

Project: MU Pickard Hall, C0911021			Survey Unit: Basement			Type of Survey: Characterization			Surveyor 1: Nathan Thomas					Surveyor 2: Mike Culp					Date: 12/9/09		Page: 1 of 5	
Instrument / Serial # Detector / Serial #		Source Check	Cal. Due	Type	Total/ Removable	Bkgd (cpm)	Efficiency	Surface Efficiency	Total Efficiency	Count Time (min) Sample      Bkg.		Area (cm <sup>2</sup> )	MDC (dpm/100cm <sup>2</sup> )	IL (dpm/100cm <sup>2</sup> )	MDC % of IL	Comments: 2-pi efficiency for total surface activity measurements, 4-pi efficiency used for removable surface activity measurements. Rooms 13 and 15 have been encapsulated subsequent to these surveys - see post-encapsulation survey results for current surveys.						
2241-3 / 253351 43-37 / 178300		SAT	8/4/2010	Beta	Total	1382	42.79%	0.25	10.70%	1	1	582	283	1000	28%							
2241-3 /253346 43-37 / 259902		SAT	8/18/2010	Alpha	Total	16	47.09%	0.25	11.77%	1	1	582	32	100	32%							
2929 / 149121 43-10-1 / 150791		SAT	12/18/2009	Beta	Removable	55	24.09%	N/A	24.09%	1	10	100	119	200	59%							
2929 / 149121 43-10-1 / 150791		SAT	12/18/2009	Alpha	Removable	0.4	35.98%	N/A	35.98%	1	10	100	14	20	72%	Reviewed: Dave Culp					Date: 12/11/09	
Location - Room	Total Surface Activity										Removable Surface Activity											
	Beta					Alpha					Sum of Fractions	Beta					Alpha					Sum of Fractions
	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL		Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	
1 - 23	4269	2887	4,637		4.64	716	700	1,022		10.22		59	4	17	<MDC	0.08	0	-0.4	-1	<MDC	0.00	
2 - 25	3287	1905	3,060		3.06	303	287	419		4.19		43	-12	-50	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
3 - Mezzanine	1599	217	349		0.35	38	22	32		0.32		60	5	21	<MDC	0.10	0	-0.4	-1	<MDC	0.00	
4 - 27	11380	9998	16,059		16.06	25	9	13	<MDC	0.13		59	4	17	<MDC	0.08	1	0.6	2	<MDC	0.08	
5 - 27	7935	6553	10,525		10.53	29	13	19	<MDC	0.19		59	4	17	<MDC	0.08	0	-0.4	-1	<MDC	0.00	
6 - 27	6957	5575	8,954		8.95	19	3	4	<MDC	0.04		52	-3	-12	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
7 - 27	1904	522	838		0.84	24	8	12	<MDC	0.12		51	-4	-17	<MDC	0.00	1	0.6	2	<MDC	0.08	
8 - 27	1456	74	119	<MDC	0.12	29	13	19	<MDC	0.19		71	16	66	<MDC	0.33	2	1.6	4	<MDC	0.22	
9 - 27	1217	-165	-265	<MDC	0.00	20	4	6	<MDC	0.06		51	-4	-17	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
10 - Outside 27 Door	2532	1150	1,847		1.85	44	28	41		0.41		61	6	25	<MDC	0.12	1	0.6	2	<MDC	0.08	
11 - Outside 27 Door	4545	3163	5,080		5.08	25	9	13	<MDC	0.13		49	-6	-25	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
12 - 28	1037	-345	-554	<MDC	0.00	27	11	16	<MDC	0.16		55	0	0	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
13 - 28	1261	-121	-194	<MDC	0.00	28	12	18	<MDC	0.18		57	2	8	<MDC	0.04	0	-0.4	-1	<MDC	0.00	
14 - 28	1247	-135	-217	<MDC	0.00	30	14	20	<MDC	0.20		62	7	29	<MDC	0.15	1	0.6	2	<MDC	0.08	
15 - 28	1020	-362	-581	<MDC	0.00	31	15	22	<MDC	0.22		59	4	17	<MDC	0.08	2	1.6	4	<MDC	0.22	
16 - 28	1119	-263	-422	<MDC	0.00	18	2	3	<MDC	0.03		60	5	21	<MDC	0.10	1	0.6	2	<MDC	0.08	
17 - 17A	8436	7054	11,330		11.33	56	40	58		0.58		58	3	12	<MDC	0.06	1	0.6	2	<MDC	0.08	
18 - 17A	11805	10423	16,741		16.74	44	28	41		0.41		63	8	33	<MDC	0.17	0	-0.4	-1	<MDC	0.00	
19 - 17A	4669	3287	5,280		5.28	24	8	12	<MDC	0.12		55	0	0	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
20 - 17A	1293	-89	-143	<MDC	0.00	25	9	13	<MDC	0.13		59	4	17	<MDC	0.08	0	-0.4	-1	<MDC	0.00	
21 - 17A	1163	-219	-352	<MDC	0.00	28	12	18	<MDC	0.18		55	0	0	<MDC	0.00	2	1.6	4	<MDC	0.22	
22 - 12	1669	287	461		0.46	44	28	41		0.41		46	-9	-37	<MDC	0.00	1	0.6	2	<MDC	0.08	
23 - 12	3348	1966	3,158		3.16	963	947	1,382		13.82		61	6	25	<MDC	0.12	2	1.6	4	<MDC	0.22	
24 - 12	2311	929	1,492		1.49	71	55	80		0.80		48	-7	-29	<MDC	0.00	1	0.6	2	<MDC	0.08	
25 - 12A	6430	5048	8,108		8.11	57	41	60		0.60		58	3	12	<MDC	0.06	2	1.6	4	<MDC	0.22	
26 - 12	5758	4376	7,029		7.03	54	38	55		0.55		50	-5	-21	<MDC	0.00	1	0.6	2	<MDC	0.08	
27 - 12	2452	1070	1,719		1.72	58	42	61		0.61		62	7	29	<MDC	0.15	2	1.6	4	<MDC	0.22	
28 - 12	4420	3038	4,880		4.88	58	42	61		0.61		47	-8	-33	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
29 - 12	6766	5384	8,648		8.65	111	95	139		1.39		66	11	46	<MDC	0.23	0	-0.4	-1	<MDC	0.00	
30 - 12	1628	246	395		0.40	48	32	47		0.47		69	14	58	<MDC	0.29	2	1.6	4	<MDC	0.22	
31 - 12	2022	640	1,028		1.03	51	35	51		0.51		60	5	21	<MDC	0.10	1	0.6	2	<MDC	0.08	
32 - 12	1643	261	419		0.42	52	36	53		0.53		52	-3	-12	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
33 - 12	43074	41692	66,965		66.96	58	42	61		0.61		53	-2	-8	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
34 - 12	2775	1393	2,237		2.24	26	10	15	<MDC	0.15		58	3	12	<MDC	0.06	0	-0.4	-1	<MDC	0.00	
35 - 12	38160	36778	59,072		59.07	244	228	333		3.33		75	20	83	<MDC	0.42	1	0.6	2	<MDC	0.08	
36 - 12	50824	49442	79,413		79.41	152	136	198		1.98		60	5	21	<MDC	0.10	2	1.6	4	<MDC	0.22	
37 - 12	41519	40137	64,467		64.47	364	348	508		5.08		48	-7	-29	<MDC	0.00	1	0.6	2	<MDC	0.08	
38 - 12	8207	6825	10,962		10.96	52	36	53		0.53		46	-9	-37	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
39 - 12	1842	460	739		0.74	39	23	34		0.34		57	2	8	<MDC	0.04	1	0.6	2	<MDC	0.08	
40 - 13 (Encapsulated)	35830	34448	55,330		55.33	39	23	34		0.34		58	3	12	<MDC	0.06	0	-0.4	-1	<MDC	0.00	



Project: MU Pickard Hall, C0911021		Survey Unit: Basement			Type of Survey: Characterization			Surveyor 1: Nathan Thomas					Surveyor 2: Mike Culp				Date: 12/9/09		Page: 2 of 5			
Instrument / Serial # Detector / Serial #	Source Check	Cal. Due	Type	Total/ Removable	Bkgd (cpm)	Efficiency	Surface Efficiency	Total Efficiency	Count Time (min) Sample      Bkg.		Area (cm <sup>2</sup> )	MDC (dpm/100cm <sup>2</sup> )	IL (dpm/100cm <sup>2</sup> )	MDC % of IL	Comments: 2-pi efficiency for total surface activity measurements, 4-pi efficiency used for removable surface activity measurements. Rooms 13 and 15 have been encapsulated subsequent to these surveys - see post-encapsulation survey results for current surveys.							
2241-3 / 253351 43-37 / 178300	SAT	8/4/2010	Beta	Total	1382	42.79%	0.25	10.70%	1	1	582	283	1000	28%								
2241-3 /253346 43-37 / 259902	SAT	8/18/2010	Alpha	Total	16	47.09%	0.25	11.77%	1	1	582	32	100	32%								
2929 / 149121 43-10-1 / 150791	SAT	12/18/2009	Beta	Removable	55	24.09%	N/A	24.09%	1	10	100	119	200	59%	Reviewed: Dave Culp						Date: 12/11/09	
2929 / 149121 43-10-1 / 150791	SAT	12/18/2009	Alpha	Removable	0.4	35.98%	N/A	35.98%	1	10	100	14	20	72%								
Location - Room	Total Surface Activity										Removable Surface Activity											
	Beta					Alpha					Sum of Fractions	Beta					Alpha					Sum of Fractions
	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL		Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	
41 - 13 (Encapsulated)	179654	178272	286,337		286.34	8089	8073	11,783		117.83		63	8	33	<MDC	0.17	4	3.6	10	<MDC	0.50	
42 - 13 (Encapsulated)	125345	123963	199,107		199.11	4708	4692	6,848		68.48		82	27	112	<MDC	0.56	11	10.6	29		1.47	
43 - 13 (Encapsulated)	62901	61519	98,811		98.81	807	791	1,154		11.54		64	9	37	<MDC	0.19	1	0.6	2	<MDC	0.08	
44 - 13 (Encapsulated)	46763	45381	72,890		72.89	3722	3706	5,409		54.09		65	10	42	<MDC	0.21	2	1.6	4	<MDC	0.22	
45 - 13 (Encapsulated)	100435	99053	159,097		159.10	14115	14099	20,578		205.78		48	-7	-29	<MDC	0.00	1	0.6	2	<MDC	0.08	
46 - 13 (Encapsulated)	84883	83501	134,118		134.12	3258	3242	4,732		47.32		62	7	29	<MDC	0.15	2	1.6	4	<MDC	0.22	
47 - 13 (Encapsulated)	20285	18903	30,362		30.36	4011	3995	5,831		58.31		49	-6	-25	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
48 - 13 (Encapsulated)	4001	2619	4,207		4.21	37	21	31	<MDC	0.31		65	10	42	<MDC	0.21	3	2.6	7	<MDC	0.36	
49 - 13 (Encapsulated)	10638	9256	14,867		14.87	240	224	327		3.27		57	2	8	<MDC	0.04	2	1.6	4	<MDC	0.22	
50 - 15 (Encapsulated)	7101	5719	9,186		9.19	849	833	1,216		12.16		48	-7	-29	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
51 - 15 (Encapsulated)	4795	3413	5,482		5.48	2495	2479	3,618		36.18		54	-1	-4	<MDC	0.00	2	1.6	4	<MDC	0.22	
52 - 13, Drain												56	1	4	<MDC	0.02	1	0.6	2	<MDC	0.08	
53 - 13, Drain												57	2	8	<MDC	0.04	0	-0.4	-1	<MDC	0.00	
54 - 13, Drain												48	-7	-29	<MDC	0.00	2	1.6	4	<MDC	0.22	
55 - 16, Vent												51	-4	-17	<MDC	0.00	1	0.6	2	<MDC	0.08	
56 - 1B	2204	822	1,320		1.32	38	22	32		0.32		57	2	8	<MDC	0.04	0	-0.4	-1	<MDC	0.00	
57 - Outside 9 Door	35552	34170	54,883		54.88	30	14	20	<MDC	0.20		55	0	0	<MDC	0.00	2	1.6	4	<MDC	0.22	
58 - C00A	1233	-149	-239	<MDC	0.00	35	19	28	<MDC	0.28		54	-1	-4	<MDC	0.00	1	0.6	2	<MDC	0.08	
59 - C00A	1370	-12	-19	<MDC	0.00	43	27	39		0.39		51	-4	-17	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
60 - C00A	1367	-15	-24	<MDC	0.00	40	24	35		0.35		60	5	21	<MDC	0.10	0	-0.4	-1	<MDC	0.00	



Project: MU Pickard Hall, C0911021		Survey Unit: First Floor			Type of Survey: Characterization			Surveyor 1: Nathan Thomas					Surveyor 2: Mike Culp				Date: 12/9/09		Page: 3 of 5			
Instrument / Serial # Detector / Serial #		Source Check	Cal. Due	Type	Total/ Removable	Bkgd (cpm)	Efficiency	Surface Efficiency	Total Efficiency	Count Time (min) Sample      Bkg.		Area (cm <sup>2</sup> )	MDC (dpm/100cm <sup>2</sup> )	IL (dpm/100cm <sup>2</sup> )	MDC % of IL	Comments: 2-pi efficiency for total surface activity measurements, 4-pi efficiency used for removable surface activity measurements.						
2241-3 / 253351 43-37 / 178300		SAT	8/4/2010	Beta	Total	1268	42.79%	0.25	10.70%	1	1	582	271	1000	27%							
2241-3 /253346 43-37 / 259902		SAT	8/18/2010	Alpha	Total	21	47.09%	0.25	11.77%	1	1	582	35	100	35%							
2929 / 160013 43-10-1 / 167231		SAT	12/18/2009	Beta	Removable	55	23.47%	N/A	23.47%	1	10	100	122	200	61%	Reviewed: Dave Culp  Date: 12/11/09						
2929 / 160013 43-10-1 / 167231		SAT	12/18/2009	Alpha	Removable	1.4	35.25%	N/A	35.25%	1	10	100	20	20	100%							
Total Surface Activity												Removable Surface Activity										
Location - Room	Beta					Alpha					Sum of Fractions	Beta					Alpha					Sum of Fractions
	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL		Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	
	1490	222	357		0.36	28	7	10	<MDC	0.10		69	14	60	<MDC	0.30	0	-1.4	-4	<MDC	0.00	
1 - 104	1969	701	1,126		1.13	34	13	19	<MDC	0.19		54	-1	-4	<MDC	0.00	1	-0.4	-1	<MDC	0.00	
2 - 104	1578	310	498		0.50	40	19	28	<MDC	0.28		49	-6	-26	<MDC	0.00	0	-1.4	-4	<MDC	0.00	
3 - 104	1860	592	951		0.95	20	-1	-1	<MDC	0.00		40	-15	-64	<MDC	0.00	0	-1.4	-4	<MDC	0.00	
4 - 104	1730	462	742		0.74	29	8	12	<MDC	0.12		58	3	13	<MDC	0.06	2	0.6	2	<MDC	0.09	
5 - 104	1546	278	447		0.45	33	12	18	<MDC	0.18		62	7	30	<MDC	0.15	1	-0.4	-1	<MDC	0.00	
6 - 104	2479	1211	1,945		1.95	31	10	15	<MDC	0.15		55	0	0	<MDC	0.00	1	-0.4	-1	<MDC	0.00	
7 - 104	1955	687	1,103		1.10	26	5	7	<MDC	0.07		63	8	34	<MDC	0.17	1	-0.4	-1	<MDC	0.00	
8 - 104	1899	631	1,014		1.01	34	13	19	<MDC	0.19		55	0	0	<MDC	0.00	0	-1.4	-4	<MDC	0.00	
9 - 104	2285	1017	1,633		1.63	26	5	7	<MDC	0.07		50	-5	-21	<MDC	0.00	2	0.6	2	<MDC	0.09	
10 - 104	2262	994	1,597		1.60	28	7	10	<MDC	0.10		72	17	72	<MDC	0.36	0	-1.4	-4	<MDC	0.00	
11 - 104	2716	1448	2,326		2.33	24	3	4	<MDC	0.04		65	10	43	<MDC	0.21	0	-1.4	-4	<MDC	0.00	
12 - 104	2304	1036	1,664		1.66	25	4	6	<MDC	0.06		65	10	43	<MDC	0.21	1	-0.4	-1	<MDC	0.00	
13 - 104	2230	962	1,545		1.55	32	11	16	<MDC	0.16		59	4	17	<MDC	0.09	0	-1.4	-4	<MDC	0.00	
14 - 104	2581	1313	2,109		2.11	17	-4	-6	<MDC	0.00		57	2	9	<MDC	0.04	1	-0.4	-1	<MDC	0.00	
15 - 104	2500	1232	1,979		1.98	33	12	18	<MDC	0.18		60	5	21	<MDC	0.11	1	-0.4	-1	<MDC	0.00	
16 - 111	2530	1262	2,027		2.03	27	6	9	<MDC	0.09		78	23	98	<MDC	0.49	0	-1.4	-4	<MDC	0.00	
17 - 111	2149	881	1,415		1.42	30	9	13	<MDC	0.13		48	-7	-30	<MDC	0.00	2	0.6	2	<MDC	0.09	
18 - 111	1842	574	922		0.92	18	-3	-4	<MDC	0.00		58	3	13	<MDC	0.06	2	0.6	2	<MDC	0.09	
19 - 111	1667	399	641		0.64	25	4	6	<MDC	0.06		60	5	21	<MDC	0.11	0	-1.4	-4	<MDC	0.00	
20 - 111	1642	374	601		0.60	28	7	10	<MDC	0.10		50	-5	-21	<MDC	0.00	3	1.6	5	<MDC	0.23	
21 - 111	1632	364	585		0.58	36	15	22	<MDC	0.22		49	-6	-26	<MDC	0.00	3	1.6	5	<MDC	0.23	
22 - 111	1782	514	826		0.83	29	8	12	<MDC	0.12		52	-3	-13	<MDC	0.00	4	2.6	7	<MDC	0.37	
23 - 111	1557	289	464		0.46	25	4	6	<MDC	0.06		57	2	9	<MDC	0.04	1	-0.4	-1	<MDC	0.00	
24 - 111	1294	26	42	<MDC	0.04	26	5	7	<MDC	0.07		58	3	13	<MDC	0.06	0	-1.4	-4	<MDC	0.00	
25 - 115	1323	55	88	<MDC	0.09	29	8	12	<MDC	0.12		49	-6	-26	<MDC	0.00	0	-1.4	-4	<MDC	0.00	
26 - 119	2574	1306	2,098		2.10	28	7	10	<MDC	0.10		55	0	0	<MDC	0.00	0	-1.4	-4	<MDC	0.00	
27 - C100	1969	701	1,126		1.13	19	-2	-3	<MDC	0.00		56	1	4	<MDC	0.02	2	0.6	2	<MDC	0.09	
28 - V100	1390	122	196	<MDC	0.20	28	7	10	<MDC	0.10		63	8	34	<MDC	0.17	1	-0.4	-1	<MDC	0.00	
29 - 106	1897	629	1,010		1.01	21	0	0	<MDC	0.00		56	1	4	<MDC	0.02	1	-0.4	-1	<MDC	0.00	
30 - 106	1452	184	296		0.30	28	7	10	<MDC	0.10		61	6	26	<MDC	0.13	0	-1.4	-4	<MDC	0.00	



Project: MU Pickard Hall, C0911021		Survey Unit: Second Floor			Type of Survey: Characterization			Surveyor 1: Nathan Thomas					Surveyor 2: Mike Culp				Date: 12/9/09		Page: 4 of 5			
Instrument / Serial # Detector / Serial #		Source Check	Cal. Due	Type	Total/ Removable	Bkgd (cpm)	Efficiency	Surface Efficiency	Total Efficiency	Count Time (min) Sample      Bkg.		Area (cm <sup>2</sup> )	MDC (dpm/100cm <sup>2</sup> )	IL (dpm/100cm <sup>2</sup> )	MDC % of IL	Comments: 2-pi efficiency for total surface activity measurements, 4-pi efficiency used for removable surface activity measurements.						
2241-3 / 253351 43-37 / 178300		SAT	8/4/2010	Beta	Total	1382	42.79%	0.25	10.70%	1	1	582	283	1000	28%							
2241-3 /253346 43-37 / 259902		SAT	8/18/2010	Alpha	Total	16	47.09%	0.25	11.77%	1	1	582	32	100	32%							
2929 / 149121 43-10-1 / 150791		SAT	12/18/2009	Beta	Removable	55	24.09%	N/A	24.09%	1	10	100	119	200	59%	Reviewed: Dave Culp					Date: 12/11/09	
2929 / 149121 43-10-1 / 150791		SAT	12/18/2009	Alpha	Removable	0.4	35.98%	N/A	35.98%	1	10	100	14	20	72%							
Location - Room	Total Surface Activity											Removable Surface Activity										
	Beta					Alpha					Sum of Fractions	Beta					Alpha					Sum of Fractions
	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL		Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	
1 - 205	2700	1318	2,117		2.12	47	31	45		0.45		59	4	17	<MDC	0.08	0	-0.4	-1	<MDC	0.00	
2 - 205	2769	1387	2,228		2.23	46	30	44		0.44		48	-7	-29	<MDC	0.00	1	0.6	2	<MDC	0.08	
3 - 205	4806	3424	5,500		5.50	55	39	57		0.57		51	-4	-17	<MDC	0.00	1	0.6	2	<MDC	0.08	
4 - 205	4289	2907	4,669		4.67	58	42	61		0.61		62	7	29	<MDC	0.15	0	-0.4	-1	<MDC	0.00	
5 - 205	2812	1430	2,297		2.30	53	37	54		0.54		50	-5	-21	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
6 - 205	3513	2131	3,423		3.42	43	27	39		0.39		57	2	8	<MDC	0.04	0	-0.4	-1	<MDC	0.00	
7 - 205	238	-1144	-1,837	<MDC	0.00	51	35	51		0.51		64	9	37	<MDC	0.19	0	-0.4	-1	<MDC	0.00	
8 - 205	2379	997	1,601		1.60	50	34	50		0.50		65	10	42	<MDC	0.21	0	-0.4	-1	<MDC	0.00	
9 - 205	2463	1081	1,736		1.74	41	25	36		0.36		41	-14	-58	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
10 - 205	2093	711	1,142		1.14	54	38	55		0.55		38	-17	-71	<MDC	0.00	1	0.6	2	<MDC	0.08	
11 - 205	2566	1184	1,902		1.90	54	38	55		0.55		62	7	29	<MDC	0.15	0	-0.4	-1	<MDC	0.00	
12 - 201	1910	528	848		0.85	50	34	50		0.50		56	1	4	<MDC	0.02	0	-0.4	-1	<MDC	0.00	
13 - 201	1918	536	861		0.86	55	39	57		0.57		63	8	33	<MDC	0.17	0	-0.4	-1	<MDC	0.00	
14 - 213, Wall	13133	11751	18,874		18.87	57	41	60		0.60		68	13	54	<MDC	0.27	2	1.6	4	<MDC	0.22	
15 - 214	1640	258	414		0.41	48	32	47		0.47		56	1	4	<MDC	0.02	0	-0.4	-1	<MDC	0.00	
16 - 215	1720	338	543		0.54	63	47	69		0.69		56	1	4	<MDC	0.02	2	1.6	4	<MDC	0.22	
17 - 204	1812	430	691		0.69	56	40	58		0.58		49	-6	-25	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
18 - 206	1743	361	580		0.58	41	25	36		0.36		67	12	50	<MDC	0.25	0	-0.4	-1	<MDC	0.00	
19 - 207	1602	220	353		0.35	45	29	42		0.42		48	-7	-29	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
20 - 209	1723	341	548		0.55	46	30	44		0.44		52	-3	-12	<MDC	0.00	0	-0.4	-1	<MDC	0.00	
21 - 210	1651	269	432		0.43	44	28	41		0.41		66	11	46	<MDC	0.23	0	-0.4	-1	<MDC	0.00	
22 - 213	1676	294	472		0.47	51	35	51		0.51		56	1	4	<MDC	0.02	0	-0.4	-1	<MDC	0.00	



Project: MU Pickard Hall, C0911021		Survey Unit: Attic & Roof			Type of Survey: Characterization			Surveyor 1: Nathan Thomas				Surveyor 2: Mike Culp				Date: 12/9/09		Page: 5 of 5				
Instrument / Serial # Detector / Serial #	Source Check	Cal. Due	Type	Total/ Removable	Bkgd (cpm)	Efficiency	Surface Efficiency	Total Efficiency	Count Time (min) Sample      Bkg.		Area (cm <sup>2</sup> )	MDC (dpm/100cm <sup>2</sup> )	IL (dpm/100cm <sup>2</sup> )	MDC % of IL	Comments: 2-pi efficiency for total surface activity measurements, 4-pi efficiency used for removable surface activity measurements.							
2241-3 / 253351 43-37 / 178300	SAT	8/4/2010	Beta	Total	1382	42.79%	0.25	10.70%	1	1	582	283	1000	28%								
2241-3 /253346 43-37 / 259902	SAT	8/18/2010	Alpha	Total	16	47.09%	0.25	11.77%	1	1	582	32	100	32%								
2929 / 160013 43-10-1 / 167231	SAT	12/18/2009	Beta	Removable	55	23.47%	N/A	23.47%	1	10	100	122	200	61%	Reviewed: Dave Culp				Date: 12/11/09			
2929 / 160013 43-10-1 / 167231	SAT	12/18/2009	Alpha	Removable	1.4	35.25%	N/A	35.25%	1	10	100	20	20	100%								
Location - Room	Total Surface Activity										Removable Surface Activity											
	Beta					Alpha					Sum of Fractions	Beta					Alpha					Sum of Fractions
	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL		Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	
1 - Vent	38938	37556	60,322		60.32	5015	4999	7,296		72.96		178	123	524		2.62	90	88.6	251		12.57	
2 - Floor	3623	2241	3,599		3.60	790	774	1,130		11.30		52	-3	-13	<MDC	0.00	2	0.6	2	<MDC	0.09	
3 - Vent	52183	50801	81,596		81.60	17610	17594	25,679		256.79		102	47	200		1.00	61	59.6	169		8.45	
4 - Subfloor	1004	-378	-607	<MDC	0.00	156	140	204		2.04		62	7	30	<MDC	0.15	4	2.6	7	<MDC	0.37	
5 - Roof	2543	1161	1,865		1.86	143	127	185		1.85		49	-6	-26	<MDC	0.00	2	0.6	2	<MDC	0.09	
6 - Vent	2090	708	1,137		1.14	51	35	51		0.51		45	-10	-43	<MDC	0.00	2	0.6	2	<MDC	0.09	
7 - Floor	10178	8796	14,128		14.13	3266	3250	4,743		47.43		68	13	55	<MDC	0.28	10	8.6	24		1.22	
8 - Roof	2164	782	1,256		1.26	89	73	107		1.07		73	18	77	<MDC	0.38	3	1.6	5	<MDC	0.23	
9 - Floor	3068	1686	2,708		2.71	403	387	565		5.65		58	3	13	<MDC	0.06	3	1.6	5	<MDC	0.23	
10 - Floor	1967	585	940		0.94	148	132	193		1.93		54	-1	-4	<MDC	0.00	2	0.6	2	<MDC	0.09	
11 - Floor	2312	930	1,494		1.49	105	89	130		1.30		58	3	13	<MDC	0.06	9	7.6	22		1.08	
12 - Floor	1873	491	789		0.79	62	46	67		0.67		59	4	17	<MDC	0.09	1	-0.4	-1	<MDC	0.00	
13 - Floor	2820	1438	2,310		2.31	208	192	280		2.80		43	-12	-51	<MDC	0.00	3	1.6	5	<MDC	0.23	
14 - Floor	4541	3159	5,074		5.07	264	248	362		3.62		60	5	21	<MDC	0.11	2	0.6	2	<MDC	0.09	
15 - Floor	10009	8627	13,857		13.86	794	778	1,136		11.36		58	3	13	<MDC	0.06	2	0.6	2	<MDC	0.09	
16 - Floor	2272	890	1,430		1.43	96	80	117		1.17		51	-4	-17	<MDC	0.00	5	3.6	10	<MDC	0.51	
17 - Floor	5840	4458	7,160		7.16	716	700	1,022		10.22		59	4	17	<MDC	0.09	2	0.6	2	<MDC	0.09	
18 - Floor	2473	1091	1,752		1.75	136	120	175		1.75		69	14	60	<MDC	0.30	3	1.6	5	<MDC	0.23	
19 - Floor	1963	581	933		0.93	64	48	70		0.70		75	20	85	<MDC	0.43	0	-1.4	-4	<MDC	0.00	
20 - Floor	2316	934	1,500		1.50	86	70	102		1.02		62	7	30	<MDC	0.15	1	-0.4	-1	<MDC	0.00	



Project: MU Pickard Hall, C0911021		Survey Unit: Roof			Type of Survey: Drains and Vents			Surveyor 1: Dave Culp					Surveyor 2: Tony McGill				Date: 3/31/2010		Page: 1 of 1			
Instrument / Serial # Detector / Serial #		Source Check	Cal. Due	Type	Total/ Removable	Bkgd (cpm)	Efficiency	Surface Efficiency	Total Efficiency	Count Time (min) Sample      Bkg.		Area (cm <sup>2</sup> )	MDC (dpm/100cm <sup>2</sup> )	IL (dpm/100cm <sup>2</sup> )	MDC % of IL	Comments: 4-pi efficiency used for removable surface activity measurements. Due to geometry, all locations inaccessible for direct measurement.						
2929 / 160013 43-10-1 / PR167231		SAT	8/18/2010	Beta	Removable	54	23.47%	N/A	23.47%	1	10	100	121	200	60%							
2929 / 160013 43-10-1 / PR167231		SAT	8/18/2010	Alpha	Removable	1.4	35.25%	N/A	35.25%	1	10	100	20	20	100%	Reviewed: Dave Culp				Date: 4/4/10		
Location - Room	Total Surface Activity											Removable Surface Activity										
	Beta					Alpha					Sum of Fractions	Beta					Alpha					Sum of Fractions
	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL		Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	Gross Counts	Net cpm	Activity (dpm/100cm <sup>2</sup> )	Notes	Fraction of IL	
1 - Gutter												61	7	30	<MDC	0.15	0	-1.4	-4	<MDC	0.00	N/A
2 - Gutter												57	3	13	<MDC	0.06	0	-1.4	-4	<MDC	0.00	N/A
3 - Downspout												60	6	26	<MDC	0.13	4	2.6	7	<MDC	0.37	N/A
4 - Downspout												61	7	30	<MDC	0.15	4	2.6	7	<MDC	0.37	N/A
5 - Downspout												55	1	4	<MDC	0.02	3	1.6	5	<MDC	0.23	N/A
6 - Downspout												64	10	43	<MDC	0.21	1	-0.4	-1	<MDC	0.00	N/A
7 - Gutter												68	14	60	<MDC	0.30	1	-0.4	-1	<MDC	0.00	N/A
8 - Gutter												58	4	17	<MDC	0.09	2	0.6	2	<MDC	0.09	N/A
9 - Downspout												50	-4	-17	<MDC	0.00	0	-1.4	-4	<MDC	0.00	N/A
10 - Downspout												61	7	30	<MDC	0.15	2	0.6	2	<MDC	0.09	N/A
11 - Downspout												53	-1	-4	<MDC	0.00	3	1.6	5	<MDC	0.23	N/A
12 - Downspout												52	-2	-9	<MDC	0.00	2	0.6	2	<MDC	0.09	N/A
13 - Downspout												60	6	26	<MDC	0.13	1	-0.4	-1	<MDC	0.00	N/A
14 - Vent												51	-3	-13	<MDC	0.00	1	-0.4	-1	<MDC	0.00	N/A
15 - Vent												52	-2	-9	<MDC	0.00	2	0.6	2	<MDC	0.09	N/A
16 - Fan EF3												78	24	102	<MDC	0.51	1	-0.4	-1	<MDC	0.00	N/A
17 - Drain Vent												51	-3	-13	<MDC	0.00	4	2.6	7	<MDC	0.37	N/A
18 - Drain Vent												55	1	4	<MDC	0.02	0	-1.4	-4	<MDC	0.00	N/A
19 - Passive Vent												62	8	34	<MDC	0.17	2	0.6	2	<MDC	0.09	N/A
20 - Vent												49	-5	-21	<MDC	0.00	4	2.6	7	<MDC	0.37	N/A
21- Drain Vent												59	5	21	<MDC	0.11	4	2.6	7	<MDC	0.37	N/A