APPENDIX C

REPORTED EFFLUENT AND DUCT AIR SAMPLING RESULTS FOR BUILDING 71 DURING THE YEARS 1953–1957

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The radiation protection staff began sampling the Building 71 stack effluent in June 1953 when operations began. Sampling of the duct that carried the exhaust from Rooms 148 and 148A, a major plutonium processing area in the building, was initiated at the same time. By early 1954, the duct sampling program had expanded to include the six ventilation exhaust air ducts that were expected to contain the highest concentrations of plutonium.

Initially, sampling was performed only during the day shift hours, when operations were conducted. During off shifts, the exhaust flow rate was also reduced because of limited activity in the building. Data for January 1954 indicate that the building exhaust air flow rate during the day shift was 180,000 $ft^3\ min^{-1}$. At other times and over weekends, the flow rate was lowered to 130,000 and 100,000 $ft^3\ min^{-1}$, respectively. As operations expanded to two and then to three shifts, the sampling program also expanded and the daily ventilation flow rate increased gradually. During the last half of 1956, the average building exhaust flow rate was consistently above 150,000 $ft^3\ min^{-1}$. A reference flow rate of 202,000 $ft^3\ min^{-1}$ was used for calculations of the amounts of plutonium carried to the main filter plenum. Flow rates for individual ducts that contributed to the exhaust flow were referenced to that building flow rate.

Table C-1 shows the exhaust system ducts that were sampled and their flow rates in late 1955 (Anonymous 1955). It can be seen that about half of the total building exhaust airflow was carried in the ducts that were sampled routinely.

Table C-1. Ducts in Building 71 That Were Sampled Routinely

Exhaust sampled	Flow rate[a] ($ft^3\ min^{-1}$)	Primary areas exhausted
Stack discharge[b]	202,000	Entire building
Duct D–77[b]	30,000	Rooms 148, 148A (plutonium processing operations); and bleed flow from recirculating air system for gloveboxes
Duct D–74[c]	29,000	Room 146 (plutonium processing) and Building. 74 (waste processing)
Duct D–86[c,d]	4,800	Booster filtration system (filtered exhaust from gloveboxes in development and analytical areas)
D–84[c]	20,000	Rooms 149, 149A, and 149B (plutonium recovery operations)
D–88[c]	26,000	Development (special products processing and support efforts) and analytical areas (sample analysis support work)

[a] The flow rates listed are consistent with a reference flow rate of 202,000 $ft^3\ min^{-1}$ for the main exhaust. That average flow rate was not reached on a regular basis until mid-1956.

[b] Sampling started in June 1953.

[c] Sampling started by early 1954.

[d] The booster exhaust system contributes most of the radioactivity carried by this duct.

The glovebox exhaust (booster) filtration system treated air from the locations, inside the working gloveboxes, where plutonium concentrations were greatest. The recirculating air system also handled air from gloveboxes and contained filters. Routine measurements downstream of those filters were performed, presumably to check filter performance, after May 1954. However, the contribution of the bleed air from the recirculating air system to the total was measured in the larger air duct from Rooms 148 and 148A starting in June 1953. Ducts from Rooms 148, 148A, 149, 149A, 149B, and 146 carried air from the main plutonium processing areas in Building 71. Building 74, which adjoined Building 71, was the plutonium waste processing facility in the years considered here. The exhaust from that building was subsequently provided with separate filtration before routing to the main filter plenum.

Tables C-2 through C-5 contain the plutonium air concentrations that were reported (Putzier et al. 1953–1958) for the building exhaust and contributing ducts. During this period, the samples were analyzed for total long lived alpha activity. The samples were counted twice and the method of Koval (1945) was used to account for the contribution of naturally occurring alpha-emitting radon progeny also collected on the sampling filter.

The samples were collected using a single probe in the center of large rectangular ducts. The cross-sectional area of the main exhaust duct was 60 ft^2. The feeder ducts listed in Table C-1 were smaller than that (16–20 ft^2) but still too large for single-probe sampling without knowledge that the exhausts were well mixed. Ripple et al. (1996) and Voillequé (1999) have analyzed potential bias in the sampling results for the Building 71 exhaust. Corrections for bias are discussed in Section 3 of this report. Tables C-2 through C-5 contain the values reported routinely in the early years of plant operation (Putzier et al. 1953–1958).

Table C-2. Reported Air Concentrations[a] for Building 71 Stack Effluent and Booster System Exhaust Air Duct

		Number of	Building 71 stack effluent concentration (dpm m^{-3})		Booster system exhaust concentration (dpm m^{-3})	
Start	End	samples	Average	Maximum	Average	Maximum
19-Jun-53	30-Jun-53	7	0	0	[b]	[b]
1-Jul-53	31-Jul-53	23	0.02	0.1	[b]	[b]
1-Aug-53	31-Aug-53	22	0.28[c]	6.24[c]	[b]	[b]
1-Sep-53	30-Sep-53	20	0.05	0.32	[b]	[b]
1-Oct-53	31-Oct-53	22	0.05	0.29	[b]	[b]
1-Nov-53	30-Nov-53	20	0.057	0.89	[b]	[b]
1-Dec-53	31-Dec-53	19	0.0176	[c]	[b]	[b]
1-Jan-54	31-Jan-54	21	0.0273	0.21	0.893	[d]
1-Feb-54	28-Feb-54	[e]	0.0269	[c]	2.48	18.3
1-Mar-54	31-Mar-54	[e]	0.0432	[c]	3.7	25.5
1-Apr-54	30-Apr-54	[e]	0.0166	[c]	0.097	0.476
1-May-54	31-May-54	40	0.127	1.16	0.166	0.916
1-Jun-54	30-Jun-54	43	0.032	0.422	0.054	0.315
1-Jul-54	31-Jul-54	41	0.111	2.13	0.054	5.77
1-Aug-54	31-Aug-54	52	0.058	0.785	0.084	0.458
1-Sep-54	30-Sep-54	42	0.188	0.972	0.278	1.25
1-Oct-54	31-Oct-54	42	0.064	0.539	0.14	0.433
1-Nov-54	28-Nov-54	38	0.151	2.72	0.109	0.328
29-Nov-54	31-Dec-54	46	0.214	3.72	0.674	4.99
1-Jan-55	28-Jan-55	39	0.108	1.25	0.748	3.982
31-Jan-55	28-Feb-55	42	0.107	1.02	0.992	3.53
1-Mar-55	31-Mar-55	46	0.106	1.02	0.978	3.44
1-Apr-55	30-Apr-55	40	0.117	1.2	1.2	3.3
2-May-55	27-May-55	40	0.081	0.52	0.586	2.22
31-May-55	30-Jun-55	46	0.049	0.435	0.28	1.07
1-Jul-55	29-Jul-55	40	0.043	0.845	1.96	9.56
1-Aug-55	31-Aug-55	46	0.02	1.53	7.46	81.77
1-Sep-55	30-Sep-55	43	0.311	3.57	2.54	15.4
1-Oct-55	31-Oct-55	42	0.111	1.53	0.73	4.31
1-Nov-55	30-Nov-55	42	0.060	0.955	0.41	1.84
1-Dec-55	31-Dec-55	42	0.040	0.542	0.14	0.57

Table C-2. (Continued)

Start	End	Number of samples	Building 71 stack effluent concentration (dpm m^{-3})		Booster system exhaust concentration (dpm m^{-3})	
			Average	Maximum	Average	Maximum
1-Jan-56	31-Jan-56	42	0.065	1.22	0.46	1.67
1-Feb-56	29-Feb-56	42	0.048	0.325	1.84	15.3
1-Mar-56	31-Mar-56	42	0.065	0.346	3.89	25.6
1-Apr-56	30-Apr-56	41	0.684	5.87	2.33	6.75
1-May-56	31-May-56	44	0.206	1.54	8.36	116
1-Jun-56	30-Jun-56	42	0.088	1.22	6.32	34.8
1-Jul-56	31-Jul-56	41	0.229	2.01	52.7	517
1-Aug-56	31-Aug-56	46	0.204	1.54	15	48.2
1-Sep-56	30-Sep-56	38	0.235	1.19	7.92	37
1-Oct-56	31-Oct-56	36	0.585	9.85	4.78	10.5
1-Nov-56	30-Nov-56	26	0.326	2.29	1.36	4.29
1-Dec-56	31-Dec-56	23	0.153	1.05	5.58	73.1
1-Jan-57	31-Jan-57	26	0.363	2.96	1.05	4.09
1-Feb-57	28-Feb-57	24	0.082	1.14	3.88	18.6
1-Mar-57	31-Mar-57	25	0.638	14.1	0.78	4.77
1-Apr-57	30-Apr-57	25	0.0776	0.936	3.42	26.7
1-May-57	31-May-57	31	0.043	0.347	29.2	239
1-Jun-57	30-Jun-57	30	6.543	170	4.96	23.6
1-Jul-57	31-Jul-57	29	0.4034	4.1	3.09	15.7
1-Aug-57	31-Aug-57	26	0.0924	0.4	7.83	120
1-Sep-57	10-Sep-57	10	3.66	15.1	6.58	9.19
11-Sep-57	18-Sep-57	[f]	[f]	[f]	[f]	[f]
19-Sep-57	30-Sep-57	[e]	74.7	2086	[f]	[f]
1-Oct-57	31-Oct-57	[e]	6.64	34.4	130	707
1-Nov-57	30-Nov-57	[e]	0.5	1.53	49.3	326
1-Dec-57	31-Dec-57	[e]	2.01	15	4.92	22.9

[a] Concentrations were reported in units of alpha disintegrations per minute per cubic meter (dpm m^{-3})

[b] Booster system exhaust air duct sampling started in January 1954.

[c] Maximum concentration was not reported.

[d] All but one sample contained less than a detectable amount; the high sample was not checked.

[e] Number of samples was not reported.

[f] Sampling results were not available because of the fire on 11–12 September.

Table C-3. Reported Air Concentrations[a] for Rooms 148 and 148A and the Bleed from the Recirculating Air System[b]

		Rooms 148, 148A and recirculating air exhaust duct concentration (dpm m^{-3})		Recirculating system exhaust air concentration (dpm m^{-3}) downstream of filters	
Start	End	Average	Maximum	Average	Maximum
23-Jun-53	30-Jun-53	1.4	3.8	[b]	[b]
1-Jul-53	31-Jul-53	1.2	53	[b]	[b]
1-Aug-53	31-Aug-53	2.3	19.8	[b]	[b]
1-Sep-53	30-Sep-53	8.4	24.9	[b]	[b]
1-Oct-53	31-Oct-53	1.88	13	[b]	[b]
1-Nov-53	30-Nov-53	0.46	3.77	[b]	[b]
22-Dec-53	31-Dec-53	16.0	90.1	[b]	[b]
1-Jan-54	31-Jan-54	5.07	[c]	[b]	[b]
1-Feb-54	28-Feb-54	4.05	42.1	[b]	[b]
1-Mar-54	31-Mar-54	4.79	76.7	[b]	[b]
1-Apr-54	30-Apr-54	1.3	9.94	[b]	[b]
1-May-54	31-May-54	0.996	4.22	0.593	1.61
1-Jun-54	30-Jun-54	1.11	4.55	0.232	1.5
1-Jul-54	31-Jul-54	0.84	3.21	0.126	0.569
1-Aug-54	31-Aug-54	2.14	37.2	0.199	0.737
1-Sep-54	30-Sep-54	27.7	285	0.363	2.05
1-Oct-54	31-Oct-54	4.65	37.1	0.256	0.958
1-Nov-54	28-Nov-54	0.77	2.01	0.335	1.10
29-Nov-54	31-Dec-54	5.5	24	0.644	2.56
1-Jan-55	28-Jan-55	8.85	63.2	1.38	7.31
31-Jan-55	28-Feb-55	10.3	52	0.93	2.17
1-Mar-55	31-Mar-55	5.06	24.7	1.35	5.56
1-Apr-55	30-Apr-55	10.5	149	2.05	7.47
2-May-55	27-May-55	11	145	0.843	1.76
31-May-55	30-Jun-55	6.95	45.9	0.35	0.95
1-Jul-55	29-Jul-55	8.49	86	2.56	15.8
1-Aug-55	31-Aug-55	5.67	39.5	30.9	661
1-Sep-55	30-Sep-55	7.67	51.7	1.41	13.4
1-Oct-55	31-Oct-55	4.87	33.8	0.53	2.33
1-Nov-55	30-Nov-55	3.97	28.7	0.44	0.93
1-Dec-55	31-Dec-55	4.69	25.5	0.43	2.8

Table C-3. (Continued)

		Rooms 148, 148A and recirculating air exhaust duct concentration (dpm m^{-3})		Recirculating system exhaust air concentration (dpm m^{-3}) downstream of filters	
Start	End	Average	Maximum	Average	Maximum
1-Jan-56	31-Jan-56	2.48	12.8	0.95	10.6
1-Feb-56	29-Feb-56	50.9	428	1.57	7.46
1-Mar-56	31-Mar-56	2,412	40,000	0.54	3.45
1-Apr-56	30-Apr-56	61.5	465	0.89	6.49
1-May-56	31-May-56	27.8	116	0.98	11.6
1-Jun-56	30-Jun-56	17.4	73.9	0.33	2.52
1-Jul-56	31-Jul-56	19.9	49.3	1.47	16
1-Aug-56	31-Aug-56	79.4	1,160	20.2	320
1-Sep-56	30-Sep-56	48.7	547	1.32	7.63
1-Oct-56	31-Oct-56	41	358	0.96	4.18
1-Nov-56	30-Nov-56	20	256	0.32	1.74
1-Dec-56	31-Dec-56	18.2	59.9	0.43	2.82
1-Jan-57	31-Jan-57	66.6	476	0.37	1.77
1-Feb-57	28-Feb-57	33.4	237	0.35	1.91
1-Mar-57	31-Mar-57	5.76	16.4	0.31	2.58
1-Apr-57	30-Apr-57	52.4	328	13.6	237
1-May-57	31-May-57	1.82	44.1	1.24	9.0
1-Jun-57	30-Jun-57	9.7	87.2	0.74	2.18
1-Jul-57	31-Jul-57	17.3	113	0.56	5.49
1-Aug-57	31-Aug-57	3.6	18.9	0.80	5.92
1-Sep-57	10-Sep-57	245	597	0.09	0.29
11-Sep-57	18-Sep-57	[d]	[d]	[d]	[d]
19-Sep-57	30-Sep-57	65.1	107	4.28	16.1
1-Oct-57	31-Oct-57	38	353	1.19	6.0
1-Nov-57	30-Nov-57	25.6	115	0.69	2.33
1-Dec-57	31-Dec-57	10.8	71.1	0.46	4.95

[a] Concentrations were reported in units of alpha disintegrations per minute per cubic meter (dpm m^{-3}).

[b] Sampling of the recirculating air system exhaust downstream of the filters began in May 1954. This line fed into the larger duct from Rooms 148 and 148A. The results of sampling the combined discharge are also shown in this table.

[c] Maximum concentration was not reported.

[d] Sampling results were not available because of the fire on 11–12 September.

Table C-4. Reported Air Concentrations[a] for Room 146 and Building 74 Exhaust Air Ducts

		Room 146 exhaust duct air concentration (dpm m^{-3})		Building 74 exhaust duct air concentration (dpm m^{-3})	
Start	End	Average	Maximum	Average	Maximum
19-Jun-53	30-Jun-53	[b]	[b]	[c]	[c]
1-Jul-53	31-Jul-53	[b]	[b]	[c]	[c]
1-Aug-53	31-Aug-53	[b]	[b]	[c]	[c]
1-Sep-53	30-Sep-53	[b]	[b]	[c]	[c]
1-Oct-53	31-Oct-53	[b]	[b]	[c]	[c]
1-Nov-53	30-Nov-53	[b]	[b]	[c]	[c]
22-Dec-53	31-Dec-53	0.048	0.08	[c]	[c]
1-Jan-54	31-Jan-54	0.0117	[d]	[c]	[c]
1-Feb-54	28-Feb-54	0.654	3.73	[c]	[c]
1-Mar-54	31-Mar-54	0.339	1.79	[c]	[c]
1-Apr-54	30-Apr-54	0.355	1.81	[c]	[c]
1-May-54	31-May-54	0.538	3.24	[c]	[c]
1-Jun-54	30-Jun-54	0.66	5.35	[c]	[c]
1-Jul-54	31-Jul-54	7.42	65.3	[c]	[c]
1-Aug-54	31-Aug-54	7.07	102	[c]	[c]
1-Sep-54	30-Sep-54	6.02	43.6	[c]	[c]
1-Oct-54	31-Oct-54	16.8	127	[c]	[c]
1-Nov-54	28-Nov-54	35.6	201	[c]	[c]
29-Nov-54	31-Dec-54	32.6	102	[c]	[c]
1-Jan-55	28-Jan-55	17.4	40.4	[c]	[c]
31-Jan-55	28-Feb-55	21.9	111	[c]	[c]
1-Mar-55	31-Mar-55	17.9	82.3	[c]	[c]
1-Apr-55	30-Apr-55	22.6	73.6	[c]	[c]
2-May-55	27-May-55	19.9	74	[c]	[c]
31-May-55	30-Jun-55	10.5	60	[c]	[c]
1-Jul-55	29-Jul-55	13.2	33.1	[c]	[c]
1-Aug-55	31-Aug-55	9.62	66.1	[c]	[c]
1-Sep-55	30-Sep-55	36.6	244	[c]	[c]
1-Oct-55	31-Oct-55	66.9	1130	[c]	[c]
1-Nov-55	30-Nov-55	13.6	32.8	[c]	[c]
1-Dec-55	31-Dec-55	6.03	39.8	[c]	[c]

Table C-4. (Continued)

		Room 146 exhaust duct air concentration (dpm m^{-3})		Building 74 exhaust duct air concentration (dpm m^{-3})	
Start	End	Average	Maximum	Average	Maximum
1-Jan-56	31-Jan-56	63.6	673	[c]	[c]
1-Feb-56	29-Feb-56	257	1360	[c]	[c]
1-Mar-56	27-Mar-56	48	280	[e]	[e]
27-Mar-56	31-Mar-56	7.58	17.8	0.39	1.17
1-Apr-56	30-Apr-56	17.5	103	1.39	7.94
1-May-56	31-May-56	8.79	62.2	8.69	26.2
1-Jun-56	30-Jun-56	3.26	31.2	2.2	10.7
1-Jul-56	31-Jul-56	278	5,110	[f]	[f]
1-Aug-56	31-Aug-56	140	3,030	2.54	9.48
1-Sep-56	30-Sep-56	26	73.9	1.91	9.13
1-Oct-56	31-Oct-56	35	235	0.51	1.39
1-Nov-56	30-Nov-56	4.62	38.2	0.65	3.24
1-Dec-56	31-Dec-56	32.7	486	55.9	1100
1-Jan-57	31-Jan-57	1,868	40,000	0.18	0.94
1-Feb-57	28-Feb-57	61.7	336	0.62	3.59
1-Mar-57	31-Mar-57	48.2	209	0.54	2.17
1-Apr-57	30-Apr-57	31.6	226	20.5	369
1-May-57	31-May-57	8.49	44.1	1.65	12
1-Jun-57	30-Jun-57	1,000,000	20,000,000	0.85	5.6
1-Jul-57	31-Jul-57	23.7	130	0.75	9.47
1-Aug-57	31-Aug-57	48.8	355	6.05	114
1-Sep-57	10-Sep-57	80.2	164	0.88	3
11-Sep-57	18-Sep-57	[g]	[g]	[g]	[g]
19-Sep-57	30-Sep-57	11	18.4	17.3	58.2
1-Oct-57	31-Oct-57	7.71	107	1.27	18.2
1-Nov-57	30-Nov-57	4.87	17.9	0.23	0.85
1-Dec-57	31-Dec-57	71.5	877	0.44	2.48

[a] Concentrations were reported in units of alpha disintegrations per minute per cubic meter (dpm m^{-3}).

[b] Sampling of the combined Room 146-Building 74 exhaust began in December 1953.

[c] Initially, the air flows for the two ducts were mixed and the sample was of the mixed air from both sources of activity. Results are shown in the columns for Room 146.

[d] Maximum concentration was not reported.

[e] The ducts were separated and a filter was installed in the Building 74 exhaust at this time.

[f] No results were reported for this period.

[g] Sampling results were not available because of the fire on 11–12 September.

Table C-5. Reported Air Concentrations[a] for Room 149 and Analytical Area Exhaust Air Ducts

		Room 149 exhaust duct air concentration (dpm m^{-3})		Analytical area exhaust duct air concentration (dpm m^{-3})	
Start	End	Average	Maximum	Average	Maximum
19-Jun-53	30-Jun-53	[b]	[b]	[b]	[b]
1-Jul-53	31-Jul-53	[b]	[b]	[b]	[b]
1-Aug-53	31-Aug-53	[b]	[b]	[b]	[b]
1-Sep-53	30-Sep-53	[b]	[b]	[b]	[b]
1-Oct-53	31-Oct-53	[b]	[b]	[b]	[b]
1-Nov-53	30-Nov-53	[b]	[b]	[b]	[b]
22-Dec-53	31-Dec-53	0.08	0.16	0.078	0.31
1-Jan-54	31-Jan-54	0.093	[c]	0.21	[c]
1-Feb-54	28-Feb-54	0.145	0.561	0.052	0.211
1-Mar-54	31-Mar-54	0.312	2.766	0.178	0.432
1-Apr-54	30-Apr-54	0.142	1.96	0.103	0.486
1-May-54	31-May-54	0.253	2.41	0.273	1.83
1-Jun-54	30-Jun-54	0.098	0.407	0.41	0.71
1-Jul-54	31-Jul-54	0.746	3.3	0.045	0.176
1-Aug-54	31-Aug-54	0.152	0.5	0.303	4.43
1-Sep-54	30-Sep-54	0.47	1.68	0.576	3.17
1-Oct-54	31-Oct-54	0.404	2.44	0.535	1.51
1-Nov-54	28-Nov-54	1.16	10.3	0.347	1.08
29-Nov-54	31-Dec-54	0.773	5.56	1.46	4.23
1-Jan-55	28-Jan-55	2.17	6.31	3.36	28.6
31-Jan-55	28-Feb-55	0.642	1.49	1.01	7.24
1-Mar-55	31-Mar-55	11.6	80.4	0.631	2.64
1-Apr-55	30-Apr-55	1.26	5.16	0.572	1.44
2-May-55	27-May-55	0.379	1.21	0.271	1.66
31-May-55	30-Jun-55	5.3	32.7	0.37	1.62
1-Jul-55	29-Jul-55	1.46	3.89	1.19	6.1
1-Aug-55	31-Aug-55	1.73	8.38	0.42	2.89
1-Sep-55	30-Sep-55	1.39	3.61	0.7	2.03
1-Oct-55	31-Oct-55	1.04	2.44	0.97	4.23
1-Nov-55	30-Nov-55	0.49	3.32	0.68	1.98
1-Dec-55	31-Dec-55	0.14	0.51	0.66	1.74

Table C-5. (Continued)

		Room 149 exhaust duct air concentration (dpm m^{-3})		Analytical area exhaust duct air concentration (dpm m^{-3})	
Start	End	Average	Maximum	Average	Maximum
1-Jan-56	31-Jan-56	0.37	0.96	2.39	7.25
1-Feb-56	29-Feb-56	2.64	11.9	0.71	2.72
1-Mar-56	31-Mar-56	0.64	2.09	0.69	1.5
1-Apr-56	30-Apr-56	0.6	2.18	1.7	7.19
1-May-56	31-May-56	0.79	5.85	1.06	2.5
1-Jun-56	30-Jun-56	2.02	14.4	0.35	1.85
1-Jul-56	31-Jul-56	16.9	71.4	1.27	4.67
1-Aug-56	31-Aug-56	2.74	17.7	1.08	3.47
1-Sep-56	30-Sep-56	2.17	12	1.05	2.83
1-Oct-56	31-Oct-56	2.12	9.11	1.34	2.65
1-Nov-56	30-Nov-56	1.69	3.0	1.36	6.08
1-Dec-56	31-Dec-56	1.79	5.18	1.91	6.05
1-Jan-57	31-Jan-57	5.64	38.8	4.26	22.7
1-Feb-57	28-Feb-57	82.1	687	12.8	121
1-Mar-57	31-Mar-57	4.37	7.63	3.66	11.7
1-Apr-57	30-Apr-57	7.88	40.6	3.08	10.2
1-May-57	31-May-57	3.3	9.23	3.5	20.1
1-Jun-57	30-Jun-57	11	67.5	1.56	3.48
1-Jul-57	31-Jul-57	1.71	9.92	1.55	4.3
1-Aug-57	31-Aug-57	2.07	6.16	4.06	19.7
1-Sep-57	10-Sep-57	452	904	0.99	2.26
11-Sep-57	18-Sep-57	[d]	[d]	[d]	[d]
19-Sep-57	30-Sep-57	37.9	49.2	59.4	191
1-Oct-57	31-Oct-57	5.09	23.6	168	2270
1-Nov-57	30-Nov-57	2.01	7.26	3.02	7.58
1-Dec-57	31-Dec-57	2.91	10.7	1.27	4.24

[a] Concentrations were reported in units of alpha disintegrations per minute per cubic meter (dpm m^{-3}).

[b] Sampling of the Room 149 and Analytical Area exhaust began in December 1953.

[c] Maximum concentration was not reported.

[d] Sampling results were not available because of the fire on 11–12 September.

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