18	29	415	49	305
10	278	30	323	50	369
11	151	31	423	51	93
12	18	32	119	52	94
13	320	33	167	53	183
14	46	34	180	54	325
15	45	35	107	55	154
16	307	36	72	56	356
17	172	37	240	57	286
18	242	38	328	58	415
19	304	39	33	59	357
20	308	40	425	60	341

Facility Close-Out Survey, Defense Depot - Jacksonville, Florida, Building 108 Bay 2, 8 August 2009

Alpha & uR/hr Data sheet

	Data	Area	Adjusted Data	Ranks	Sorted Ranks	Rank Location	uR/hr
1	4.0	R	4.0	60.0	7	60	4
2	0.0	R	0.0	33.0	7	33	4
3	0.0	R	0.0	33.0	7	33	4
4	1.0	R	1.0	41.5	7	41.5	4
5	3.0	R	3.0	57.5	7	57.5	4
6	2.0	R	2.0	50.5	7	50.5	4
7	2.0	R	2.0	50.5	7	50.5	4
8	1.0	R	1.0	41.5	7	41.5	4
9	1.0	R	1.0	41.5	7	41.5	4
10	1.0	R	1.0	41.5	7	41.5	4
11	0.0	R	0.0	33.0	7	33	4
12	2.0	R	2.0	50.5	7	50.5	4
13	3.0	R	3.0	57.5	7	57.5	4
14	1.0	R	1.0	41.5	19	41.5	4
15	0.0	R	0.0	33.0	19	33	4
16	2.0	R	2.0	50.5	19	50.5	4
17	1.0	R	1.0	41.5	19	41.5	4
18	3.0	R	3.0	57.5	19	57.5	4
19	1.0	R	1.0	41.5	19	41.5	4
20	3.0	R	3.0	57.5	19	57.5	4
21	2.0	R	2.0	50.5	19	50.5	4
22	1.0	R	1.0	41.5	19	41.5	4
23	0.0	R	0.0	33.0	19	33	4
24	2.0	R	2.0	50.5	19	50.5	4
25	0.0	R	0.0	33.0	27	33	4
26	1.0	R	1.0	41.5	27	41.5	4
27	1.0	R	1.0	41.5	27	41.5	4
28	2.0	R	2.0	50.5	27	50.5	4
29	0.0	R	0.0	33.0	27	33	4
30	2.0	R	2.0	50.5	33	50.5	4
31	0.0	S	-3.3	7.0	33	0	4
32	0.0	S	-3.3	7.0	33	0	4
33	2.0	S	-1.3	27.0	33	0	4
34	6.0	S	2.7	55.0	33	0	4
35	1.0	S	-2.3	19.0	33	0	4
36	2.0	S	-1.3	27.0	33	0	4
37	1.0	S	-2.3	19.0	41.5	0	4
38	2.0	S	-1.3	27.0	41.5	0	4
39	0.0	S	-3.3	7.0	41.5	0	4
40	0.0	S	-3.3	7.0	41.5	0	4
41	1.0	S	-2.3	19.0	41.5	0	4
42	1.0	S	-2.3	19.0	41.5	0	4
43	1.0	S	-2.3	19.0	41.5	0	4
44	0.0	S	-3.3	7.0	41.5	0	4
45	1.0	S	-2.3	19.0	41.5	0	4
46	0.0	S	-3.3	7.0	41.5	0	4
47	0.0	S	-3.3	7.0	50.5	0	4
48	0.0	S	-3.3	7.0	50.5	0	4
49	1.0	S	-2.3	19.0	50.5	0	4
50	1.0	S	-2.3	19.0	50.5	0	4
51	0.0	S	-3.3	7.0	50.5	0	4
52	2.0	S	-1.3	27.0	50.5	0	4
53	1.0	S	-2.3	19.0	50.5	0	4
54	0.0	S	-3.3	7.0	50.5	0	4
55	0.0	S	-3.3	7.0	55	0	4
56	1.0	S	-2.3	19.0	57.5	0	4
57	0.0	S	-3.3	7.0	57.5	0	4
58	2.0	S	-1.3	27.0	57.5	0	4
59	1.0	S	-2.3	19.0	57.5	0	4
60	0.0	S	-3.3	7.0	60	0	4
			SUM	1830.0		1340	

STATIC ALPHA MEASUREMENTS

Building : 108
Bay/Area: R= bay 3 S= bay 2

Reference Area Mean = 1.40

LBGR = 3.31

(Lower Boundary Gray Region = 3 standard deviations of the background reference area data.)

DCGL = 4.71

Survey Unit Mean - (Reference Unit Mean + LBGR)
-0.45
If this is a negative number the survey unit passes

WRS Critical Numbers

m = 30
n = 30
z = 1.96

WRS Critical Value

949

(Critical Value derived using equation I.2, Appendix I from MARSSIM)

Sum of Survey Unit Ranks

490.0

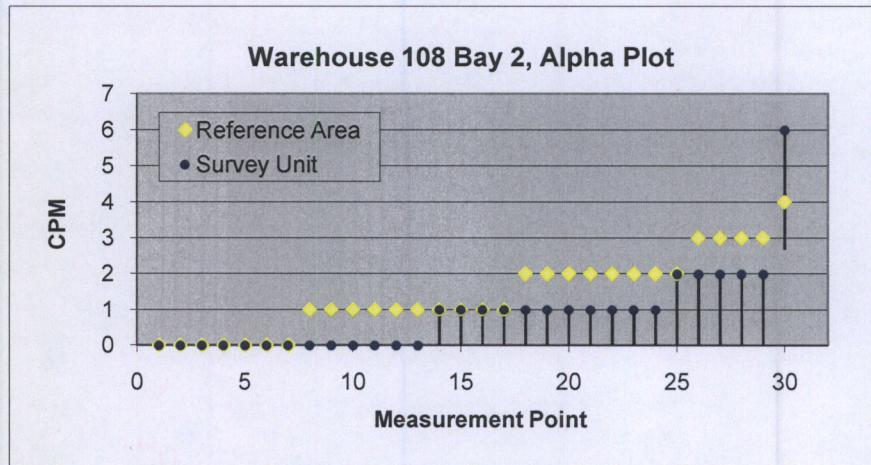
Since the sum of the Survey Unit Ranks is less than the WRS Critical Value, the null hypothesis is not rejected (i.e. the sum activity of the Survey Unit does not exceed that of the Reference Area by more than the LBGR)

Quantile Critical Numbers

r = 5
k = 5
Alpha Q = 0.026

Alpha & uR/hr Data sheet

	Reference	Survey
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	1	0
9	1	0
10	1	0
11	1	0
12	1	0
13	1	0
14	1	1
15	1	1
16	1	1
17	1	1
18	2	1
19	2	1
20	2	1
21	2	1
22	2	1
23	2	1
24	2	1
25	2	2
26	3	2
27	3	2
28	3	2
29	3	2
30	4	6



WRS Critical Value Calculation

$$m(n+m+1)/2 + z \sqrt{\frac{nm}{12} \left[(n+m+1) - \sum_{j=1}^g \frac{t_j(t_j^2-1)}{(n+m)(n+m+1)} \right]}$$

g = number of groups with tied measurements
 t = number of measurements in tied group

- 1 group with 13 Tied Measurements
- 1 group with 11 Tied Measurements
- 1 group with 5 Tied Measurements

Beta Data Sheet

	Data	Area	Adjusted Data	Ranks	Sorted Ranks	Rank Location
1	405.0	R	405.0	34.0	1	34
2	450.0	R	450.0	45.0	2	45
3	438.0	R	438.0	42.0	3	42
4	508.0	R	508.0	58.5	4	58.5
5	401.0	R	401.0	32.0	5	32
6	431.0	R	431.0	41.0	6	41
7	420.0	R	420.0	38.0	7	38
8	474.0	R	474.0	52.5	8	52.5
9	460.0	R	460.0	47.0	9.5	47
10	428.0	R	428.0	40.0	9.5	40
11	410.0	R	410.0	35.0	11	35
12	458.0	R	458.0	46.0	12.5	46
13	402.0	R	402.0	33.0	12.5	33
14	472.0	R	472.0	51.0	14	51
15	411.0	R	411.0	36.0	15	36
16	489.0	R	489.0	55.0	16	55
17	444.0	R	444.0	43.0	17	43
18	419.0	R	419.0	37.0	18	37
19	496.0	R	496.0	56.0	19	56
20	463.0	R	463.0	49.0	20	49
21	474.0	R	474.0	52.5	21	52.5
22	483.0	R	483.0	54.0	22	54
23	497.0	R	497.0	57.0	23	57
24	469.0	R	469.0	50.0	24	50
25	446.0	R	446.0	44.0	25	44
26	360.0	R	360.0	31.0	26	31
27	426.0	R	426.0	39.0	27.5	39
28	462.0	R	462.0	48.0	27.5	48
29	508.0	R	508.0	58.5	29	58.5
30	510.0	R	510.0	60.0	30	60
31	426.0	S	313.0	20.0	31	0
32	431.0	S	318.0	22.0	32	0
33	401.0	S	288.0	7.0	33	0
34	373.0	S	260.0	1.0	34	0
35	376.0	S	263.0	2.0	35	0
36	438.0	S	325.0	26.0	36	0
37	381.0	S	268.0	3.0	37	0
38	405.0	S	292.0	9.5	38	0
39	410.0	S	297.0	12.5	39	0
40	412.0	S	299.0	15.0	40	0
41	415.0	S	302.0	16.0	41	0
42	433.0	S	320.0	23.0	42	0
43	409.0	S	296.0	11.0	43	0
44	403.0	S	290.0	8.0	44	0
45	389.0	S	276.0	6.0	45	0
46	410.0	S	297.0	12.5	46	0
47	441.0	S	328.0	27.5	47	0
48	423.0	S	310.0	18.0	48	0
49	434.0	S	321.0	24.0	49	0
50	411.0	S	298.0	14.0	50	0
51	470.0	S	357.0	30.0	51	0
52	388.0	S	275.0	5.0	52.5	0
53	386.0	S	273.0	4.0	52.5	0
54	405.0	S	292.0	9.5	54	0
55	428.0	S	315.0	21.0	55	0
56	418.0	S	305.0	17.0	56	0
57	425.0	S	312.0	19.0	57	0
58	436.0	S	323.0	25.0	58.5	0
59	441.0	S	328.0	27.5	58.5	0
60	457.0	S	344.0	29.0	60	0
			SUM	1830.0		1365

STATIC BETA MEASUREMENTS

Building : 108
 Bay/Area: Bkgd = Bay 3 Survey = bay 2

Reference Area Mean = 450.47

LBGR = 113.02

(Lower Boundary Gray Region = 3 standard deviations of the background reference area data.)

DCGL = 563.49

Survey Unit Mean - (Reference Unit Mean + LBGR) -34.63
 If this is a negative number the survey unit passes

WRS Critical Numbers

m = 30
 n = 30
 z = 1.96

WRS Critical Value

949

(Critical Value derived using equation I.2, Appendix I from MARSSIM)

Sum of Survey Unit Ranks

465.0

Since the sum of the Survey Unit Ranks is less than the WRS Critical Value, the null hypothesis is not rejected (i.e. the sum activity of the Survey Unit does not exceed that of the Reference Area by more than the LBGR)

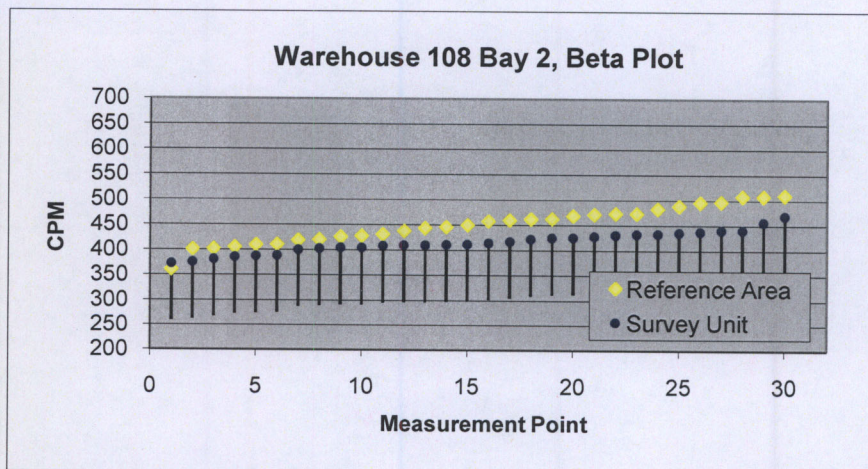
Quantile Critical Numbers

r = 5
 k = 5
 Alpha Q = 0.026

Facility Close-Out Survey, Defense Depot - Jacksonville, Florida, Building 108 Bay 2, 8 August 2009

Beta Data Sheet

	Reference	Survey
1	360	373
2	401	376
3	402	381
4	405	386
5	410	388
6	411	389
7	419	401
8	420	403
9	426	405
10	428	405
11	431	409
12	438	410
13	444	410
14	446	411
15	450	412
16	458	415
17	460	418
18	462	423
19	463	425
20	469	426
21	472	428
22	474	431
23	474	433
24	483	434
25	489	436
26	496	438
27	497	441
28	508	441
29	508	457
30	510	470



WRS Critical Value Calculation if multiple groups seen with tied measurements

$$m(n+m+1)/2 + z \sqrt{\frac{nm}{12} \left[(n+m+1) - \sum_{j=1}^g \frac{t_j(t_j^2-1)}{(n+m)(n+m+1)} \right]}$$

g = number of groups with tied measurements

t = number of measurements in tied group

3 groups with 2 Tied Measurements

Facility Close-Out Survey, Defense Depot - Jacksonville, Florida, Building 108 Bay 2, 8 August 2009
 Swipe Sample Data Sheet

Close-Out Survey Sample Results

Instrument Data

Ludlum 3030 Dual Channel Scaler SN: 257656
 Calibration Due: 14-Jun-10
 Alpha MDA: 4.1 dpm/100 cm² Beta MDA: 69.9 dpm/100 cm²

Sample ID	Alpha dpm	Beta dpm
Grid 61	0	0
Grid 322	0	24
Grid 418	0	6
Grid 365	0	30
Grid 228	0	33
Grid 59	0	21
Grid 231	0	0
Grid 202	0	30
Grid 18	0	0
Grid 278	0	0
Grid 151	0	21
Grid 320	0	33
Grid 46	3	9
Grid 45	3	27
Grid 307	0	33
Grid 172	0	0
Grid 242	0	0
Grid 304	6	18
Grid 308	0	33
Grid 413	0	18
Grid 163	0	9
Grid 25	0	51
Grid 219	0	69
Grid 72	0	21
Grid 50	0	30
Grid 248	0	12
Grid 108	0	45
Grid 415	0	24
Grid 323	0	0
Grid 423	3	27

This is to acknowledge the receipt of your letter/application dated 9/15/09 ^{received} and to inform you that the initial processing which includes an administrative review has been performed.

Amendment (37-30062-01) There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

Please provide to this office within 30 days of your receipt of this card

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned Mail Control Number 144171.
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (RI)
(6-96)

Sincerely,
Licensing Assistance Team Leader