

RHODES HALL SECOND FLOOR

(SURVEY UNITS 114 THROUGH 138)

Rhodes Hall Second Floor includes Rooms 200A, 200B, 200H, 200J, 201, 201A, 201B, 201C, 201D, 201E, 201F, 201G, 201H, 202, 203, 204, 206, 207, 211, 215, 216, 220, 223, 224B, 224E, 226, 227, 230A, 230B, 230C, 230D, and 231. The floors and walls within this area were classified as MARSSIM Class 2 and Class 3 areas (see Table A13.1). Figures (including sample locations) are included in Attachment A-13-1. Radiologically impacted areas were divided into SUs based on MARSSIM-recommended size constraints, resulting in a total of 25 SUs (SU-114 through SU-138) in the area identified herein as the Rhodes Hall Second Floor. Survey data from the floors and walls are located in Tables A13.2 through A13.26.

Overview of Surveys Performed. Ludlum Model 43-89 dual phosphor ZnS detectors coupled with Ludlum Model 2360 scalers were used for the collection of quantitative alpha/beta scan surveys and fixed-point (i.e., static) measurements. The alpha/beta static measurements were performed at systematic locations for MARSSIM Class 2 areas and at randomly generated locations for Class 3 areas. Given that scan surveys did not detect the presence of activity with respect to the investigation level, biased fixed-point measurements were not necessary. Removable contamination measurements (i.e., swipes) were also collected at each static location to quantify residual removable activity. The swipes were counted using a Ludlum Model 43-10-1 alpha/beta sample counter. QA/QC information relative to the instruments used is contained in Section 5.0 of the main text and in Appendix C.

Table A13.1. Rhodes Hall Second Floor Summary Table

Room Number/ Description	Area (m ²)	Walls		Floors	
		Included (Yes/No)	MARSSIM Classification	Included (Yes/No)	MARSSIM Classification
Corridor 200B	22	Yes	Class 3 ^a	Yes	Class 2
Office 201	18				
Office 201A	15				
Office 201B	11				
Office 201C	11				
Office 201D	11				
Office 201E	11				
Office 201F	11				
Office 201G	11				
Office 201H	11				
Lab 212	20				
Lab 214A	36				
Lab 216	36				
Office 219	12				
Office 224E	12				
Lab 226	20				
Office 230A	10				
Office 230B	10				
Office 230C	47				
Office 230D	11				

Table A13.1. Rhodes Hall Second Floor Summary Table (Continued)

Room Number/ Description	Area (m ²)	Walls		Floors	
		Included	MARSSIM	Included	MARSSIM
Corridor 200A	27	Yes	Class 3 ^a	Yes	Class 3 ^a
Corridor 200H	161				
Corridor 200J	7				
Office 202	10				
Lab 203	20				
Lab 204	20				
Office 206	20				
Lab 207	20				
Lab 211	20				
Lab 215	30				
Classroom 220	54				
Classroom 223	55				
Office 224B	10				
Lab 227	20				
Men 231	13				

^a Areas were combined for the MARSSIM Class 3 Survey.

Fixed-Point Measurements. Fixed-point measurements were obtained from MARSSIM Class 2 (systematic - random start triangular grid) or MARSSIM Class 3 (random) locations. Class 3 fixed-point measurements were obtained from random locations, with emphasis on areas with a greater likelihood of residual activity. Results of the static measurement are listed in Tables A13.2 through A13.26, and locations are shown on Figures A13.1 through A13.25. All alpha results were below the site-specific alpha DCGL of 1,160 dpm/100 cm² for Am-241. Residual beta activity was compliant with both the Cs-137 surface contamination level of 5,000 dpm/100 cm² specified in AEC Regulatory Guide 1.86 (AEC 1974) and the NRC screening level DCGL of 28,000 dpm/100 cm² cited in Table 5.19 of NUREG-5512 (NRC 1999) for Cs-137 on structures.

Table A13.2. SU-114 Room 200B Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Carpet	200b	30	-520	0	1
2	Carpet	200b	-6	-588	0	9
3	Tile	200b	6	-684	0	-21
4	Tile	200b	-6	-704	0	-41
5	Tile	200b	-6	-511	3	-21
6	Tile	200b	-6	-617	0	-35
7	Tile	200b	-6	-627	3	15
8	Tile	200b	-6	-424	3	4
9	Tile	200b	6	-443	3	-16
10	Tile	200b	6	-347	0	4
11	Carpet	200b	42	-280	0	-35
12	Carpet	200b	-6	-501	0	-10
13	Tile	200b	42	-241	0	-41
14	Tile	200b	6	-376	0	-21
15	Tile	200b	6	-598	0	-19
16	Tile	200b	18	-241	0	-16
17	Tile	200b	6	-588	0	15
18	Tile	200b	-6	-549	0	18
19	Tile	200b	-6	-395	0	23
20	Tile	200b	6	-260	0	23

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed samples 1-20 are 21 dpm/100 cm² (alpha) and 256 dpm/100 cm² (beta); and the MDCs for removable samples 1-20 are 18 dpm/100 cm² (alpha) and 212 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.3. SU-115 Room 201 Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Carpet	201	6	-386	0	-5
2	Carpet	201	6	-559	0	-8
3	Carpet	201	-6	-386	0	12
4	Carpet	201	6	-463	0	-8
5	Carpet	201	-6	-453	0	-27
6	Carpet	201	6	-549	0	-8
7	Carpet	201	18	-520	0	-19
8	Carpet	201	6	-540	0	-10
9	Carpet	201	6	-424	0	23
10	Carpet	201	6	-530	0	-10
11	Carpet	201	-6	-540	0	9
12	Carpet	201	-6	-636	0	1

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-12 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-12 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.4. SU-116 Room 201A Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Carpet	201a	18	-713	0	-13
2	Carpet	201a	-6	-405	0	-30
3	Carpet	201a	18	-646	3	-13
4	Carpet	201a	6	-549	0	9
5	Carpet	201a	18	-588	0	-19
6	Carpet	201a	18	-636	0	1
7	Carpet	201a	18	-588	0	9
8	Carpet	201a	42	-598	6	-33
9	Carpet	201a	6	-636	0	6
10	Carpet	201a	18	-549	3	4
11	Carpet	201a	-6	-424	0	-10

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-11 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-11 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.5. SU-117 Room 201B Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	201b	-6	-511	0	-8
2	Linoleum	201b	-6	-520	0	-27
3	Linoleum	201b	6	-530	0	-21
4	Linoleum	201b	6	-549	0	-46
5	Linoleum	201b	18	-540	0	-8
6	Linoleum	201b	18	-453	0	-2
7	Linoleum	201b	6	-520	0	1
8	Linoleum	201b	-6	-520	0	-35
9	Linoleum	201b	18	-578	0	-55
10	Linoleum	201b	6	-492	0	15

The MDC is the minimum detectable concentration on a surface, that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.6. SU-118 Room 201C Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	201c	30	-569	0	-24
2	Linoleum	201c	18	-578	3	-27
3	Linoleum	201c	6	-578	0	-35
4	Linoleum	201c	-6	-655	3	-41
5	Linoleum	201c	42	-636	0	-21
6	Linoleum	201c	6	-713	0	-38
7	Linoleum	201c	-6	-357	0	-21
8	Linoleum	201c	-6	-578	0	-33
9	Linoleum	201c	18	-636	6	-19
10	Linoleum	201c	6	-675	0	-16

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.7. SU-119 Room 201D Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	201d	18	-559	0	4
2	Linoleum	201d	6	-607	0	6
3	Linoleum	201d	18	-675	0	-24
4	Linoleum	201d	-6	-511	0	-5
5	Linoleum	201d	6	-540	0	6
6	Linoleum	201d	-6	-588	0	31
7	Linoleum	201d	30	-308	0	-27
8	Linoleum	201d	42	-549	0	1
9	Linoleum	201d	18	-530	0	-13
10	Linoleum	201d	6	-414	3	-19

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.8. SU-120 Room 201E Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	201e	6	-559	0	-38
2	Linoleum	201e	6	-492	0	-10
3	Linoleum	201e	-6	-694	0	-24
4	Linoleum	201e	6	-549	0	-8
5	Linoleum	201e	18	-511	0	-8
6	Linoleum	201e	55	-386	0	-24
7	Linoleum	201e	18	-559	3	-21
8	Linoleum	201e	6	-549	0	-21
9	Linoleum	201e	30	-347	0	9
10	Linoleum	201e	6	-463	0	-27

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.9. SU-121 Room 201F Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	201f	6	-386	0	-19
2	Linoleum	201f	30	-260	0	-33
3	Linoleum	201f	-6	-299	0	9
4	Linoleum	201f	6	-501	3	-21
5	Linoleum	201f	6	-492	3	1
6	Linoleum	201f	18	-414	3	-10
7	Linoleum	201f	-6	-569	3	-46
8	Linoleum	201f	18	-675	3	-5
9	Linoleum	201f	18	-405	3	12
10	Linoleum	201f	6	-376	0	31

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.10. SU-122 Room 201G Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	201g	18	-530	0	-5
2	Linoleum	201g	6	-472	3	-5
3	Linoleum	201g	6	-434	0	-33
4	Linoleum	201g	6	-540	0	15
5	Linoleum	201g	-6	-790	0	6
6	Linoleum	201g	-6	-395	3	1
7	Linoleum	201g	18	-492	0	-35
8	Linoleum	201g	18	-723	0	20
9	Linoleum	201g	6	-443	0	-24
10	Linoleum	201g	-6	-405	6	-21

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.11. SU-123 Room 201H Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	201h	30	-704	0	29
2	Linoleum	201h	6	-472	0	-21
3	Linoleum	201h	-6	-482	0	29
4	Linoleum	201h	-6	-443	3	-8
5	Linoleum	201h	-6	-453	3	4
6	Linoleum	201h	6	-453	0	-13
7	Linoleum	201h	-6	-520	3	-5
8	Linoleum	201h	6	-569	0	-16
9	Linoleum	201h	6	-530	0	12
10	Linoleum	201h	30	-540	0	-10

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.12. SU-124 Room 212 Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	212	-13	410	3	-35
2	Linoleum	212	1	533	-1	-18
3	Linoleum	212	-13	513	-1	-67
4	Linoleum	212	-13	595	-1	-6
5	Linoleum	212	1	400	-1	-26
6	Linoleum	212	16	144	-1	3
7	Linoleum	212	31	369	-1	-23
8	Linoleum	212	-13	338	-1	-6

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-8 are 82 dpm/100 cm² (alpha) and 234 dpm/100 cm² (beta); and the MDCs for removable samples 1-8 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

The walls of Room 212 were surveyed as one MARSSIM Class 2 SU. The area of this SU is 50 m².

Table A13.13. SU-125 Room 212 Class 2 Wall Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Drywall	212	-13	1,733	-1	-35
2	Drywall	212	16	1,528	-1	-15
3	Drywall	212	-13	513	-1	-23
4	Drywall	212	-13	133	3	-6
5	Drywall	212	16	-51	3	3
6	Drywall	212	-13	1,210	-1	18
7	Drywall	212	-13	123	-1	-26
8	Drywall	212	-13	441	-1	-3
9	Drywall	212	1	21	3	-15
10	Drywall	212	31	62	-1	-6

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 82 dpm/100 cm² (alpha) and 234 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.14. SU-126 Room 214A Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	214a	31	513	3	-12
2	Linoleum	214a	16	400	-1	-18
3	Linoleum	214a	16	605	-1	6
4	Linoleum	214a	-13	533	-1	-15
5	Linoleum	214a	31	267	3	-15
6	Linoleum	214a	1	421	-1	-35
7	Linoleum	214a	16	472	-1	3
8	Linoleum	214a	-13	523	6	-20
9	Linoleum	214a	31	297	-1	26

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-9 are 82 dpm/100 cm² (alpha) and 234 dpm/100 cm² (beta); and the MDCs for removable samples 1-9 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

The walls of Room 214A were surveyed as one MARSSIM Class 2 area. The area of this SU is 75 m².

Table A13.15. SU-127 Room 214A Class 2 Wall Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Drywall	214a	1	1,169	-1	9
2	Drywall	214a	1	1,231	-1	-6
3	Drywall	214a	-13	1,159	-1	-18
4	Drywall	214a	31	974	-1	-12
5	Drywall	214a	1	1,149	-1	15
6	Drywall	214a	1	1,262	-1	6
7	Drywall	214a	1	359	3	0
8	Drywall	214a	1	1,190	-1	-32
9	Drywall	214a	1	410	-1	-6
10	Drywall	214a	-13	831	-1	-20

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 82 dpm/100 cm² (alpha) and 234 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.16. SU-128 Room 216 Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	216	42	-540	0	18
2	Linoleum	216	-6	-549	3	-58
3	Linoleum	216	-6	-675	0	-2
4	Linoleum	216	-6	-472	0	-41
5	Linoleum	216	6	-588	0	4
6	Linoleum	216	6	-540	0	23
7	Linoleum	216	-6	-376	3	-21
8	Linoleum	216	-6	-347	0	1
9	Linoleum	216	-6	-530	0	-19
10	Linoleum	216	18	-501	0	-33
11	Linoleum	216	30	-463	0	-33
12	Linoleum	216	30	-617	0	-5

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-11 are 21 dpm/100 cm² (alpha) and 256 dpm/100 cm² (beta); and the MDCs for removable samples 1-11 are 18 dpm/100 cm² (alpha) and 212 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.17. SU-129 Room 219 Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	219	-13	615	-1	-20
2	Linoleum	219	1	308	3	6
3	Linoleum	219	16	482	-1	20
4	Linoleum	219	16	277	-1	23
5	Linoleum	219	1	441	-1	-3
6	Linoleum	219	-13	246	-1	29
7	Linoleum	219	-13	605	-1	-6
8	Linoleum	219	16	595	3	-32
9	Linoleum	219	16	472	-1	-3
10	Linoleum	219	1	379	3	9

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 82 dpm/100 cm² (alpha) and 234 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

The walls of Room 219 were surveyed as one MARSSIM Class 2 area. The area of this SU is 33 m².

Table A13.18. SU-130 Room 219 Class 2 Wall Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Drywall	219	16	308	-1	-6
2	Drywall	219	1	554	-1	12
3	Drywall	219	-13	205	-1	12
4	Drywall	219	1	1,323	-1	15
5	Drywall	219	-13	1,097	-1	15
6	Drywall	219	1	1,087	-1	-12
7	Drywall	219	-13	1,333	-1	18
8	Drywall	219	76	185	3	3
9	Drywall	219	1	318	-1	47
10	Drywall	219	31	62	-1	-20

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 82 dpm/100 cm² (alpha) and 234 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.19. SU-131 Room 224E Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	224e	18	-655	3	-30
2	Linoleum	224e	6	-713	0	-16
3	Linoleum	224e	-6	-540	3	-10
4	Linoleum	224e	6	-588	6	-8
5	Linoleum	224e	6	-520	0	-19
6	Linoleum	224e	-6	-328	0	1
7	Linoleum	224e	18	-482	9	1
8	Linoleum	224e	6	-752	0	20
9	Linoleum	224e	-6	-559	0	-35
10	Linoleum	224e	18	-405	0	-2

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.20. SU-132 Room 226 Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	226	18	-520	0	-21
2	Linoleum	226	-6	-434	3	6
3	Linoleum	226	-6	-675	0	-30
4	Linoleum	226	6	-424	0	-21
5	Linoleum	226	6	-588	3	-13
6	Linoleum	226	6	-414	0	-21
7	Linoleum	226	-6	-704	0	-24
8	Linoleum	226	-6	-617	0	-21
9	Linoleum	226	6	-492	3	-19
10	Linoleum	226	6	-434	0	-2

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.21. SU-133 Room 230A Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	230a	6	-434	0	-33
2	Linoleum	230a	6	-617	0	-16
3	Linoleum	230a	-6	-472	3	-27
4	Linoleum	230a	18	-627	0	1
5	Linoleum	230a	-6	-559	0	37
6	Linoleum	230a	6	-540	3	-24
7	Linoleum	230a	6	-386	0	4
8	Linoleum	230a	18	-366	0	-30
9	Linoleum	230a	6	-530	0	6
10	Linoleum	230a	-6	-424	3	-10

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.22. SU-134 Room 230B Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	230b	-6	-520	0	-19
2	Linoleum	230b	-6	-540	0	-16
3	Linoleum	230b	18	-280	0	-27
4	Linoleum	230b	18	-472	0	4
5	Linoleum	230b	6	-386	0	-24
6	Linoleum	230b	6	-453	0	-13
7	Linoleum	230b	30	-424	3	1
8	Linoleum	230b	-6	-520	0	15
9	Linoleum	230b	6	-395	0	-8
10	Linoleum	230b	-6	-145	0	-10

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.23. SU-135 Room 230C Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	230c	6	-424	0	6
2	Linoleum	230c	6	-376	0	-8
3	Linoleum	230c	6	-520	0	9
4	Linoleum	230c	18	-453	0	20
5	Linoleum	230c	18	-434	0	59
6	Linoleum	230c	30	-588	0	-2
7	Linoleum	230c	-6	-627	0	9
8	Linoleum	230c	-6	-607	0	-8
9	Linoleum	230c	18	-472	0	-13
10	Linoleum	230c	30	-665	0	18

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-10 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.24. SU-136 Room 230D Class 2 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Concrete	230d	18	-116	0	-21
2	Concrete	230d	18	-145	0	-19
3	Concrete	230d	6	-164	0	-16
4	Concrete	230d	-6	-241	0	-13
5	Concrete	230d	42	-29	0	-24
6	Concrete	230d	18	173	0	-24
7	Concrete	230d	30	395	0	-13
8	Concrete	230d	30	-96	3	-16
9	Concrete	230d	6	58	0	-21
10	Concrete	230d	-6	-39	0	12
11	Concrete	230d	18	0	0	-13
12	Concrete	230d	42	154	0	18
13	Concrete	230d	-6	29	0	-33
14	Concrete	230d	6	-251	0	-2

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-14 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-14 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Table A13.25. SU-137 Second Floor Rhodes Hall Class 3 Floor Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Linoleum	200a	18	-173	0	15
2	Linoleum	200a	30	-569	3	4
3	Linoleum	200a	42	-414	0	9
4	Linoleum	231	6	-116	0	-33
5	Linoleum	200h	6	-347	0	12
6	Linoleum	202	42	-540	0	-52
7	Linoleum	204	-6	-607	0	6
8	Linoleum	203	-6	-299	0	6
9	Linoleum	200h	18	-520	0	4
10	Linoleum	207	6	-434	0	-5
11	Linoleum	206	18	-337	0	-38
12	Linoleum	227	6	-395	0	-38
13	Linoleum	200h	18	-453	0	-13
14	Linoleum	211	6	-376	0	-10
15	Linoleum	224b	18	-443	0	-5
16	Linoleum	223	6	-183	0	-8
17	Linoleum	200h	-6	-318	0	9
18	Linoleum	215	6	-395	0	-38
19	Linoleum	220	18	-559	0	-24
20	Linoleum	200j	6	-386	0	-2

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-20 are 60 dpm/100 cm² (alpha) and 236 dpm/100 cm² (beta); and the MDCs for removable samples 1-20 are 15 dpm/100 cm² (alpha) and 75 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

The walls of the Rhodes Hall Second Floor Rooms were surveyed as one MARSSIM Class 3 area. The area of this SU is 1,410 m².

Table A13.26. SU-138 Second Floor Rhodes Hall Class 3 Wall Measurements

Sample Number	Survey Surface	Location	Total Alpha Activity (dpm/100 cm ²)	Total Beta Activity (dpm/100 cm ²)	Removable Alpha Activity (dpm/100 cm ²)	Removable Beta Activity (dpm/100 cm ²)
1	Drywall	220	12	-218	-1	3
2	Drywall	215	33	-84	3	-3
3	Drywall	232	12	75	-1	-20
4	Drywall	224	54	-838	-1	0
5	Drywall	224e	-10	-938	-1	-6
6	Drywall	224	12	-712	-1	-12
7	Drywall	210	1	-553	-1	6
8	Drywall	207	-10	-779	-1	-12
9	Drywall	206	1	-821	-1	-32
10	Drywall	225	22	-653	-1	-12
11	Drywall	200f	-10	-679	-1	12
12	Drywall	204	22	-687	3	18
13	Drywall	229	1	-8	-1	-26
14	Drywall	230d	12	-821	-1	-15
15	Drywall	230b	22	-930	-1	15
16	Drywall	201	1	-142	-1	-18
17	Drywall	200e	33	-92	-1	-26
18	Drywall	200e	22	-486	-1	-6
19	Drywall	200a	22	-503	3	-26
20	Drywall	235	33	-519	3	-3

The MDC is the minimum detectable concentration on a surface that an instrument is expected to detect detected with 95 percent confidence.

The instrument MDCs for fixed measurements 1-20 are 21 dpm/100 cm² (alpha) and 256 dpm/100 cm² (beta); and the MDCs for removable samples 1-20 are 18 dpm/100 cm² (alpha) and 212 dpm/100 cm² (beta).

Negative results indicate results that are below background for the respective building material.

Summary. Residual levels of radioactivity in the Second Floor of Rhodes Hall clearly demonstrate that residual concentrations of radionuclide COPCs achieve the site-specific alpha DCGL of 1,160 dpm/100 cm² and the most restrictive beta DCGL of 5,000 dpm/100 cm² for Cs-137. In addition, the actual percentage of removable activity was determined to be approximately 3 percent.

Given these results, it is clearly demonstrated that the null hypothesis (i.e., that the Second Floor of Rhodes Hall exceeds DCGLs) is rejected. Review of survey data supports the conclusion that the Second Floor of Rhodes Hall contains an adequate number of samples; a sufficient percentage has been scanned; and it has been appropriately classified consistent with MARSSIM requirements using the process noted in Section 4.0 of the main text of this document. All scan and fixed measurement results collected from the Second Floor of Rhodes Hall at Southeast were below the DCGL. As such, formal assessment using the Sign Test is not required.

Conclusion. Levels of radioactivity in the Second Floor of Rhodes Hall achieve criteria for unrestricted release consistent with the provisions of 10 *CFR* 20, Subpart E.

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ATTACHMENT A-13-1
FIGURES

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