MAGILL HALL SECOND FLOOR WEST

(SURVEY UNITS 60 THROUGH 82)

Magill Hall Second Floor West includes Rooms 202, 204, 206, 208, 208A, 208B, 210, 211, 212, 212A, 213, 214, 215, 216, 216, 217, 218, 219, 220, 222, 223, 224, 226, and 226A. The floors within these areas were classified as MARSSIM Class 2 areas, while the walls and applicable ceiling tiles were classified as MARSSIM Class 3 areas (see Table A7.1). Figures (including sample locations) are included in Attachment A-7-1. Radiologically impacted areas were divided into SUs based on MARSSIM-recommended size constraints, resulting in a total of 38 SUs (SU-60 through SU-82) in the area identified herein as Magill Hall Second Floor West. Survey data from the floors, walls, and ceiling tiles are located in Tables A7.2 through A7.24.

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 that was elevated 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 A7.1. Magill Hall First Floor West Summary Table

<table>
<tr><th rowspan="2">Room Number/ Description</th><th rowspan="2">Area (m^2)</th><th colspan="2">Walls[a]</th><th colspan="2">Floors</th></tr>
<tr><th>Included (Yes/No)</th><th>MARSSIM Classification</th><th>Included (Yes/No)</th><th>MARSSIM Classification</th></tr>
<tr><td>Lab 202</td><td>18</td><td rowspan="21">Yes</td><td rowspan="21">Class 3</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 204</td><td>67</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 206</td><td>17</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 208</td><td>18</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 208A</td><td>14</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 208B</td><td>10</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 210</td><td>115</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 211</td><td>43</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 212</td><td>43</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 212A</td><td>3</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Storage 213</td><td>42</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Office 215</td><td>65</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 217</td><td>10</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Janitor 219</td><td>2</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 220</td><td>15</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 220A</td><td>25</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 222</td><td>67</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Restroom 223</td><td>12</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Lab 224</td><td>20</td><td>Yes</td><td>Class 2</td></tr>
<tr><td>Office 226</td><td>16</td><td rowspan="2">Yes</td><td rowspan="2">Class 2</td></tr>
<tr><td>Office 226A</td><td>20</td></tr>
<tr><td>Lab 214[b]
Lab 216[b]
Lab 218[b]</td><td>330</td><td>Yes</td><td>Class 2</td><td>Yes</td><td>Class 2</td></tr>
</table>

[a] Areas were combined for the MARSSIM Class 3 Wall Survey.

[b] The floors and walls of Room 214, 216 and 218 were surveyed in 2007/2008 prior to being remodeled.

N/A – Not Applicable

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 measurements are listed in Tables A7.2 through A7.27, and locations are shown on Figures A7.1 through A7.21. All alpha results were below the site-specific alpha DCGL of 1,160 dpm/100 cm^2 for Am-241. Residual beta activity was compliant with both the Cs-137 surface contamination level of 5,000 dpm/100 cm^2 specified in AEC Regulatory Guide 1.86 (AEC 1974) and the NRC screening level DCGL of 28,000 dpm/100 cm^2 cited in Table 5.19 of NUREG-5512 (NRC 1999) for Cs-137 on structures.

Table A7.2. SU-60 Room 202 Class 2 Floor Measurement Results

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	202	37	1,056	-1	20
2	Linoleum	202	52	862	-1	-6
3	Linoleum	202	7	1,026	-1	9
4	Linoleum	202	22	882	3	18
5	Linoleum	202	37	1,610	-1	-44
6	Linoleum	202	52	1,303	-1	-15
7	Linoleum	202	22	892	3	-23
8	Linoleum	202	22	626	-1	26
9	Linoleum	202	7	1,056	3	3
10	Linoleum	202	37	1,282	-1	-6

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

The instrument MDCs for fixed measurements 1-10 are 58 dpm/100 cm^2 (alpha) and 222 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Table A7.3. SU-61 Room 204 Class 2 Floor Measurement Results

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	204	22	985	6	32
2	Linoleum	204	22	862	-1	9
3	Linoleum	204	-7	1,036	3	-3
4	Linoleum	204	52	1,385	6	-6
5	Linoleum	204	22	1,046	-1	-20
6	Linoleum	204	22	995	-1	-6
7	Linoleum	204	37	841	-1	-38
8	Linoleum	204	7	1,015	-1	-6
9	Linoleum	204	22	1,087	-1	-12

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

The instrument MDCs for fixed measurements 1-9 are 59 dpm/100 cm^2 (alpha) and 233 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-9 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Table A7.4. SU-62 Room 206 Class 2 Floor Measurement Results

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	206	22	1,097	-1	-12
2	Linoleum	206	22	1,262	-1	-6
3	Linoleum	206	-7	933	3	-23
4	Linoleum	206	52	1,487	-1	-12
5	Linoleum	206	22	1,005	-1	-29
6	Linoleum	206	22	1,959	-1	12
7	Linoleum	206	37	1,713	-1	15
8	Linoleum	206	7	1,538	3	-6

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

The instrument MDCs for fixed measurements 1-8 are 58 dpm/100 cm^2 (alpha) and 233 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-8 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Table A7.5. SU-63 Room 208 Class 3 Floor Measurement Results

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	208	7	1,169	-1	6
2	Linoleum	208	52	1,364	-1	0
3	Linoleum	208	22	1,713	-1	32
4	Linoleum	208	-7	1,456	3	-12
5	Linoleum	208	7	1,467	-1	-47
6	Linoleum	208	-7	1,231	-1	-15
7	Linoleum	208	37	1,292	-1	47
8	Linoleum	208	7	933	-1	6
9	Linoleum	208	22	1,026	-1	12
10	Linoleum	208	-7	1,538	-1	-15

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

The instrument MDCs for fixed measurements 1-10 are 32 dpm/100 cm^2 (alpha) and 178 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-10 are 18 dpm/100 cm^2 (alpha) and 212 dpm/100 cm^2 (beta).

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

Table A7.6. SU-64 Room 208A Class 2 Floor Measurement Results

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	208a	22	1,190	-1	38
2	Linoleum	208a	7	944	-1	9
3	Linoleum	208a	22	1,190	-1	-23
4	Linoleum	208a	37	1,415	3	-35
5	Linoleum	208a	37	1,210	-1	15
6	Linoleum	208a	-7	1,426	3	44
7	Linoleum	208a	82	872	-1	-20
8	Linoleum	208a	7	1,221	-1	26
9	Linoleum	208a	-7	1,374	3	29
10	Linoleum	208a	22	923	-1	-15

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

The instrument MDCs for fixed measurements 1-10 are 59 dpm/100 cm^2 (alpha) and 233 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Table A7.7. SU-65 Room 208B Class 2 Floor Measurement Results

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	208b	7	1,108	-1	-18
2	Linoleum	208b	-7	964	-1	6
3	Linoleum	208b	7	1,251	-1	41
4	Linoleum	208b	52	1,159	-1	-41
5	Linoleum	208b	22	1,364	3	-12
6	Linoleum	208b	7	779	-1	-26
7	Linoleum	208b	7	1,138	-1	26
8	Linoleum	208b	37	718	-1	-3
9	Linoleum	208b	22	933	-1	38
10	Linoleum	208b	22	1,169	-1	12

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

The instrument MDCs for fixed measurements 1-10 are 59 dpm/100 cm^2 (alpha) and 233 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Table A7.8. SU-66 Room 210 Class 2 Floor Measurement Results

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	210	-7	1,508	-1	18
2	Linoleum	210	-7	1,477	-1	-6
3	Linoleum	210	22	1,651	6	9
4	Linoleum	210	7	1,251	-1	23
5	Linoleum	210	7	1,723	-1	-44
6	Linoleum	210	22	1,251	-1	26
7	Linoleum	210	7	1,518	3	-12
8	Linoleum	210	22	1,128	-1	12
9	Linoleum	210	-7	1,846	-1	18

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

The instrument MDCs for fixed measurements 1-9 are 58 dpm/100 cm^2 (alpha) and 233 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-9 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Table A7.9. SU-67 Room 211 Class 2 Floor Measurement Results

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	211	20	625	0	-8
2	Linoleum	211	-5	975	0	-13
3	Linoleum	211	-5	647	0	-8
4	Linoleum	211	8	975	0	-19
5	Linoleum	211	-5	548	0	9
6	Linoleum	211	8	690	0	-2
7	Linoleum	211	20	384	3	-2
8	Linoleum	211	-5	953	0	-2
9	Linoleum	211	8	789	0	-27
10	Linoleum	211	8	712	3	-5
11	Linoleum	211	20	756	0	-13

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

The instrument MDCs for fixed measurements 1-11 are 21 dpm/100 cm^2 (alpha) and 256 dpm/100 cm^2 (beta); the MDCs for removable samples 1-11 are 18 dpm/100 cm^2 (alpha) and 212 dpm/100 cm^2 (beta); and the MDCs for QC measurement #6 are 54 dpm/100 cm^2 (alpha) and 223 dpm/100 cm^2 (beta).

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

N/A – Not Applicable

Table A7.10. SU-68 Room 212 Class 2 Floor Measurement Results

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	7	985	-1	-18
2	Linoleum	212	22	1,518	-1	-18
3	Linoleum	212	-7	513	6	-32
4	Linoleum	212	-7	1,149	-1	-20
5	Linoleum	212	7	1,067	-1	-3
6	Linoleum	212	-7	933	-1	-3
7	Linoleum	212	-7	554	3	6
8	Linoleum	212	-7	1,138	-1	12
9	Linoleum	212	-7	708	-1	20
10	Linoleum	212	-7	646	-1	0
11	Linoleum	212	7	1,036	6	-38
12	Linoleum	212	-7	810	-1	-6

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

The instrument MDCs for fixed measurements 1-12 are 58 dpm/100 cm^2 (alpha) and 233 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-12 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Table A7.11. SU-69 Room 212A Class 2 Floor Measurement Results

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	212a	7	995	-1	9
2	Linoleum	212a	-7	862	-1	-15
3	Linoleum	212a	22	1,128	-1	-23
4	Linoleum	212a	22	1,744	-1	-3
5	Linoleum	212a	37	1,446	-1	3
6	Linoleum	212a	22	1,682	-1	-6
7	Linoleum	212a	-7	1,385	-1	15
8	Linoleum	212a	7	1,415	3	6
9	Linoleum	212a	7	1,200	-1	-3

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

The instrument MDCs for fixed measurements 1-9 are 58 dpm/100 cm^2 (alpha) and 233 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-9 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Table A7.12. SU-70 Room 213 Class 2 Floor Measurement Results

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	213	-5	1,370	0	-13
2	Concrete	213	-5	1,512	0	-8
3	Concrete	213	-5	1,534	0	-27
4	Concrete	213	8	1,786	3	-35
5	Concrete	213	20	1,337	0	15
6	Concrete	213	-5	1,578	0	20
7	Concrete	213	8	975	0	-19
8	Concrete	213	-5	1,293	0	-5
9	Concrete	213	8	1,074	3	-24
10	Concrete	213	20	1,315	0	-19
11	Concrete	213	8	1,490	3	-35

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

The instrument MDCs for fixed measurements 1-11 are 21 (alpha) and 256 dpm/100 cm^2 (beta); the MDCs for removable samples 1-11 are 18 dpm/100 cm^2 (alpha) and 212 dpm/100 cm^2 (beta); and the MDCs for QC measurement #5 are 54 dpm/100 cm^2 (alpha) and 223 dpm/100 cm^2 (beta).

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

N/A – Not Applicable

Table A7.13. SU-71 Rooms 214, 216 and 218 Class 2 Wall Measurement Results[a]

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	Post 2' up wall	214	805	-260	--	--
2	Post 5' up wall	214	91	-92	--	--
3	Post 6' up wall	214	1617	1,424	--	--
4	Post 6.5' up wall	214	66	-245	--	--
5	Post 6.5' up wall	214	263	597	--	--
6	Concrete	216	100	-274	-3	20
7	Concrete	216	60	15	-3	22
8	Concrete	216	70	-475	-6	15
9	Concrete	216	40	190	6	-2
10	Concrete	216	40	-387	-6	35
11	Concrete	216	30	-151	-3	-17
12	Concrete	216	50	-449	-6	37
13	Concrete	216	10	-64	-3	17
14	Concrete	216	30	-274	6	22
15	Concrete	216	50	120	-6	10
16	Concrete	216	100	-449	3	15
17	Concrete	216	80	-38	6	10
18	Concrete	216	20	504	-3	0
19	Concrete	216	50	190	-6	22
20	Concrete	216	60	277	3	7
21	Concrete	216	60	-562	-6	17
22	Concrete	216	90	-475	-3	22
23	Concrete	216	90	207	0	49
24	Concrete	216	80	-90	-6	37
25	Concrete	216	70	111	-6	17
26	Concrete	216	120	-562	-6	25
27	Concrete	216	20	155	-3	52
28	Concrete	216	90	-527	3	2
29	Concrete	216	40	-274	-3	-7
30	Concrete	218	20	1,676	-3	22
31	Concrete	218	60	1,117	0	-7
32	Concrete	218	20	1,353	-3	-2
33	Concrete	218	20	1,729	-3	-15
34	Concrete	218	20	1,326	-3	-20
35	Concrete	218	40	2,061	-3	7
36	Concrete	218	40	1,755	-6	37
37	Concrete	218	30	1,239	-6	-2
38	Concrete	218	40	1,589	-6	17
39	Concrete	218	40	1,204	3	12
40	Concrete	218	60	1,798	-6	0
41	Concrete	218	40	1,204	-3	10
42	Concrete	218	60	1,169	-3	5
43	Concrete	218	60	1,606	-3	47
44	Concrete	218	20	1,221	-3	5
45	Concrete	218	20	1,256	-3	20
47	Concrete	218	60	1,729	-6	-2
48	Concrete	218	20	1,571	0	12
49	Concrete	218	20	1,344	-3	40
50	Concrete	218	20	2,183	0	-15
51	Concrete	218	0	924	-3	40
52	Concrete	218	20	1,659	-6	15
53	Concrete	218	0	2,043	-3	35
54	Concrete	218	0	1,624	0	0

Table A7.13. SU-71 Rooms 214, 216 and 218 Class 2 Wall Measurement Results[a] (Continued)

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)
55	Concrete	218	6	-970	-6	-2
56	Concrete	218	100	-143	-6	59
57	Concrete	218	20	-3	-6	15
58	Concrete	218	30	776	-6	37
59	Concrete	218	30	1,169	0	-30
60	Concrete	218	40	942	-3	72
61	Concrete	218	40	968	-3	-17
62	Concrete	218	20	907	-3	52
63	Concrete	218	20	-597	-6	57
64	Concrete	218	40	1,519	-6	27
65	Concrete	218	20	1,361	-6	35
66	Concrete	218	60	1,291	-6	5
67	Concrete	218	80	924	-6	5
68	Concrete	218	20	1,466	-3	35
69	Concrete	218	80	1,676	-6	5
70	Concrete	218	31	831	-6	25
71	Concrete	218	42	935	-6	62
72	Concrete	218	42	966	-6	15
73	Concrete	218	42	1,091	-6	-2
74	Concrete	218	31	977	0	15
75	Concrete	218	8	1,018	-6	27
76	Concrete	218	8	904	-6	37
77	Concrete	218	-3	966	-6	35
78	Concrete	218	8	1,185	-6	27
79	Concrete	218	31	153	-6	-17
80	Concrete	218	54	-201	-3	37

[a] Samples collected prior to the remodeling of these rooms in 2007 and 2008. There is no figure associated with this sampling.

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

The instrument MDCs for fixed measurements are 30 dpm/100 cm^2 (alpha) and 742 dpm/100 cm^2 (beta); and the MDCs for removable samples are 85 dpm/100 cm^2 (alpha) and 320 dpm/100 cm^2 (beta).

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

N/A – Not Applicable

Table A7.14. SU-72 Rooms 214, 216 and 218 Class 2 Floor Measurement Results[a]

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	Tile	214	79	297	--	--
2	Concrete	216	11	726	0	2
3	Concrete	216	0	204	0	0
4	Concrete	216	11	414	0	7
5	Concrete	216	51	505	0	24
6	Concrete	216	82	98	0	7
7	Concrete	216	11	405	0	19
8	Concrete	216	53	386	1	31
9	Concrete	216	41	-6	9	-264
10	Concrete	216	21	322	0	26
11	Concrete	216	61	434	0	14
12	Concrete	216	53	303	0	-30
13	Concrete	216	0	28	0	12
14	Concrete	216	8	-193	0	66

Table A7.14. SU-72 Rooms 214, 216 and 218 Class 2 Floor Measurement Results[a] (Continued)

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)
15	Concrete	216	95	405	0	68
16	Concrete	216	42	273	1	2
17	Concrete	216	0	192	1	-3
18	Concrete	216	32	432	0	24
19	Concrete	216	25	96	0	2
20	Concrete	216	25	59	0	-6
21	Concrete	216	750	653	0	36
22	Concrete	216	8	155	0	2
23	Concrete	216	11	322	1	54
24	Concrete	216	11	349	0	14
25	Concrete	216	51	185	0	34
26	Concrete	216	-11	120	0	21
27	Concrete	216	820	122	0	-11
28	Concrete	216	18	110	0	-13
29	Concrete	216	26	634	0	36
30	Concrete	216	30	839	0	14
31	Concrete	216	40	219	0	-8
32	Concrete	216	10	886	0	12
33	Concrete	216	30	201	4	7
34	Concrete	216	40	28	0	21
35	Concrete	216	31	1,002	4	19
36	Concrete	216	580	131	1	26
37	Concrete	216	20	381	1	17
38	Concrete	216	70	358	1	12
39	Concrete	216	50	219	0	54
10	Concrete	216	0	363	1	36
41	Concrete	216	40	52	4	4
42	Concrete	216	40	87	0	7
43	Concrete	216	102	709	0	24
44	Concrete	216	40	140	0	39
45	Concrete	216	34	674	0	17
46	Concrete	216	30	219	4	7
47	Concrete	216	51	1,002	4	36
48	Concrete	216	60	96	4	34
49	Concrete	216	30	446	0	17
50	Concrete	216	10	656	0	51
51	Concrete	216	1090	1,146	1	49
52	Concrete	216	20	674	0	51
53	Concrete	218	100	-274	-3	20
54	Concrete	218	60	15	-3	22
55	Concrete	218	40	190	6	-2
56	Concrete	218	30	-151	-3	-17
57	Concrete	218	10	-64	-3	17
58	Concrete	218	50	120	-6	10
59	Concrete	218	80	-38	6	10
60	Concrete	218	50	190	-6	22
61	Concrete	218	60	-562	-6	17
62	Concrete	218	90	207	0	49
63	Concrete	218	70	111	-6	17
64	Concrete	218	20	155	-3	52
65	Concrete	218	40	-274	-3	-7
66	Concrete	218	77	-232	-6	15
67	Concrete	218	42	-128	-6	35
68	Concrete	218	54	-201	-6	37

Table A7.14. SU-72 Rooms 214, 216 and 218 Class 2 Floor Measurement Results[a] (Continued)

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)
69	Concrete	218	31	7	6	22
70	Concrete	218	111	-201	3	17
71	Concrete	218	19	-107	-3	0
72	Concrete	218	65	-378	3	7
73	Concrete	218	100	-232	-3	22
74	Concrete	218	88	226	-6	37
75	Concrete	218	134	-337	-6	25
76	Concrete	218	100	-295	3	2

[a] Samples collected prior to the remodeling of these rooms in 2007 and 2008. There is no figure associated with this sampling.

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

The instrument MDCs for fixed measurements are 30 dpm/100 cm^2 (alpha) and 742 dpm/100 cm^2 (beta); and the MDCs for removable samples are 85 dpm/100 cm^2 (alpha) and 320 dpm/100 cm^2 (beta).

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

N/A – Not Applicable

Table A7.15. SU-73 Room 215 Class 2 Floor Measurement Results

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	215	-5	1,545	0	-19
2	Concrete	215	-5	1,019	0	-30
3	Concrete	215	-5	1,008	6	-30
4	Concrete	215	-5	910	0	-10
5	Concrete	215	-5	997	0	6
6	Concrete	215	-5	734	0	-27
7	Concrete	215	20	1,370	0	-27
8	Concrete	215	-5	964	0	-19
9	Concrete	215	8	932	0	-16
10	Concrete	215	-5	1,764	0	4
11	Concrete	215	20	1,458	0	1
12	Concrete	215	8	1,074	0	-2

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

The instrument MDCs for fixed measurements 1-11 are 21 dpm/100 cm^2 (alpha) and 256 dpm/100 cm^2 (beta); the MDCs for removable samples 1-11 are 18 dpm/100 cm^2 (alpha) and 212 dpm/100 cm^2 (beta); and the MDCfor QC measurement #5 s are 54 dpm/100 cm^2 (alpha) and 223 dpm/100 cm^2 (beta).

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

N/A – Not Applicable

Table A7.16. SU-74 Room 217 Class 2 Floor Measurement Results

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	217	8	2,016	9	48
2	Concrete	217	-5	2,115	3	-13
3	Concrete	217	8	1,721	0	-5
4	Concrete	217	-5	1,721	0	26
5	Concrete	217	8	1,666	3	-35
6	Concrete	217	8	2,181	0	-46
7	Concrete	217	20	1,710	0	26
8	Concrete	217	20	1,786	0	-13
9	Concrete	217	8	1,742	0	-24
10	Concrete	217	33	1,655	0	-10
11	Concrete	217	8	1,732	3	-33
12	Concrete	217	-5	2,005	0	-13
13	Concrete	217	109	1,622	3	-10

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

The instrument MDCs for fixed measurements 1-13 are 21 dpm/100 cm^2 (alpha) and 257 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-13 are 18 dpm/100 cm^2 (alpha) and 212 dpm/100 cm^2 (beta).

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

Table A7.17. SU-75 Room 219 Class 2 Floor Measurement Results

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	219	33	1,249	0	-2
2	Concrete	219	33	1,611	3	4
3	Concrete	219	46	1,271	0	-19
4	Concrete	219	8	1,764	0	-16
5	Concrete	219	109	1,052	0	-2
6	Concrete	219	-5	1,589	0	6
7	Concrete	219	33	1,655	0	-24
8	Concrete	219	8	1,808	0	-16
9	Concrete	219	8	1,216	0	6
10	Concrete	219	-5	2,323	0	12

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

The instrument MDCs for fixed measurements 1-10 are 21 dpm/100 cm^2 (alpha) and 256 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-10 are 18 dpm/100 cm^2 (alpha) and 212 dpm/100 cm^2 (beta).

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

Table A7.18. SU-76 Room 220 Class 2 Floor Measurement Results

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	220	-7	626	-1	6
2	Linoleum	220	-7	779	3	15
3	Linoleum	220	7	790	-1	0
4	Linoleum	220	-7	1,128	3	0
5	Linoleum	220	22	646	-1	-9
6	Linoleum	220	-7	790	-1	9
7	Linoleum	220	22	903	-1	32
8	Linoleum	220	7	1,128	3	3
9	Linoleum	220	37	995	3	15
10	Linoleum	220	7	964	-1	6

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

The instrument MDCs for fixed measurements 1-10 are 21 dpm/100 cm^2 (alpha) and 256 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-10 are 18 dpm/100 cm^2 (alpha) and 212 dpm/100 cm^2 (beta).

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

Table A7.19. SU-77 Room 220A Class 2 Floor Measurement Results

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	220a	22	1,149	-1	6
2	Linoleum	220a	22	1,097	-1	-12
3	Linoleum	220a	7	769	3	15
4	Linoleum	220a	22	1,241	3	3
5	Linoleum	220a	7	779	3	-6
6	Linoleum	220a	37	944	3	9
7	Linoleum	220a	7	985	-1	0
8	Linoleum	220a	37	1,005	3	3
9	Linoleum	220a	-7	1,067	-1	-20
10	Linoleum	220a	-7	913	-1	-3

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

The instrument MDCs for fixed measurements 1-10 are 58 dpm/100 cm^2 (alpha) and 233 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Table A7.20. SU-78 Room 222 Class 2 Floor Measurement Results

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	222	22	790	-1	18
2	Linoleum	222	22	944	-1	-35
3	Linoleum	222	-7	626	-1	-41
4	Linoleum	222	7	523	-1	-12
5	Linoleum	222	7	749	3	23
6	Linoleum	222	-7	1,056	-1	-32
7	Linoleum	222	22	379	-1	-12
8	Linoleum	222	7	831	-1	-38
9	Linoleum	222	-7	656	-1	-20
10	Linoleum	222	22	349	-1	-50

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

The instrument MDCs for fixed measurements 1-10 are 58 dpm/100 cm^2 (alpha) and 233 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-10 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Table A7.21. SU-79 Room 223 Class 2 Floor Measurement Results

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	223	20	2,564	0	-2
2	Concrete	223	20	2,532	3	6
3	Concrete	223	-5	2,937	3	-5
4	Concrete	223	33	1,874	3	-13
5	Concrete	223	20	2,959	0	-13
6	Concrete	223	46	2,827	3	4
7	Concrete	223	58	2,400	0	-13
8	Concrete	223	46	2,181	0	-16
9	Concrete	223	33	2,630	0	-8
10	Concrete	223	20	2,871	0	4

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

The instrument MDCs for fixed measurements 1-10 are 21 dpm/100 cm^2 (alpha) and 256 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-10 are 18 dpm/100 cm^2 (alpha) and 212 dpm/100 cm^2 (beta).

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

Table A7.22. SU-80 Room 224 Class 2 Floor Measurement Results

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	224	22	595	-1	-29
2	Linoleum	224	7	728	-1	0
3	Linoleum	224	-7	862	-1	0
4	Linoleum	224	22	892	-1	9
5	Linoleum	224	22	933	-1	0
6	Linoleum	224	7	892	6	6
7	Linoleum	224	37	759	10	3
8	Linoleum	224	-7	800	-1	-15

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

The instrument MDCs for fixed measurements 1-8 are 58 dpm/100 cm^2 (alpha) and 233 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-8 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Table A7.23. SU-81 Rooms 226 and 226A Class 2 Floor Measurement Results

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	226	-5	1,425	0	-38
2	Concrete	226	-5	636	0	-44
3	Concrete	226	20	1,107	0	-35
4	Concrete	226	-5	1,107	0	-16
5	Concrete	226	-5	1,249	0	-49
6	Concrete	226	33	1,173	0	-19
7	Concrete	226	20	1,151	0	-16
8	Concrete	226	8	745	0	-46
9	Concrete	226a	8	1,140	0	-38
10	Concrete	226a	8	1,195	0	-44
11	Concrete	226a	-5	899	0	-21
12	Concrete	226a	-5	712	0	-41
13	Concrete	226a	8	997	0	-49
14	Concrete	226a	8	1,140	0	-19

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

The instrument MDCs for fixed measurements 1-14 are 21 dpm/100 cm^2 (alpha) and 256 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-14 are 18 dpm/100 cm^2 (alpha) and 212 dpm/100 cm^2 (beta).

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

The walls of the rooms listed in Table A7.24 below were surveyed as one MARSSIM Class 3 SU. The area of this SU is 1,550 m^2.

Table A7.24. SU-82 Second Floor West Class 3 Wall Measurement Results

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	226a	37	2,954	3	-12
2	Drywall	226	-7	1,826	-1	-26
3	Drywall	224	37	2,267	-1	-6
4	Drywall	223	22	2,041	-1	-6
5	Drywall	222	22	1,733	6	-26
6	Drywall	220	22	3,169	-1	-20
7	Drywall	220a	7	2,318	3	-12
8	Drywall	219	-7	2,646	3	-18
9	Drywall	218a	22	2,369	-1	-23
10	Drywall	218	52	2,605	3	-12
11	Drywall	217	-7	2,472	-1	0
12	Drywall	216	-7	2,267	-1	-26
13	Drywall	215	22	1,846	6	-6
14	Drywall	214	22	1,579	6	0
15	Drywall	213	-7	2,318	-1	-20
16	Drywall	212a	7	2,646	3	-12
17	Drywall	212	7	1,785	3	9
18	Drywall	211	7	2,605	3	-35
19	Drywall	210	-7	2,410	-1	-18
20	Drywall	208a	-7	2,769	-1	-15
21	Drywall	208b	-7	2,574	-1	-12
22	Drywall	208	-7	1,785	-1	-3
23	Drywall	206	-7	2,646	-1	-29
24	Drywall	204	7	2,390	3	-23
25	Drywall	202	7	2,164	3	-20
26	Drywall	218	37	708	-1	3
27	Drywall	216	7	441	-1	-15
28	Drywall	214	-7	554	-1	-9

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

The instrument MDCs for fixed measurements 1-25 are 58 dpm/100 cm^2 (alpha) and 233 dpm/100 cm^2 (beta); and the MDCs for removable samples 1-25 are 15 dpm/100 cm^2 (alpha) and 75 dpm/100 cm^2 (beta).

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

Summary. Residual levels of radioactivity in the Magill Hall Second Floor West Rooms clearly demonstrate that residual concentrations of radionuclide COPCs achieve the site-specific alpha DCGL of 1,160 dpm/100 cm^2 and the most restrictive beta DCGL of 5,000 dpm/100 cm^2 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 Magill Hall Second Floor West Rooms exceeds DCGLs) is rejected. Review of survey data supports the conclusion that the Magill Hall Second Floor West Rooms contain an adequate number of samples; a sufficient percentage have been scanned; and they have 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 Magill Hall Second Floor West Rooms at Southeast were below the $DCGL_W$. As such, formal assessment using the Sign Test is not required.

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

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ATTACHMENT A-7-1

FIGURES

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