

APPENDIX B

**TABULATION OF DATA OBTAINED USING
PHASE CONTRAST MICROSCOPY (PCM)
AND MAGISCAN II**

TABLE B1-1

LEGEND FOR FACILITY 1 PGM DATA

<u>LOC</u>	(Facility and room location of sampled activity)
<u>lxxx</u>	Facility 1
RMA	Room A
RMB	Room B
RMC	Room C
RM9	Room 109
TLG	Teachers Lounge
FB	Field Blank no sample taken
<u>SAMPLE CLASS</u>	(Sample type and location, activity, and ID)
<u>Location</u>	
FB	Field Blank
IA	Interior Area (Background in the work room)
OA	Outside Area (in the hall)
AM	Ambient (Outside the building)
BZ	Personal Breathing Zone
GT	Mobile Sampling Cart (proximate to the work activity)
<u>Activity</u>	
PRE	Pre-removal activity - Full term sample
PST	Post-removal activity - Full term sample
REM	Removal work - Full term sequential sample
COV	Preparation - Full term sequential
RMS	Removal work - 15 minute short term PBZ sample
COS	Preparation - 15 minute short term PBZ
SEQ	Sample period covers sequential work activities
<u>ID</u>	
AGGR	Aggressive sampling mode
NAGR	Nonaggressive sampling mode
WK#X	Worker #X PBZ sample
<u>mm/dd</u>	Actual date of blank source
<u>SAMPLE No.</u>	Sample media Identification code and number
<u>AAxxx</u>	25-mm Cellulose Ester Filter Sample Number xxx (using a foil wrapped 2-inch cowl)
<u>Mxxx</u>	37-mm Cellulose Ester Filter Sample Number xxx
<u>Nxxx</u>	37-mm Polycarbonate Filter Sample Number xxx
RATE	Sample flow rate in liters per minute (lpm)
VOL	Sample volume in liters (l)
MAGISCAN II	Magiscan II is a computerized image analysis system for PGM; results are in total fibers per cubic centimeter
<u>Phase Contrast Microscopy using NIOSH Method 7400B counting rules</u>	
UBTL	PGM analysis performed by Utah Biological Testing Labs
NIOSH	PGM analysis performed in the NIOSH Laboratory
Fibers	Total fibers
f/cc	Fibers per cubic centimeter

TABLE B1-2

PHASE CONTRAST MICROSCOPY ANALYTICAL RESULTS
FOR AIRBORNE ASBESTOS ANALYSIS
FACILITY 1
CINCINNATI, OHIO
June 14, 18 - 21 & July 9, 1985

NOTE: For samples reported less than detectable,
one half of the limit of detection is used
as follows: LAB 25-mm Filter 37-mm Filter
UBTL 750 1750
NIOSH 1347 2992

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (L)	MAGISCAN II		UBTL		NIOSH	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
1RM8	IA-PRE-AGGR	AA79	6/14	1811	0211	480	3.25	1560.0	70070	0.045		0.000		
1RM8	IA-PRE-AGGR	AA80	6/14	1811	0211	480	3.20	1536.0	66990	0.044	23000	0.015		
1RM8	IA-PRE-AGGR	AA90	6/14	1811	0211	480	3.25	1560.0	74690	0.048	26000	0.017	25795	0.017
1RM8	IA-PRE-AGGR	M332	6/14	1811	0211	480	3.25	1560.0	101745	0.065	30000	0.019	88065	0.056
1RM8	IA-PRE-AGGR	M334	6/14	1811	0211	480	3.25	1560.0	71820	0.046	35000	0.022		
1RM8	IA-PRE-AGGR	M340	6/14	1811	0211	480	3.20	1536.0	112005	0.073	30000	0.020	58995	0.038
1RM8	IA-PRE-MAGR	AA61	6/14	0938	1738	480	3.25	1560.0	24255	0.016	6000	0.004		
1RM8	IA-PRE-MAGR	AA75	6/14	0938	1738	480	3.00	1440.0	41195	0.029	2000	0.001		
1RM8	IA-PRE-MAGR	AA99	6/14	0938	1738	480	3.25	1560.0	54285	0.035	3000	0.002		
1RM8	IA-PRE-MAGR	M327	6/14	0938	1738	480	3.00	1440.0	30780	0.021	1750	0.001		
1RM8	IA-PRE-MAGR	M331	6/14	0938	1738	480	3.25	1560.0	30780	0.020	4000	0.003		
1RM8	IA-PRE-MAGR	M335	6/14	0938	1738	480	3.25	1560.0	47025	0.030	4000	0.003		
1RM4	IA-PRE-AGGR	AA63	6/14	1823	0330	487	3.25	1582.8	29645	0.019	21000	0.013	33495	0.021
1RM4	IA-PRE-AGGR	AA72	6/14	1823	0330	487	3.25	1582.8	46200	0.029	35000	0.022	37730	0.024
1RM4	IA-PRE-AGGR	AA87	6/14	1823	0330	487	3.00	1461.0	35420	0.024	30000	0.021		
1RM4	IA-PRE-AGGR	M324	6/14	1823	0330	487	3.25	1582.8	73530	0.046	30000	0.019		
1RM4	IA-PRE-AGGR	M325	6/14	1823	0330	487	3.25	1582.8	83790	0.053	44000	0.028	57285	0.036
1RM4	IA-PRE-AGGR	M329	6/14	1823	0330	487	3.00	1461.0	87210	0.060	30000	0.021	56430	0.039
1RM4	IA-PRE-MAGR	AA70	6/14	1037	1840	483	3.30	1593.9	34265	0.021	6000	0.004	16170	0.010
1RM4	IA-PRE-MAGR	AA74	6/14	1037	1840	483	3.25	1569.8	81620	0.052	10000	0.006	16555	0.011
1RM4	IA-PRE-MAGR	AA98	6/14	1037	1840	483	3.25	1569.8	74690	0.048	10000	0.006	26565	0.017
1RM4	IA-PRE-MAGR	M321	6/14	1037	1840	483	3.25	1569.8	47025	0.030	9000	0.006		
1RM4	IA-PRE-MAGR	M338	6/14	1037	1840	483	3.20	1545.6	34200	0.022	10000	0.006		
1RM4	IA-PRE-MAGR	M339	6/14	1037	1840	483	3.25	1569.8	54720	0.035	10000	0.006		
1RM9	AM-PRE-MAGR	AA68	6/14	1026	1830	484	2.90	1403.6	11165	0.008	750	0.001		
1RM9	AM-PRE-MAGR	AA89	6/14	1026	1830	484	3.00	1452.0	8855	0.006	750	0.001		
1FB	FB-PRE-AGGR	AA62	6/14						1347		750			
1FB	FB-PRE-AGGR	AA95	6/14						1347		750		1347	
1FB	FB-PRE-MAGR	AA59	6/14						1347		750		1347	
1FB	FB-PRE-MAGR	AA60	6/14						1347		750		1347	
1FB	FB-PRE-MAGR	AA71	6/14						1347		750		1347	
1FB	FB-PRE-MAGR	AA92	6/14						1347		750		1347	
1FB	FB-PRE-MAGR	M322	6/14								1750			
1FB	FB-PRE-MAGR	M330	6/14						2992		1750		2992	
1FB	FB-PRE-MAGR	M337	6/14						2992		1750		2992	

TABLE B1-2 (Continued - page 2)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (L)	MAGISCAN II		UBTL		NIOSH	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
1RMB	BZ-COV-WK#1	AA148	6/18	0930	1126	116	3.10	359.6	87010	0.242			11550	0.032
1RMB	BZ-COV-WK#2	AA111	6/18	0930	1126	116	2.96	343.4	8855	0.026			10010	0.029
1RMB	BZ-COV-WK#3	AA150	6/18	0930	1126	116	3.12	361.9	17325	0.048			11550	0.032
1RMB	BZ-COV-WK#4	AA91	6/18	0930	1126	116	3.06	355.0	20405	0.057			19250	0.054
1RMB	BZ-REM-WK#1	AA51	6/18	1235	1515	160	3.16	505.6	77385	0.153			202895	0.401
1RMB	BZ-REM-WK#2	AA142	6/18	1235	1520	165	2.96	488.4	169015	0.346			1347	0.003
1RMB	BZ-REM-WK#3	AA143	6/18	1235	1515	160	3.12	490.2	219065	0.439			1347	0.003
1RMB	BZ-REM-WK#4	AA138	6/18	1235	1520	165	3.06	504.9	96635	0.191			163625	0.324
1RMB	CT-COV	AA64	6/18	0932	1126	114	3.16	360.2	12705	0.035			10010	0.028
1RMB	CT-COV	AA139	6/18	0932	1126	114	3.02	344.3	8085	0.023			13860	0.040
1RMB	CT-COV	AA140	6/18	0940	1126	106	3.00	318.0	12320	0.039			7315	0.023
1RMB	CT-COV	AA141	6/18	0932	1126	114	3.06	348.8	6930	0.020			9625	0.028
1RMB	CT-REM	AA22	6/18	1240	1520	160	3.00	480.0	72380	0.151			147070	0.306
1RMB	CT-REM	AA52	6/18	1240	1520	160	3.16	505.6	113190	0.224			207515	0.410
1RMB	IA-COV	AA66	6/18	0932	1126	114	3.11	354.5	12705	0.036			6545	0.018
1RMB	IA-COV	AA69	6/18	0932	1126	114	3.14	358.0	9240	0.026			6930	0.019
1RMB	IA-REM	AA24	6/18	1239	1520	161	3.10	499.1	92785	0.186			191730	0.384
1RMB	IA-REM	AA50	6/18	1239	1520	161	3.10	499.1	108185	0.217			219835	0.440
1RMB	OA-SEQ	AA67	6/18	0934	1413	279	3.00	837.0	33495	0.040			44275	0.053
1RMB	OA-SEQ	AA137	6/18	0934	1413	279	3.00	837.0	34265	0.041			36575	0.044
1TLG	AM-SEQ	AA65	6/18	0740	1530	470	3.00	1410.0	31955	0.023			1347	0.001
1TLG	AM-SEQ	AA93	6/18	0740	1530	470	2.80	1316.0	31570	0.024			4235	0.003
1FB	FB-COV-6/14	AA55	6/18										1347	
1FB	FB-REM-6/14	AA56	6/18										1347	
1RMA	BZ-COS-WK#2	AA5	6/19	1043	1058	15	3.00	45.0	2695	0.060			1347	
1RMA	BZ-COS-WK#4	AA48	6/19	1111	1126	15	3.00	45.0	1347	0.030			1347	0.030
1RMA	BZ-COV-WK#1	AA44	6/19	0939	1129	110	3.06	336.6	36190	0.108			8816	0.026
1RMA	BZ-COV-WK#2	AA45	6/19	1038	1129	51	3.12	159.1	15015	0.094			5852	0.037
1RMA	BZ-COV-WK#3	AA43	6/19	0935	1129	114	2.96	337.4	40040	0.119			9779	0.029
1RMA	BZ-COV-WK#4	AA42	6/19	0938	1129	111	3.09	343.0	39270	0.114			11742	0.034
1RMA	BZ-REM-WK#1	AA3	6/19	1249	1448	119	3.06	364.1	197120	0.541			199045	0.547
1RMA	BZ-REM-WK#2	AA47	6/19	1250	1459	129	3.12	402.5	147070	0.365			50050	0.124
1RMA	BZ-REM-WK#3	AA1	6/19	1247	1459	132	3.09	411.0	189035	0.460			184030	0.448
1RMA	BZ-REM-WK#4	AA35	6/19	1248	1429	101	3.00	303.0	108185	0.357			193270	0.638
1RMA	BZ-RMS-WK#2	AA126	6/19	1440	1455	15	3.00	45.0	46585	1.035			47355	1.052
1RMA	BZ-RMS-WK#4	AA7	6/19	1333	1348	15	3.00	45.0	45045	1.001			31955	0.710
1RMA	BZ-RMS-WK#4	AA127	6/19	1448	1503	15	3.00	45.0	35035	0.779			41195	0.915
1RMA	BZ-RMS-WK#4	AA128	6/19	1300	1315	15	3.00	45.0	33880	0.753			42735	0.950
1RMA	CT-COV	AA40	6/19	0933	1130	117	3.05	356.9	22330	0.063			3187	0.009
1RMA	CT-COV	AA41	6/19	0933	1130	117	3.12	365.0	22330	0.061			10510	0.029
1RMA	CT-REM	AA25	6/19	1245	1518	153	3.12	477.4	172865	0.362			211750	0.444
1RMA	CT-REM	AA53	6/19	1245	1518	153	3.00	459.0	194425	0.424			225895	0.482
1RMA	IA-COV	AA37	6/19	0933	1130	117	3.06	358.0	17325	0.048			3207	0.009
1RMA	IA-COV	AA39	6/19	0933	1130	117	3.14	367.4	25025	0.068			6121	0.017
1RMA	IA-REM	AA23	6/19	1245	1518	153	3.06	468.2	176715	0.377			276045	0.590
1RMA	IA-REM	AA28	6/19	1245	1518	153	3.14	480.4	142835	0.297			163240	0.340
1RMA	OA-FIM	AA31	6/19	0933	1406	273	3.16	862.7	48510	0.058			82778	0.096
1RMA	OA-FIM	AA38	6/19	0933	1406	273	3.00	819.0	58135	0.071			35535	0.043
1TLG	AM-SEQ	AA21	6/19	0804	1540	456	3.00	1368.0	18250	0.014			1347	0.001
1TLG	AM-SEQ	AA54	6/19	0804	1540	456	2.70	1231.2	43505	0.035			3888	0.003
1FB	FB-COV	AA4	6/19	0933	0934	1	3.00	3.0	1347				1347	
1FB	FB-COV-6/14	AA57	6/19	0933	0934	1	3.00	3.0	1347				1347	
1FB	FB-REM-6/14	AA58	6/19	1245	1246	1	3.00	3.0	1347				1347	

TABLE B1-2 (Continued - page 3)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (l)	MAGISCAN II		UBTL		NIOSH	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
1RMC	BZ-REM-WK#1	AA13	6/20	1242	1447	125	3.12	390.0	215215	0.528			205975	0.528
1RMC	BZ-REM-WK#2	AA26	6/20	1241	1510	149	3.00	447.0	108570	0.243			133595	0.289
1RMC	BZ-REM-WK#3	AA125	6/20	1240	1510	150	3.02	453.0	100870	0.223			196350	0.433
1RMC	BZ-REM-WK#4	AA12	6/20	1240	1510	150	3.06	459.0	109340	0.238			132440	0.289
1RMC	BZ-RMS-WK#1	AA11	6/20	1408	1423	15	2.50	37.5	18095	0.483			14360	0.383
1RMC	BZ-RMS-WK#2	AA121	6/20	1259	1314	15	2.50	37.5	12320	0.329			5390	0.144
1RMC	BZ-RMS-WK#4	AA20	6/20	1330	1345	15	2.50	37.5	31570	0.842			41865	1.119
1RMC	CT-REM	AA6	6/20	1236	1519	163	3.14	511.8	98945	0.193			104335	0.204
1RMC	CT-REM	AA9	6/20	1236	1519	163	3.00	489.0	83160	0.170			88935	0.182
1RMC	IA-REM	AA2	6/20	1241	1519	158	3.00	474.0	103950	0.219			108955	0.230
1RMC	IA-REM	AA32	6/20	1241	1519	158	3.12	493.0	100870	0.205			94710	0.192
1RMC	QA-SEQ	AA33	6/20	1239	1520	161	3.00	483.0	11165	0.023			2695	0.006
1RMC	QA-SEQ	AA124	6/20	1239	1520	161	3.16	508.8	6160	0.012			3465	0.007
1RMC	BZ-REM-WK#1	AA19	6/20	0751	0957	126	3.17	399.4	162470	0.407			165935	0.415
1RMC	BZ-REM-WK#2	AA14	6/20	0752	0957	125	3.00	375.0	109725	0.293			134365	0.358
1RMC	BZ-REM-WK#3	AA122	6/20	0752	0957	125	3.02	377.5	119735	0.317			209055	0.554
1RMC	BZ-REM-WK#4	AA27	6/20	0754	1008	134	3.06	410.0	99715	0.243			132440	0.323
1RMC	BZ-RMS-WK#1	AA29	6/20	0812	0827	15	2.50	37.5	24840	0.657			28875	0.770
1RMC	BZ-RMS-WK#1	AA123	6/20	1007	1022	15	2.40	36.0	43120	1.198			39655	1.102
1RMC	BZ-RMS-WK#2	AA10	6/20	0947	1002	15	2.40	36.0	26180	0.727			18865	0.524
1RMC	BZ-RMS-WK#4	AA17	6/20	0904	0915	11	2.50	27.5	26180	0.952			32725	1.190
1RMC	CT-REM	AA147	6/20	0755	1054	179	3.00	537.0	108185	0.201			155540	0.290
1RMC	CT-REM	AA149	6/20	0755	1054	179	3.05	546.0	75075	0.138			224840	0.412
1RMC	IA-REM	AA16	6/20	0755	1053	178	3.00	534.0	128975	0.242			177485	0.332
1RMC	IA-REM	AA18	6/20	0755	1053	178	3.00	534.0	130130	0.244			155925	0.292
1RMC	QA-SEQ	AA8	6/20	0754	1104	190	3.11	590.9	91245	0.154			70840	0.120
1RMC	QA-SEQ	AA15	6/20	0754	1104	190	3.00	570.0	72765	0.128			82005	0.144
1TLG	AM-FIM	AA129	6/20	0720	1540	500	2.70	1350.0	75845	0.056			3465	0.003
1TLG	AM-FIM	AA130	6/20	0720	1540	500	2.90	1450.0	65835	0.045			3850	0.003
1FB	FB-REM-6/14	AA97	6/20	0720	0721	1	3.00	3.0	1347				1347	
1FB	FB-REM-6/14	AA146	6/20	0720	0721	1	3.00	3.0	1347				1347	
1RMC	BZ-REM-WK#4	AA152	6/21	0834	1203	209	3.12	652.1	81620	0.125			95865	0.147
1RMC	BZ-REM-WK#2	AA153	6/21	0842	1203	201	3.00	603.0	63140	0.105			70840	0.117
1RMC	BZ-REM-WK#1	AA157	6/21	0836	1203	207	3.06	633.4	168630	0.266			109340	0.173
1RMC	BZ-REM-WK#3	AA158	6/21	0835	1203	208	3.02	628.2	80465	0.128			78155	0.124
1RMC	CT-REM	AA151	6/21	0836	1206	210	3.00	630.0	73920	0.117			62755	0.100
1RMC	CT-REM	AA154	6/21	0836	1206	210	3.14	659.4	88550	0.134			83930	0.127
1RMC	QA-FIM	AA155	6/21	0832	1209	217	3.00	651.0	48125	0.074			4620	0.007
1RMC	QA-FIM	AA156	6/21	0832	1209	217	3.11	674.9	41195	0.061			5775	0.009
1RMC	IA-REM	AA171	6/21	0838	1206	208	3.10	644.8	74305	0.115			58520	0.091
1RMC	IA-REM	AA175	6/21	0838	1206	208	3.00	624.0	85470	0.137			82390	0.132
1RMC	BZ-RMS-WK#3	AA176	6/21	0918	0933	15	3.00	45.0	34650	0.770			29645	0.659
1RMC	BZ-RMS-WK#2	AA177	6/21	0943	0959	16	3.00	48.0	20790	0.433			16170	0.337
1RMC	BZ-RMS-WK#3	AA178	6/21	0906	0923	17	3.00	51.0	21945	0.430			21945	0.430
1RMC	BZ-RMS-WK#4	AA170	6/21	1027	1042	15	3.00	45.0	16555	0.368			11165	0.248
1TLG	AM-FIM	AA159	6/21	0720	1220	300	3.00	900.0	2356	0.003			1347	0.001
1TLG	AM-FIM	AA160	6/21	0720	1220	300	2.70	810.0	26180	0.032			1347	0.002

TABLE B1-2 (Continued - page 4)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (l)	MAGISCAN II		UBTL		WIOSH	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
1RMB	IA-PST-AGGR	AA447	7/09	1801	0207	486	3.00	1458.0	31855	0.022			16901	0.012
1RMB	IA-PST-AGGR	AA454	7/09	1801	0207	486	3.00	1458.0	29529	0.020			27951	0.019
1RMB	IA-PST-AGGR	AA459	7/09	1850	0207	437	3.00	1311.0	38731	0.030			14976	0.011
1RMB	IA-PST-AGGR	M827	7/09	1801	0207	486	3.50	1701.0	37021	0.022			29412	0.017
1RMB	IA-PST-AGGR	M829	7/09	1801	0207	486	3.00	1458.0	67032	0.046			38133	0.026
1RMB	IA-PST-AGGR	M831	7/09	1801	0207	486	3.40	1652.4	64296	0.039			29825	0.018
1RMB	OA-PST-AGGR	AA457	7/09	1801	0207	486	3.20	1555.2	14514	0.009			11627	0.007
1RMB	IA-PST-WAGR	AA389	7/09	0900	1700	480	3.05	1464.0	26026	0.018	750	0.001		
1RMB	IA-PST-WAGR	AA417	7/09	0900	1700	480	3.00	1440.0	25025	0.017	2000	0.001		
1RMB	IA-PST-WAGR	AA432	7/09	0900	1700	480	3.00	1440.0	12588	0.009			13744	0.010
1RMB	IA-PST-WAGR	M832	7/09	0900	1700	480	3.20	1536.0	89347	0.058			10944	0.007
1RMB	IA-PST-WAGR	M835	7/09	0900	1700	480	3.15	1512.0	76266	0.050	1750	0.001		
1RMB	IA-PST-WAGR	M837	7/09	0900	1700	480	3.05	1464.0	37021	0.025	1750	0.001		
1RMB	OA-PST-WAGR	AA416	7/09	0903	1700	477	3.00	1431.0	28952	0.020			9779	0.007
1RMA	IA-PST-AGGR	AA440	7/09	1814	0215	481	3.50	1683.5	52745	0.031			62216	0.037
1RMA	IA-PST-AGGR	AA446	7/09	1814	0215	481	3.00	1443.0	51243	0.036			72649	0.050
1RMA	IA-PST-AGGR	AA453	7/09	1814	0215	481	3.25	1563.3	49742	0.032			62293	0.040
1RMA	IA-PST-AGGR	M833	7/09	1814	0215	481	3.50	1683.5	82849	0.049			76180	0.045
1RMA	IA-PST-AGGR	M834	7/09	1814	0215	481	3.50	1683.5	106789	0.063			51471	0.031
1RMA	IA-PST-AGGR	M836	7/09	1814	0215	481	3.50	1683.5	136287	0.081	8000	0.005		
1RMA	OA-PST-AGGR	AA445	7/09	1814	0215	481	3.20	1539.2	42119	0.027			7584	0.005
1RMA	IA-PST-WAGR	AA381	7/09	0900	1700	480	3.00	1440.0	82351	0.057			5852	0.004
1RMA	IA-PST-WAGR	AA383	7/09	0900	1700	480	3.00	1440.0	85932	0.060	750	0.001		
1RMA	IA-PST-WAGR	AA458	7/09	0900	1700	480	2.95	1416.0	80195	0.057			7584	0.005
1RMA	IA-PST-WAGR	M826	7/09	0900	1700	480	3.10	1488.0	122607	0.082			20178	0.014
1RMA	IA-PST-WAGR	M828	7/09	0900	1700	480	3.20	1536.0	129276	0.084			13081	0.009
1RMA	IA-PST-WAGR	M830	7/09	0900	1700	480	3.05	1464.0	70281	0.048			14193	0.010
1RMA	OA-PST-WAGR	AA374	7/09	0903	1700	477	2.95	1407.2	35343	0.025	4000	0.003		
1TLG	AM-PST-WAGR	AA379	7/09	0853	0320	1107	2.85	3154.9	93247	0.026	750	0.000		
1TLG	AM-PST-WAGR	AA424	7/09	0853	1826	1107	3.00	3321.0	62793	0.018			5121	0.002
1FB	FB-PST-6/21	AA172	7/09	1814	1815				1347		750			
1FB	FB-PST-6/21	AA173	7/09	1814	1815		1.0		1347		750			
1FB	FB-PST-7/18	M950	7/09	1814	1815		1.0		2982		1750			
1FB	FB-PST-7/18	M951	7/09	1814	1815		1.0		10858		1750			

TABLE B2-1

LEGEND FOR FACILITY 2 PCM DATA

LOC	(Facility and room location of sampled activity)
2xxx	Facility 2
RMD	Room D
RME	Room E
EW	Outside the Executive Washroom window
FB	Field Blank no sample taken
SAMPLE CLASS	(Sample type and location, activity, and ID)
<u>Location</u>	
FB	Field Blank
IA	Interior Area (Background in the work room)
OA	Outside Area (in the hall)
AM	Ambient (Outside the building)
BZ	Personal Breathing Zone
CT	Mobile Sampling Cart (proximate to work activity)
<u>Activity</u>	
PRE	Pre-removal activity - Full-term sample
PST	Post-removal activity - Full-term sample
REM	Removal work - Full-term sequential sample
COV	Preparation - Full-term sequential
RMS	Removal work - 15-minute short-term PBZ sample
COS	Preparation - 15-minute short-term BZ
SEQ	Sample period covers sequential work activities
<u>ID</u>	
AGGR	Aggressive sampling mode
NAGR	Nonaggressive sampling mode
WK#X	Worker #X BZ sample
mm/dd	Actual date of blank source
SAMPLE No.	Sample media Identification code and number
AAxxx	25-mm Cellulose Ester Filter Sample Number xxx (using a foil wrapped 2-inch cowl)
Mxxx	37-mm Cellulose Ester Filter Sample Number xxx
Nxxx	37-mm Polycarbonate Filter Sample Number xxx
RATE	Sample flow rate in liters per minute (lpm)
VOL	Sample volume in liters (l)
MAGISCAN II	Magiscan II is a computerized image analysis system for PCM; results are in total fibers per cubic centimeter
<u>Phase Contrast Microscopy using NIOSH Method 7400B counting rules</u>	
UBTL	PCM analysis performed by Utah Biological Testing Labs
NIOSH	PCM analysis performed in the NIOSH Laboratory
Fibers	Total fibers
f/cc	Fibers per cubic centimeter
POL	Particulate Overload - Unable to count.

TABLE B2-2

PHASE CONTRAST MICROSCOPY ANALYTICAL RESULTS
FOR AIRBORNE ASBESTOS ANALYSIS
FACILITY 2
CINCINNATI, OHIO
June 12, 25 - 28 & July 11, 1985

NOTE: For samples reported less than detectable,
one half of the limit of detection is used
as follows: LAB 25-µm Filter 37-µm Filter
UBTL 750 1750
NIOSH 1347 2992

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME RATE		VOL. (L)	MAGISCAN II		UBTL		NIOSH		
		No.	Date	Start	Stop	(min)	(lpm)		Fibers	f/cc	Fibers	f/cc	Fibers	f/cc	
ZEMD	IA-PRE-AGGR	AA106	6/12	2316	0723	487	3.25	1582.8	45045	0.028	3000	0.002			
ZEMD	IA-PRE-AGGR	AA107	6/12	2316	0723	487	3.25	1582.8	21945	0.014	750	0.000			
ZEMD	IA-PRE-AGGR	AA120	6/12	2316	0723	487	3.14	1529.2	39655	0.026			5621	0.004	
ZEMD	IA-PRE-AGGR	M268	6/12	2316	0723	487	3.25	1582.8	20070	0.018	1750	0.001			
ZEMD	IA-PRE-AGGR	M274	6/12	2316	0723	487	3.25	1582.8	65322	0.041	1750	0.001			
ZEMD	IA-PRE-AGGR	M270	6/12	2316	0723	487	3.06	1490.2	33601	0.023			2992	0.002	
ZEMD	IA-PRE-WAGR	AA116	6/12	1320	2134	494	3.12	1541.3	30270	0.025	750	0.000			
ZEMD	IA-PRE-WAGR	AA117	6/12	1320	2134	494	3.25	1605.5	76230	0.047			1347	0.001	
ZEMD	IA-PRE-WAGR	AA118	6/12	1320	2134	494	3.25	1605.5	60445	0.038	2000	0.001			
ZEMD	IA-PRE-WAGR	M262	6/12	1320	2134	494	3.12	1541.3	29825	0.019	1750	0.001			
ZEMD	IA-PRE-WAGR	M272	6/12	1320	2134	494	3.25	1605.5	10780	0.007	1750	0.001			
ZEMD	IA-PRE-WAGR	M278	6/12	1320	2134	494	3.25	1605.5	33687	0.021			2992	0.002	
ZEME	IA-PRE-AGGR	AA108	6/12	2358	0802	484	3.11	1505.2	43505	0.029				27335	0.018
ZEME	IA-PRE-AGGR	AA109	6/12	2358	0802	484	3.25	1573.0	50820	0.032	15000	0.010			
ZEME	IA-PRE-AGGR	AA119	6/12	2358	0802	484	3.25	1573.0	69685	0.044	10000	0.006			
ZEME	IA-PRE-AGGR	M256	6/12	2358	0802	484	3.25	1573.0	90630	0.058	30000	0.019			
ZEME	IA-PRE-AGGR	M260	6/12	2358	0802	484	3.25	1573.0	90630	0.058			51300	0.033	
ZEME	IA-PRE-AGGR	M264	6/12	2358	0802	484	3.16	1529.4	66690	0.044	20000	0.013			
ZEME	IA-PRE-WAGR	AA134	6/12	1334	2153	499	3.00	1497.0	33706	0.023				7084	0.005
ZEME	IA-PRE-WAGR	AA135	6/12	1334	2153	499	2.96	1477.0	35343	0.024	750	0.001			
ZEME	IA-PRE-WAGR	AA136	6/12	1334	2153	499	3.25	1621.8	15207	0.009	750	0.000			
ZEME	IA-PRE-WAGR	M252	6/12	1334	2153	499	3.25	1621.8	21375	0.013	1750	0.001			
ZEME	IA-PRE-WAGR	M254	6/12	1334	2153	499	3.16	1576.8	33345	0.021	1750	0.001			
ZEME	IA-PRE-WAGR	M258	6/12	1334	2153	499	3.25	1621.8	28215	0.017	3500	0.002			
ZEW	AM-PRE-FTER	AA104	6/12	1700	0700	840	3.00	2520.0	85085	0.034				1347	
ZEW	AM-PRE-FTER	AA105	6/12	1700	0700	840	2.75	2310.0	88165	0.036				1347	
ZFB	FB-PRE-FTRM	AA102	6/12								750				
ZFB	FB-PRE-FTRM	AA103	6/12								750				
ZFB	FB-PRE-FTRM	AA131	6/12						1463		750				
ZFB	FB-PRE-FTRM	M266	6/12						2992						
ZFB	FB-PRE-WAGR	AA132	6/12						34265		750				
ZFB	FB-PRE-WAGR	M276	6/12						4360		1750				
ZFB	FB-PRE-6/14	M298	6/12						3249						
ZFB	FB-PRE-6/14	M323	6/12						28129					2992	
ZFB	FB-PRE-6/14	M326	6/12						3249						

TABLE B2-2: (Continued - page 2)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (l)	MAGISCAN II		UBTL		NIOSH	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
ZRD	BZ-COS-WK#1	AA186	6/25	1020	1035	15	3.00	45.0			750	0.017		
ZRD	BZ-COS-WK#2	AA190	6/25	1000	1015	15	3.00	45.0			750	0.017		
ZRD	BZ-COS-WK#3	AA179	6/25	0930	0950	20	3.00	60.0			1500	0.025		
ZRD	BZ-COV-WK#1	AA184	6/25	0807	1126	199	3.14	624.9			6000	0.010		
ZRD	BZ-COV-WK#2	AA198	6/25	0932	1133	121	3.05	369.1			6000	0.016		
ZRD	BZ-COV-WK#3	AA187	6/25	0807	1126	199	3.02	601.0			3000	0.005		
ZRD	BZ-COV-WK#4	AA205	6/25	0929	1114	105	3.00	315.0			3000	0.010		
ZRD	BZ-REM-WK#1	AA194	6/25	1245	1507	142	2.96	420.3			18000	0.043		
ZRD	BZ-REM-WK#2	AA195	6/25	1241	1507	146	3.05	445.3			270000	0.606		
ZRD	BZ-REM-WK#3	AA201	6/25	1241	1507	146	3.02	440.9			230000	0.522		
ZRD	BZ-REM-WK#4	AA207	6/25	1240	1507	147	3.00	441.0			POL			
ZRD	BZ-RMS-WK#1	AA197	6/25	1430	1445	15	3.00	45.0			60000	1.333		
ZRD	BZ-RMS-WK#2	AA200	6/25	1450	1505	15	3.00	45.0			62000	1.378		
ZRD	BZ-RMS-WK#3	AA202	6/25	1300	1315	15	3.00	45.0			41000	0.911		
ZRD	BZ-RMS-WK#3	AA185	6/25	1319	1334	15	3.00	45.0			32000	0.711		
ZRD	BZ-RMS-WK#4	AA203	6/25	1403	1419	16	3.00	48.0			140000	2.917		
ZRD	CT-COV	AA180	6/25	0757	1127	210	3.00	630.0			7000	0.011		
ZRD	CT-COV	AA193	6/25	0757	1127	210	3.11	653.1			9000	0.014		
ZRD	CT-REM	AA182	6/25	1242	1506	144	3.11	447.8			210000	0.469		
ZRD	CT-REM	AA196	6/25	1242	1506	144	3.00	432.0			250000	0.579		
ZRD	IA-COV	AA183	6/25	0757	1127	210	3.00	630.0			8000	0.013		
ZRD	IA-COV	AA191	6/25	0757	1127	210	3.00	630.0			10000	0.016		
ZRD	IA-REM	AA192	6/25	1243	1506	143	3.00	429.0			330000	0.769		
ZRD	IA-REM	AA198	6/25	1243	1506	143	3.00	429.0			190000	0.443		
ZRD	OA-COV	AA189	6/25	0757	1127	210	3.09	648.9			5000	0.008		
ZRD	OA-COV	AA206	6/25	0757	1127	210	3.12	655.2			4000	0.006		
ZRD	OA-REM	AA181	6/25	1244	1506	142	3.12	443.0			190000	0.429		
ZRD	OA-REM	AA208	6/25	1244	1506	142	3.09	438.8			120000	0.273		
ZEW	AM-REM	AA188	6/25	0736	1515	459	2.80	1285.2			750	0.001		
ZEW	AM-REM	AA204	6/25	0736	1515	459	2.70	1239.3			750	0.001		
ZFB	FB-COV-6/18	AA030	6/25								750			

TABLE E2-2: (Continued - page 3)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME RATE		VOL. (l)	MAGISCAN II		UBTL		BIOSH	
		No.	Date	Start	Stop	(min)	(l/m)		Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
ZEMD	EZ-REM-WK#1	AA219	6/26	0745	1115	210	2.96	621.6			100000	0.161		
ZEMD	EZ-REM-WK#1	AA285	6/26	1330	1446	76	2.96	225.0			FOL			
ZEMD	EZ-REM-WK#2	AA210	6/26	0814	1115	181	3.05	552.1			200000	0.362		
ZEMD	EZ-REM-WK#2	AA296	6/26	1330	1448	78	3.05	237.9			75000	0.315		
ZEMD	EZ-REM-WK#3	AA220	6/26	0743	1115	212	3.02	640.2			FOL			
ZEMD	EZ-REM-WK#3	AA311	6/26	1331	1446	75	3.02	226.5			49000	0.216		
ZEMD	EZ-REM-WK#4	AA211	6/26	0746	1115	209	3.00	627.0			180000	0.287		
ZEMD	EZ-REM-WK#4	AA291	6/26	1333	1448	75	3.00	225.0			67000	0.298		
ZEMD	EZ-RMS-WK#1	AA284	6/26	0844	1000	16	3.00	48.0			9000	0.188		
ZEMD	EZ-RMS-WK#1	AA295	6/26	1345	1400	15	3.00	45.0			30000	0.667		
ZEMD	EZ-RMS-WK#2	AA297	6/26	1406	1421	15	3.50	52.5			15000	0.286		
ZEMD	EZ-RMS-WK#2	AA301	6/26	0836	0851	15	3.00	45.0			34000	0.756		
ZEMD	EZ-RMS-WK#3	AA303	6/26	1020	1035	15	3.00	45.0			10000	0.222		
ZEMD	EZ-RMS-WK#3	AA308	6/26	1422	1437	15	3.50	52.5			24000	0.457		
ZEMD	EZ-RMS-WK#4	AA294	6/26	1001	1016	15	3.00	45.0			11000	0.244		
ZEMD	EZ-RMS-WK#4	AA322	6/26	1440	1448	8	3.50	28.0			7000	0.250		
ZEMD	CT-REM	AA214	6/26	0737	1117	220	3.00	660.0			110000	0.167		
ZEMD	CT-REM	AA218	6/26	0737	1117	220	3.00	660.0			110000	0.167		
ZEMD	CT-REM	AA286	6/26	1330	1450	80	3.00	240.0			35000	0.146		
ZEMD	CT-REM	AA326	6/26	1330	1450	80	3.00	240.0			21000	0.088		
ZEMD	IA-REM	AA215	6/26	0737	1117	220	3.00	660.0			160000	0.242		
ZEMD	IA-REM	AA217	6/26	0737	1117	220	3.06	673.2			110000	0.163		
ZEMD	IA-REM	AA279	6/26	1330	1450	80	3.06	244.8			26000	0.106		
ZEMD	IA-REM	AA325	6/26	1330	1450	80	3.00	240.0			42000	0.175		
ZEMD	OA-REM	AA221	6/26	0737	1117	220	3.09	679.8			10000	0.015		
ZEMD	OA-REM	AA222	6/26	0737	1117	220	3.12	686.4			10000	0.015		
ZEMD	OA-REM	AA292	6/26	1330	1450	80	3.12	249.6			51000	0.204		
ZEMD	OA-REM	AA300	6/26	1330	1450	80	3.09	247.2			75000	0.303		
ZEW	AM-REM	AA209	6/26	0717	1515	478	2.60	1242.8			750	0.001		
ZEW	AM-REM	AA216	6/26	0717	1515	478	2.90	1386.2			750	0.001		
ZFB	FB-REM-6/19	AA034	6/26								750			
ZFB	FB-REM-6/21	AA161	6/26								750			

TABLE B2-2: (Continued - page 4)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (L)	MAGISCAN II		UBTL		NIOSH	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
ZRD	BZ-REM-WK#1	AA281	6/27	0740	1117	217	2.96	642.3			FOL			
ZRD	BZ-REM-WK#2	AA283	6/27	0740	1116	216	3.05	658.8			FOL			
ZRD	BZ-REM-WK#3	AA282	6/27	0741	1117	216	3.02	652.3			310000	0.475		
ZRD	BZ-REM-WK#4	AA283	6/27	0738	1119	221	3.00	663.0			FOL			
ZRD	BZ-RMS-WK#1	AA312	6/27	1020	1035	15	3.00	45.0			43000	0.956		
ZRD	BZ-RMS-WK#2	AA298	6/27	0809	0824	15	3.00	45.0			FOL			
ZRD	BZ-RMS-WK#3	AA306	6/27	0826	0841	15	3.00	45.0			39000	0.867		
ZRD	BZ-RMS-WK#4	AA290	6/27	0945	1001	16	3.00	48.0			25000	0.521		
ZRD	CT-REM	AA272	6/27	0736	1122	226	3.00	678.0			310000	0.457		
ZRD	CT-REM	AA287	6/27	0736	1122	226	3.00	678.0			210000	0.310		
ZRD	IA-REM	AA320	6/27	0736	1122	226	3.00	678.0			20000	0.029		
ZRD	IA-REM	AA324	6/27	0736	1122	226	3.06	691.6			FOL			
ZRD	OA-REM	AA298	6/27	0736	1123	227	3.00	681.0			8000	0.012		
ZRD	OA-REM	AA323	6/27	0736	1123	227	3.06	694.6			8000	0.012		
ZRME	BZ-COV-WK#1	AA305	6/27	1318	1519	121	2.96	358.2			8000	0.022		
ZRME	BZ-COV-WK#2	AA307	6/27	1318	1519	121	3.05	369.1			20000	0.054		
ZRME	BZ-COV-WK#3	AA316	6/27	1317	1519	122	3.02	368.4			8000	0.022		
ZRME	BZ-COV-WK#4	AA304	6/27	1318	1519	121	3.00	363.0			8000	0.022		
ZRME	BZ-COS-WK#1	AA250	6/27	1427	1442	15	2.96	44.4			2000	0.045		
ZRME	BZ-COS-WK#2	AA228	6/27	1404	1419	15	3.00	45.0			2000	0.044		
ZRME	BZ-COS-WK#3	AA255	6/27	1326	1341	15	3.00	45.0			1500	0.033		
ZRME	BZ-COS-WK#4	AA213	6/27	1447	1502	15	3.00	45.0			1500	0.033		
ZRME	CT-COV	AA243	6/27	1301	1523	142	3.00	426.0			10000	0.023		
ZRME	CT-COV	AA247	6/27	1301	1523	142	3.00	426.0			10000	0.023		
ZRME	IA-COV	AA234	6/27	1302	1523	141	3.06	431.5			5000	0.012		
ZRME	IA-COV	AA253	6/27	1302	1523	141	3.00	423.0			8000	0.019		
ZRME	OA-COV	AA227	6/27	1302	1520	138	3.12	430.6			28000	0.065		
ZRME	OA-COV	AA289	6/27	1302	1520	138	3.00	414.0			10000	0.024		
ZEW	AM-FTM	AA309	6/27	0721	1525	484	3.00	1452.0			750	0.001		
ZEW	AM-FTM	AA310	6/27	0721	1525	484	3.00	1452.0			750	0.001		
ZFB	FB-COV-6/19	AA036	6/27								750			
ZFB	FB-COV-6/21	AA162	6/27								750			

TABLE B2-2: (Continued - page 5)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (l)	MAGISCAN II		UTIL		NIOSH	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
ZRPE	BZ-REM-WK#1	AA271	6/28	0744	1135	231	2.96	683.8			190000	0.278		
ZRPE	BZ-REM-WK#1	AA327	6/28	1244	1348	64	2.96	189.4			32000	0.169		
ZRPE	BZ-REM-WK#2	AA248	6/28	0744	1135	231	3.00	693.0			160000	0.231		
ZRPE	BZ-REM-WK#2	AA278	6/28	1243	1338	55	3.05	167.8			10000	0.060		
ZRPE	BZ-REM-WK#3	AA252	6/28	0742	1139	237	3.00	711.0			230000	0.323		
ZRPE	BZ-REM-WK#3	AA275	6/28	1243	1345	62	3.02	187.2			85000	0.454		
ZRPE	BZ-REM-WK#4	AA212	6/28	0743	1135	232	3.00	696.0			POL			
ZRPE	BZ-REM-WK#4	AA314	6/28	1243	1348	65	3.00	185.0			60000	0.354		
ZRPE	BZ-EMS-WK#1	AA231	6/28	1303	1318	15	3.00	45.0			8000	0.178		
ZRPE	BZ-EMS-WK#1	AA260	6/28	0945	1001	16	3.00	48.0			16000	0.333		
ZRPE	BZ-EMS-WK#2	AA230	6/28	1320	1335	15	3.00	45.0			3000	0.067		
ZRPE	BZ-EMS-WK#2	AA235	6/28	0825	0840	15	3.00	45.0			18000	0.400		
ZRPE	BZ-EMS-WK#3	AA233	6/28	1008	1023	15	3.00	45.0			31000	0.689		
ZRPE	BZ-EMS-WK#3	AA258	6/28	1336	1347	11	3.00	33.0			7000	0.212		
ZRPE	BZ-EMS-WK#4	AA265	6/28	0803	0822	19	3.00	57.0			110000	1.930		
ZRPE	CT-REM	AA224	6/28	0740	1142	242	3.00	726.0			240000	0.331		
ZRPE	CT-REM	AA263	6/28	0740	1142	242	3.00	726.0			130000	0.179		
ZRPE	CT-REM	AA273	6/28	1240	1344	64	3.00	192.0			23000	0.120		
ZRPE	CT-REM	AA328	6/28	1240	1344	64	3.00	192.0			10000	0.052		
ZRPE	IA-REM	AA249	6/28	0740	1142	242	3.00	726.0			250000	0.344		
ZRPE	IA-REM	AA261	6/28	0740	1142	242	3.00	726.0			65000	0.090		
ZRPE	IA-REM	AA288	6/28	1240	1344	64	3.00	192.0			33000	0.172		
ZRPE	IA-REM	AA302	6/28	1240	1344	64	3.06	195.8			21000	0.107		
ZRPE	OA-REM	AA274	6/28	1240	1345	65	3.09	200.9			750	0.004		
ZRPE	OA-REM	AA259	6/28	0740	1142	242	3.09	747.8			10000	0.013		
ZRPE	OA-REM	AA262	6/28	0740	1142	242	3.09	747.8			6000	0.008		
ZRPE	OA-REM	AA317	6/28	1240	1345	65	3.12	202.8			9000	0.044		
ZEN	AM-FTM	AA223	6/28	0715	1355	400	3.00	1200.0			750	0.001		
ZEN	AM-FTM	AA264	6/28	0715	1355	400	2.80	1120.0			750	0.001		
ZFB	FB-REM-6/21	AA163	6/28								750			
ZFB	FB-REM-6/28	AA315	6/28								750			
ZFB	FB-REM-FTIR	AA316	6/28								LOST			

TABLE B2-2: (Continued - page 6)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (l)	MAGISCAN II		UBTL		NIOSE	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
ZND	IA-PST-AGGR	AA395	7/11	0013	0715	422	3.00	1266.0	13398	0.011	7000	0.006	24986	0.020
ZND	IA-PST-AGGR	AA412	7/11	0013	0715	422	3.25	1371.5	189035	0.138	8000	0.006		
ZND	IA-PST-AGGR	AA414	7/11	0013	0715	422	3.00	1266.0	164395	0.130	10000	0.008	19366	0.015
ZND	IA-PST-AGGR	MB60	7/11	0013	0715	422	3.00	1266.0	68400	0.054	10000	0.008	33345	0.026
ZND	IA-PST-AGGR	MB61	7/11	0013	0715	422	3.00	1266.0	173565	0.137	20000	0.016	42750	0.034
ZND	IA-PST-AGGR	MB62	7/11	0013	0715	422	3.00	1266.0	116280	0.082	10000	0.008	26505	0.021
ZND	OA-PST-AGGR	AA413	7/11	0013	0715	422	3.00	1266.0	198660	0.157	4000	0.003		
ZND	IA-PST-WAGR	AA410	7/11	0827	1630	483	3.00	1449.0	82775	0.057	2000	0.001	5621	0.004
ZND	IA-PST-WAGR	AA418	7/11	0827	1630	483	3.15	1521.5	38885	0.026	2000	0.001		
ZND	IA-PST-WAGR	AA419	7/11	0827	1630	483	2.90	1400.7	48125	0.034	2000	0.001		
ZND	IA-PST-WAGR	MB40	7/11	0827	1630	483	3.00	1449.0	123120	0.085	3500	0.002		
ZND	IA-PST-WAGR	MB47	7/11	0827	1630	483	3.05	1473.2	127315	0.086	1750	0.001		
ZND	IA-PST-WAGR	MB55	7/11	0827	1630	483	3.15	1521.5	70965	0.047	1750	0.001		
ZND	OA-PST-WAGR	AA431	7/11	0827	1630	483	2.95	1424.9	43120	0.030	2000	0.001		
ZNE	IA-PST-AGGR	AA392	7/11	2300	0715	495	3.10	1534.5	123585	0.081	42000	0.027		
ZNE	IA-PST-AGGR	AA398	7/11	2300	0715	495	3.50	1732.5	82015	0.053	36000	0.021		
ZNE	IA-PST-AGGR	AA420	7/11	2300	0715	495	3.50	1732.5	58135	0.034	32000	0.018		
ZNE	IA-PST-AGGR	MB58	7/11	2300	0715	495	3.50	1732.5	169290	0.098	97000	0.056	78404	0.045
ZNE	IA-PST-AGGR	MB59	7/11	2300	0715	495	3.00	1485.0	94905	0.064	93000	0.063	91485	0.062
ZNE	IA-PST-AGGR	MB68	7/11	2300	0715	495	3.50	1732.5	106875	0.062	59000	0.034	102600	0.059
ZNE	OA-PST-AGGR	AA403	7/11	2300	0715	495	3.25	1608.8	103565	0.064	9000	0.006		
ZNE	IA-PST-WAGR	AA415	7/11	0827	1630	483	3.05	1473.2	52745	0.036	3000	0.002		
ZNE	IA-PST-WAGR	AA421	7/11	0827	1630	483	3.00	1449.0	51590	0.036	4000	0.003		
ZNE	IA-PST-WAGR	AA450	7/11	0827	1630	483	3.10	1497.3	77000	0.051	3000	0.002	7700	0.005
ZNE	IA-PST-WAGR	MB38	7/11	0827	1630	483	3.20	1545.6	106875	0.069	1750	0.001	13595	0.009
ZNE	IA-PST-WAGR	MB39	7/11	0827	1630	483	3.15	1521.5	90630	0.060	1750	0.001		
ZNE	IA-PST-WAGR	MB46	7/11	0827	1630	483	3.25	1569.8	129960	0.083	5000	0.003	9747	0.006
ZNE	OA-PST-WAGR	AA435	7/11	0827	1630	483	3.00	1449.0	20405	0.014	3000	0.002		
ZEW	AM-PST-FTIR	AA434	7/11	0850	1630	460	3.00	1380.0	41580	0.030	750	0.001		
ZEW	AM-PST-FTIR	AA441	7/11	1024	0707	1243	3.00	3729.0	182490	0.049	750	0.000	1347	0.000
ZEW	AM-PST-FTIR	AA449	7/11	0850	1630	460	2.90	1334.0	20790	0.016	750	0.001		
ZEW	AM-PST-FTIR	AA408	7/11	1024	0707	1243	3.00	3729.0	162470	0.044	2000	0.001		
ZFB	FB-PST-6/21	AA174	7/11						6314		750		9770	
ZFB	FB-PST-7/18	MB53	7/11						2992		1750			
ZFB	FB-PST-7/18	MB54	7/11						2992		1750			

TABLE B3-1

LEGEND FOR FACILITY 3 PCM DATA

LOC	(Facility and room location of sampled activity)
3xxx	Facility 3
RMF	Room F
RMG	Room G
TLG	Teachers Lounge outside window
SAMPLE CLASS	(Sample type and location, activity, and ID)
Location	
FB	Field Blank
IA	Interior Area (Background in the work room)
OA	Outside Area (in the hall)
AM	Ambient (Outside the building)
BZ	Personal Breathing Zone
CT	Mobile Sampling Cart (proximate to work activity)
Activity	
PRE	Pre-removal activity - Full-term sample
PST	Post-removal activity - Full-term sample
REM	Removal work - Full-term sequential sample
COV	Preparation - Full-term sequential
RMS	Removal work - 15-minute short-term PBZ sample
COS	Preparation - 15-minute short-term BZ
SEQ	Sample period covers sequential work activities
ID	
AGGR	Aggressive sampling mode
NAGR	Nonaggressive sampling mode
WK#X	Worker #X BZ sample
mm/dd	Actual date of blank source
SAMPLE No.	Sample media Identification code and number
AAxxx	25-mm Cellulose Ester Filter Sample Number xxx (using a foil wrapped 2-inch cowl)
Mxxx	37-mm Cellulose Ester Filter Sample Number xxx
Nxxx	37-mm Polycarbonate Filter Sample Number xxx
RATE	Sample flow rate in liters per minute (lpm)
VOL	Sample volume in liters (l)
MAGISCAN II	Magiscan II is a computerized image analysis system for PCM; results are in total fibers per cubic centimeter
<u>Phase Contrast Microscopy using NIOSH Method 7400B counting rules</u>	
UBTL	PCM analysis performed by Utah Biological Testing Labs
NIOSH	PCM analysis performed in the NIOSH Laboratory
Fibers	Total fibers
f/cc	Fibers per cubic centimeter

TABLE B3-2

PHASE CONTRAST MICROSCOPY ANALYTICAL RESULTS
FOR AIRBORNE ASBESTOS ANALYSIS
FACILITY 3
CINCINNATI, OHIO
June 13, July 1-3 & 10, 1985

NOTE: For samples reported less than detectable,
one half of the limit of detection is used
as follows: LAB 25-mm Filter 37-mm Filter
UBTL 750 1750
NIOSH 1347 2992

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (l)	MAGISCAN II		UBTL		NIOSH	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
3RMG	IA-PRE-AGGR	AA073	6/13	2315	0715	480	3.14	1507.2	57365	0.038			87203	0.058
3RMG	IA-PRE-AGGR	AA094	6/13	2315	0715	480	3.3	1584.0	93940	0.059			86625	0.055
3RMG	IA-PRE-AGGR	AA133	6/13	2315	0715	480	3.3	1584.0	102410	0.065	62000	0.039		
3RMG	IA-PRE-AGGR	M293	6/13	2315	0715	480	3.1	1488.0	90630	0.061			134235	0.090
3RMG	IA-PRE-AGGR	M294	6/13	2315	0715	480	3.3	1584.0	102600	0.065			159885	0.101
3RMG	IA-PRE-AGGR	M297	6/13	2315	0715	480	3.2	1536.0	83790	0.055			168435	0.110
3RMG	IA-PRE-WAGR	AA084	6/13	1344	2145	481	3.0	1443.0	130515	0.090			1347	0.001
3RMG	IA-PRE-WAGR	AA100	6/13	1344	2145	481	3.0	1443.0	73535	0.051			1347	0.001
3RMG	IA-PRE-WAGR	AA101	6/13	1344	2145	481	3.1	1491.1	96250	0.065			1347	0.001
3RMG	IA-PRE-WAGR	M296	6/13	1344	2145	481	3.0	1443.0	152190	0.105			10260	0.007
3RMG	IA-PRE-WAGR	M299	6/13	1344	2145	481	3.2	1539.2	135945	0.088			9405	0.006
3RMG	IA-PRE-WAGR	M305	6/13	1344	2145	481	3.2	1539.2	54976	0.036			2992	0.002
3RMF	IA-PRE-AGGR	AA077	6/13	2303	0703	480	3.3	1584.0	1347	0.001			6930	0.004
3RMF	IA-PRE-AGGR	AA112	6/13	2303	0703	480	3.1	1488.0	65065	0.044			1347	0.001
3RMF	IA-PRE-AGGR	AA114	6/13	2303	0703	480	3.3	1584.0	93940	0.059				
3RMF	IA-PRE-AGGR	M292	6/13	2303	0703	480	3.3	1584.0	61560	0.039			23085	0.015
3RMF	IA-PRE-AGGR	M303	6/13	2303	0703	480	3.2	1536.0	103455	0.067			2992	0.002
3RMF	IA-PRE-AGGR	M304	6/13	2303	0703	480	3.2	1536.0	142785	0.093	30000	0.020		
3RMF	IA-PRE-AGGR	M320	6/13	2303	0703	480	3.2	1536.0						
3RMF	IA-PRE-WAGR	AA081	6/13	1337	2137	480	3.0	1440.0	36768	0.026			1347	0.001
3RMF	IA-PRE-WAGR	AA113	6/13	1337	2137	480	3.0	1440.0	24524	0.017	1500	0.001		
3RMF	IA-PRE-WAGR	AA115	6/13	1337	2137	480	3.0	1440.0	51975	0.036			1347	0.001
3RMF	IA-PRE-WAGR	M291	6/13	1337	2137	480	3.1	1488.0	20520	0.014			2992	0.002
3RMF	IA-PRE-WAGR	M301	6/13	1337	2137	480	3.0	1440.0	10858	0.008			2992	0.002
3RMF	IA-PRE-WAGR	M302	6/13	1337	2137	480	3.1	1488.0	15219	0.010	4000	0.003		
3FB	FB-PRE-FTER	AA076	6/13						1347		750			
3FB	FB-PRE-FTER	AA078	6/13						1347		750			
3FB	FB-PRE-FTER	AA085	6/13						1347		750			
3FB	FB-PRE-FTER	AA086	6/13						1347		750			
3FB	FB-PRE-FTER	AA088	6/13						3426		750			
3FB	FB-PRE-FTER	AA096	6/13						962		750			
3FB	FB-PRE-FTER	M295	6/13						2992		1750			
3FB	FB-PRE-FTER	M300	6/13						11371				2992	
3FB	FB-PRE-6/14	M328	6/13						7609				2992	
3FB	FB-PRE-6/14	M333	6/13						5472		1750			
3FB	FB-PRE-6/14	M336	6/13						1111		1750			
3LNG	AM-FTER	AA082	6/13	1050	0637	1187	2.8	3323.6	242550	0.073			1347	0.000
3LNG	AM-FTER	AA083	6/13	1050	0637	1187	2.8	3323.6	190960	0.057			1347	0.000

TABLE B3-2 (Continued - page 2)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (l)	MAGISCAN II		MDL		NIOSH	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
3EMF	BZ-COS-WK#1	AA321	7/01	0836	0852	16	3.0	48.0			750	0.016		
3EMF	BZ-COS-WK#3	AA239	7/01	0817	0832	15	3.0	45.0			750	0.017		
3EMF	BZ-COS-WK#4	AA254	7/01	0942	1009	37	3.0	111.0			2000	0.018		
3EMF	BZ-COV-WK#1	AA269	7/01	0801	1030	149	2.96	441.0			5000	0.011		
3EMF	BZ-COV-WK#2	AA238	7/01	0820	1020	120	3.05	366.0			3000	0.008		
3EMF	BZ-COV-WK#3	AA240	7/01	0800	1030	150	3.02	453.0			2000	0.004		
3EMF	BZ-COV-WK#4	AA318	7/01	0800	1030	150	3.00	450.0			3000	0.007		
3EMF	BZ-REM-WK#1	AA226	7/01	1330	1515	105	2.96	310.8			320000	1.030		
3EMF	BZ-REM-WK#1	AA244	7/01	1030	1233	123	2.96	364.1			60000	0.165		
3EMF	BZ-REM-WK#2	AA242	7/01	1030	1233	123	3.05	375.2			150000	0.400		
3EMF	BZ-REM-WK#2	AA386	7/01	1330	1515	105	3.05	320.3			160000	0.500		
3EMF	BZ-REM-WK#3	AA319	7/01	1030	1233	123	3.02	371.5			230000	0.619		
3EMF	BZ-REM-WK#3	AA390	7/01	1330	1515	105	3.02	317.1			160000	0.505		
3EMF	BZ-REM-WK#4	AA245	7/01	1037	1233	118	3.00	348.0			100000	0.287		
3EMF	BZ-REM-WK#4	AA385	7/01	1330	1515	105	3.00	315.0			76000	0.241		
3EMF	BZ-RPS-WK#1	AA333	7/01	1404	1413	9	3.0	27.0			27000	1.000		
3EMF	BZ-RPS-WK#2	AA349	7/01	1437	1452	15	3.0	45.0			32000	0.711		
3EMF	BZ-RPS-WK#3	AA313	7/01	1047	1102	15	3.0	45.0			21000	0.467		
3EMF	BZ-RPS-WK#3	AA341	7/01	1337	1352	15	3.0	45.0			57000	1.267		
3EMF	BZ-RPS-WK#4	AA334	7/01	1314	1329	15	3.0	45.0			42000	0.933		
3EMF	CT-COV	AA277	7/01	0759	1028	149	3.00	447.0			1500	0.003		
3EMF	CT-COV	AA280	7/01	0759	1028	149	2.82	420.2			1500	0.004		
3EMF	CT-REM	AA232	7/01	1033	1233	120	2.82	338.4			240000	0.709		
3EMF	CT-REM	AA276	7/01	1033	1233	120	3.00	360.0			57000	0.158		
3EMF	CT-REM	AA335	7/01	1330	1530	120	2.82	338.4			750	0.002		
3EMF	CT-REM	AA342	7/01	1330	1530	120	3.00	360.0			340000	0.944		
3EMF	IA-COV	AA246	7/01	0803	1028	145	3.00	435.0			4000	0.009		
3EMF	IA-COV	AA251	7/01	0759	1028	149	3.12	464.9			2000	0.004		
3EMF	IA-REM	AA225	7/01	1033	1233	120	3.12	374.4			220000	0.588		
3EMF	IA-REM	AA237	7/01	1330	1530	120	3.00	360.0			93000	0.258		
3EMF	IA-REM	AA266	7/01	1033	1233	120	3.00	360.0			140000	0.389		
3EMF	IA-REM	AA307	7/01	1330	1530	120	3.12	374.4			190000	0.507		
3EMF	OA-COV	AA229	7/01	0759	1028	149	3.12	464.9			4000	0.009		
3EMF	OA-COV	AA270	7/01	0759	1028	149	3.06	455.9			750	0.002		
3EMF	OA-REM	AA236	7/01	1330	1530	120	3.12	374.4			4000	0.011		
3EMF	OA-REM	AA241	7/01	1247	1330	43	3.12	134.2			3000	0.022		
3EMF	OA-REM	AA256	7/01	1035	1233	118	3.06	361.1			7000	0.019		
3EMF	OA-REM	AA257	7/01	1035	1150	75	3.12	234.0			2000	0.009		
3EMF	OA-REM	AA308	7/01	1330	1530	120	3.06	367.2			5000	0.014		
3FB	FB-COV-6/21	AA184	7/01								750			
3FB	FB-REM-6/21	AA185	7/01								750			
3LNG	M4-FM	AA267	7/01	0750	1545	475	3.0	1425.0			750	0.001		
3LNG	M4-FM	AA268	7/01	0750	1545	475	2.8	1330.0			750	0.001		

TABLE B3-2 (Continued - page 3)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (l)	MAGISCAN II		UETL		NIOSE	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
3RMG	BZ-REM-WK#1	AA332	7/02	1259	1512	133	2.82	375.1			400000	1.066		
3RMG	BZ-REM-WK#2	AA345	7/02	1255	1413	78	3.00	234.0			330000	1.410		
3RMG	BZ-REM-WK#3	AA355	7/02	1323	1512	109	3.00	327.0			360000	1.101		
3RMG	BZ-REM-WK#4	AA348	7/02	1258	1512	134	3.06	410.0			390000	0.951		
3RMG	BZ-RMS-WK#1	AA368	7/02	1341	1356	15	3.00	45.0			90000	2.000		
3RMG	BZ-RMS-WK#3	AA353	7/02	1430	1452	22	3.00	66.0			210000	3.182		
3RMG	BZ-RMS-WK#4	AA359	7/02	1457	1511	14	3.00	42.0			390000	9.286		
3RMG	BZ-RMS-WK#4	AA369	7/02	1313	1331	18	3.00	54.0			150000	2.778		
3RMG	CT-REM	AA344	7/02	1257	1520	143	2.82	403.3			260000	0.645		
3RMG	CT-REM	AA358	7/02	1257	1520	143	3.00	429.0			410000	0.956		
3RMG	IA-REM	AA338	7/02	1257	1520	143	3.00	429.0			350000	0.816		
3RMG	IA-REM	AA352	7/02	1257	1520	143	3.12	446.2			340000	0.762		
3RMG	OA-REM	AA329	7/02	1257	1520	143	2.90	414.7			190000	0.458		
3RMG	OA-REM	AA337	7/02	1257	1520	143	3.00	429.0			190000	0.443		
3RMF	BZ-REM-WK#1	AA362	7/02	0735	1127	232	2.82	654.2			170000	0.260		
3RMF	BZ-REM-WK#2	AA361	7/02	0735	1119	224	3.05	683.2			180000	0.263		
3RMF	BZ-REM-WK#3	AA376	7/02	0735	1127	232	3.02	700.6			320000	0.457		
3RMF	BZ-REM-WK#4	AA375	7/02	0735	1119	224	3.06	685.4			310000	0.452		
3RMF	BZ-RMS-WK#1	AA347	7/02	0812	0827	15	3.00	45.0			7000	0.156		
3RMF	BZ-RMS-WK#2	AA346	7/02	0832	0847	15	3.00	45.0			34000	0.756		
3RMF	BZ-RMS-WK#3	AA354	7/02	0942	0957	15	3.00	45.0			41000	0.911		
3RMF	BZ-RMS-WK#4	AA360	7/02	1005	1020	15	3.00	45.0			110000	2.444		
3RMF	CT-REM	AA356	7/02	0735	1127	232	3.00	696.0			300000	0.431		
3RMF	CT-REM	AA370	7/02	0735	1127	232	2.82	654.2			300000	0.459		
3RMF	IA-REM	AA363	7/02	0735	1127	232	3.00	696.0			390000	0.560		
3RMF	IA-REM	AA377	7/02	0735	1127	232	3.12	723.8			270000	0.373		
3RMF	OA-REM	AA330	7/02	0735	1128	233	3.12	727.0			750	0.001		
3RMF	OA-REM	AA340	7/02	0735	1128	233	3.06	713.0			750	0.001		
3FB	FB-REM-6/21	AA166	7/02								750			
3FB	FB-REM-6/21	AA167	7/02								750			
3LNG	AM-FTM	AA331	7/02	0727	1525	478	3.0	1434.0			1500	0.001		
3LNG	AM-FTM	AA339	7/02	0727	1525	478	2.8	1338.4			750	0.001		
3RMG	BZ-REM-WK#1	AA366	7/03	0742	1115	213	2.82	600.7			480000	0.789		
3RMG	BZ-REM-WK#2	AA336	7/03	0740	1115	215	3.05	655.8			270000	0.412		
3RMG	BZ-REM-WK#3	AA343	7/03	0739	1115	216	3.02	652.3			310000	0.475		
3RMG	BZ-REM-WK#4	AA357	7/03	0741	1115	214	3.06	654.8			400000	0.611		
3RMG	BZ-RMS-WK#1	AA373	7/03	1010	1030	20	3.00	60.0			100000	1.667		
3RMG	BZ-RMS-WK#3	AA371	7/03	0816	0831	15	3.00	45.0			32000	0.711		
3RMG	BZ-RMS-WK#4	AA378	7/03	0755	0810	15	3.00	45.0			28000	0.622		
3RMG	BZ-RMS-WK#4	AA380	7/03	0948	1003	15	3.00	45.0			46000	1.022		
3RMG	CT-REM	AA351	7/03	0737	1115	218	2.82	614.8			410000	0.667		
3RMG	CT-REM	AA364	7/03	0737	1115	218	3.00	654.0			370000	0.566		
3RMG	IA-REM	AA350	7/03	0737	1115	218	3.00	654.0			310000	0.474		
3RMG	IA-REM	AA372	7/03	0737	1115	218	3.12	680.2			420000	0.617		
3RMG	OA-REM	AA382	7/03	0737	1115	218	3.00	654.0			240000	0.367		
3RMG	OA-REM	AA391	7/03	0737	1115	218	2.96	645.3			150000	0.232		
3FB	FB-REM-6/21	AA168	7/03								750			
3FB	FB-REM-6/21	AA169	7/03								750			
3LNG	AM-FTM	AA365	7/03	0720	1150	270	2.8	756.0			750	0.001		
3LNG	AM-FTM	AA367	7/03	0720	1150	270	3.0	810.0			750	0.001		

TABLE B3-2 (Continued - page 4)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (l)	MAGISCAN II		HBTLPOM 7400-B		HIOSHPOM 7400-B	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
3RMG	IA-PST-AGGR	AA422	7/10	1750	0218	508	3.0	1524.0	26585	0.017	2000	0.001		
3RMG	IA-PST-AGGR	AA425	7/10	1750	0218	508	3.0	1524.0	28490	0.019	2000	0.001		
3RMG	IA-PST-AGGR	AA428	7/10	1750	0218	508	3.0	1524.0	31955	0.021	2000	0.001		
3RMG	IA-PST-AGGR	M852	7/10	1750	0218	508	3.5	1778.0	74641	0.042			2992	0.002
3RMG	IA-PST-AGGR	M853	7/10	1750	0218	508	3.5	1778.0	92340	0.052	1750	0.001		
3RMG	IA-PST-AGGR	M854	7/10	1750	0218	508	3.5	1778.0	82849	0.047			12996	0.007
3RMG	OA-PST-AGGR	AA443	7/10	1750	0218	508	3.0	1524.0	86240	0.057	750	0.000		
3RMG	IA-PST-WAGR	AA433	7/10	0842	1655	493	3.0	1479.0	24640	0.017	750	0.001		
3RMG	IA-PST-WAGR	AA436	7/10	0902	1655	473	3.0	1419.0	111650	0.079			1347	0.001
3RMG	IA-PST-WAGR	AA439	7/10	0842	1655	493	3.0	1479.0	108570	0.073	750	0.001		
3RMG	IA-PST-WAGR	M841	7/10	0842	1655	493	3.3	1826.9	35910	0.022	1750	0.001		
3RMG	IA-PST-WAGR	M842	7/10	0842	1655	493	3.2	1577.6	22230	0.014	1750	0.001		
3RMG	IA-PST-WAGR	M843	7/10	0902	1655	473	3.1	1466.3	25850	0.017	1750	0.001		
3RMG	OA-PST-WAGR	AA437	7/10	0843	1655	492	3.1	1525.2	45045	0.030	1500	0.001		
3RMF	IA-PST-AGGR	AA384	7/10	1603	0208	605	3.3	1996.5	31185	0.016	25000	0.013		
3RMF	IA-PST-AGGR	AA442	7/10	1603	0208	605	3.0	1815.0	72765	0.040			40040	0.022
3RMF	IA-PST-AGGR	AA451	7/10	1603	0208	605	3.5	2117.5	60445	0.029	23000	0.011		
3RMF	IA-PST-AGGR	M845	7/10	1603	0208	605	3.5	2117.5	64125	0.030			63270	0.030
3RMF	IA-PST-AGGR	M848	7/10	1603	0208	605	3.0	1815.0	45315	0.025	46000	0.025		
3RMF	IA-PST-AGGR	M849	7/10	1603	0208	605	3.5	2117.5	94050	0.044			43520	0.021
3RMF	OA-PST-AGGR	AA455	7/10	1603	0208	605	3.5	2117.5	32147	0.015			5390	0.003
3RMF	IA-PST-WAGR	AA429	7/10	0845	1655	490	3.0	1470.0	94710	0.064			3465	0.002
3RMF	IA-PST-WAGR	AA430	7/10	0845	1655	490	3.1	1519.0	55825	0.037	750	0.000		
3RMF	IA-PST-WAGR	AA436	7/10	0845	1655	490	3.1	1519.0	33880	0.022	750	0.000		
3RMF	IA-PST-WAGR	M844	7/10	0845	1655	490	3.4	1666.0	79515	0.048			2992	0.002
3RMF	IA-PST-WAGR	M850	7/10	0845	1655	490	3.5	1715.0	87210	0.051	1750	0.001		
3RMF	IA-PST-WAGR	M851	7/10	0845	1655	490	3.4	1666.0	84645	0.051	1750	0.001		
3RMF	OA-PST-WAGR	AA423	7/10	0843	1655	492	3.0	1476.0	46585	0.032			1347	0.001
3FB	FB-PST-7/18	AA479	7/10						10549				1347	
3FB	FB-PST-7/18	M955	7/10						2992				2992	
3FB	FB-PST-7/18	M956	7/10						2992				2992	
3FB	FB-PST-7/18	M960	7/10						17955				2992	
3LNG	AM-PST-FIM	AA452	7/10	0854	0325	1111	3.0	3333.0	227150	0.068	750	0.000		
3LNG	AM-PST-FIM	AA460	7/10	0854	0325	1111	2.9	3221.9	217910	0.068	750	0.000		

TABLE B4-1

LEGEND FOR FACILITY 4 PCM DATA

LOC	(Facility and room location of sampled activity)
4xxx	Facility 4
RMH	Room H
RMI	Room I
RMJ	Room J
CE	Combined Exposure Areas Room H and Room I
PO	Principle's Office
SAMPLE CLASS	(Sample type and location, activity, and ID)
<u>Location</u>	
FB	Field Blank
IA	Interior Area (Background in the work room)
OA	Outside Area (in the hall)
AM	Ambient (Outside the building)
BZ	Personal Breathing Zone
CT	Mobile Sampling Cart (proximate to work activity)
<u>Activity</u>	
PRE	Pre-removal activity - Full term sample
PST	Post-removal activity - Full term sample
REM	Removal work - Full term sequential sample
COV	Preparation - Full term sequential
RMS	Removal work - 15 minute short term PBZ sample
COS	Preparation - 15 minute short term BZ
SEQ	Sample period covers sequential work activities
FTM	Ambient Sample - Full Term Monitoring; 8 to 16 hours
<u>ID</u>	
AGGR	Aggressive sampling mode
NAGR	Nonaggressive sampling mode
WK#X	Worker #X BZ sample
<u>mm/dd</u>	Date of blank
SAMPLE No.	Sample media Identification code and number
<u>AAxxx</u>	25mm Cellulose Ester Filter Sample Number xxx (using a foil wrapped 2-inch cowl)
<u>Mxxx</u>	37mm Cellulose Ester Filter Sample Number xxx
<u>Nxxx</u>	37mm Polycarbonate Filter Sample Number xxx
RATE	Sample flow rate in liters per minute (lpm)
VOL	Sample volume in liters (l)
MAGISCAN II	Magiscan II is a computerized image analysis system for PCM; results are in total fibers per cubic centimeter.
<u>Phase Contrast Microscopy using NIOSH Method 7400B counting rules</u>	
UBTL	PCM analysis performed by Utah Biological Testing Labs
NIOSH	PCM analysis performed in the NIOSH Laboratory
Fibers	Total fibers
f/cc	Fibers/cubic centimeter

TABLE B4-2

PHASE CONTRAST MICROSCOPY ANALYTICAL RESULTS
FOR AIRBORNE ASBESTOS ANALYSIS
FACILITY 4
CINCINNATI, OHIO
July 12 & July 15-18, 1985

NOTE: For samples reported less than detectable,
one half of the limit of detection is used
as follows: LAB 25 mm Filter 37 mm Filter
UBTL 750 1750
NIOSH 1347 2982

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (l)	MAGISCAN II		UBTL		NIOSH	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
4BHI	IA-PRE-AGGR	AA393	7/12	1800	0201	481	2.50	1202.5	43505	0.036	12000	0.010		
4BHI	IA-PRE-AGGR	AA401	7/12	1800	0201	481	2.75	1322.8	57750	0.044			1347	0.001
4BHI	IA-PRE-AGGR	AA448	7/12	1800	0201	481	2.50	1202.5	46970	0.039	10000	0.008		
4BHI	IA-PRE-AGGR	MB64	7/12	1800	0201	481	2.75	1322.8	53950	0.041			24966	0.019
4BHI	IA-PRE-AGGR	MB71	7/12	1800	0201	481	3.00	1443.0	47965	0.033	20000	0.014		
4BHI	IA-PRE-AGGR	MB72	7/12	1800	0201	481	2.75	1322.8	85760	0.072				
4BHI	OA-PRE-AGGR	AAA27	7/12	1800	0201	481	3.00	MMI43.0	17671	0.012	2000	0.001		
4BHI	IA-PRE-WAGR	AA405	7/12	0906	1700	474	2.60	1232.4	31993	0.026	2000	0.002		
4BHI	IA-PRE-WAGR	AA406	7/12	0906	1700	474	2.70	1279.8	33841	0.026			1347	0.001
4BHI	IA-PRE-WAGR	AA444	7/12	0906	1700	474	3.15	1493.1	32147	0.022			4158	0.003
4BHI	IA-PRE-WAGR	MB57	7/12	0906	1700	474	3.00	1422.0	49077	0.035	3500	0.002		
4BHI	IA-PRE-WAGR	MB65	7/12	0906	1700	474	3.15	1493.1	16208	0.011	1750	0.001		
4BHI	IA-PRE-WAGR	MB69	7/12	0906	1700	474	2.95	1398.3	47965	0.034	1750	0.001		
4BHI	OA-PRE-WAGR	AA397	7/12	0905	1700	475	3.05	1448.8	27989	0.019	750	0.001		
4BHI	IA-PRE-AGGR	AA394	7/12	1752	0152	480	2.50	1190.0	43890	0.037	8000	0.005		
4BHI	IA-PRE-AGGR	AA399	7/12	1752	0152	480	3.00	1428.0	50435	0.035			1347	0.001
4BHI	IA-PRE-AGGR	AA407	7/12	1752	0152	480	2.75	1309.0	40040	0.031	4000	0.003		
4BHI	IA-PRE-AGGR	MB67	7/12	1752	0152	480	3.00	1428.0	55062	0.039			2992	0.002
4BHI	IA-PRE-AGGR	MB70	7/12	1752	0152	480	2.75	1309.0	53950	0.041			17357	0.013
4BHI	IA-PRE-AGGR	MB73	7/12	1752	0152	480	3.00	1428.0	38244	0.027			2992	0.002
4BHI	OA-PRE-AGGR	AA404	7/12	1752	0152	480	3.00	1428.0	15839	0.011			1347	0.001
4BHI	IA-PRE-WAGR	AA402	7/12	0904	1700	476	3.00	1428.0	21098	0.015	750	0.001		
4BHI	IA-PRE-WAGR	AA409	7/12	0904	1700	476	2.70	1285.2	16208	0.013	750	0.001		
4BHI	IA-PRE-WAGR	AA426	7/12	0904	1700	476	2.80	1237.6	23793	0.019			1347	0.001
4BHI	IA-PRE-WAGR	MB56	7/12	0904	1700	476	2.95	1404.2	36508	0.026			2992	0.002
4BHI	IA-PRE-WAGR	MB74	7/12	0904	1700	476	2.90	1380.4	38133	0.028	1750	0.001		
4BHI	IA-PRE-WAGR	MB75	7/12	0904	1700	476	3.00	1428.0	47367	0.033			2992	0.002
4BHI	OA-PRE-WAGR	AA396	7/12	0904	1700	476	3.00	1428.0	64285	0.045			36575	0.026
4FB	FB-PRE-7/12	MB63	7/12						53266		1750			
4FB	FB-PRE-7/12	MB66	7/12						9832		1750			
4FB	FB-PRE-7/18	MB62	7/12						47965		1750			
4FB	FB-PRE-7/18	MB63	7/12						27018				2992	
4FB	FB-PRE-7/18	MB64	7/12						7609		1750			
4FB	FB-PRE-7/18	MB65	7/12						7609				2992	
4FO	AM-FIM	AA400	7/12	0915	0230	1035	2.90	3001.5	43120	0.014	750	0.000		
4FO	AM-FIM	AAA56	7/12	0915	0230	1035	3.00	3105.0	38269	0.012			3889	0.001

TABLE B4-2 (Continued - page 2)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (l)	MAGISCAN II		UBTL		NIOSH	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
ARMH	BZ-COS-WK#1	AA471	7/15	0842	0902	20	2.50	50.0			750	0.015		
ARMH	BZ-COS-WK#2	AA503	7/15	0822	0837	15	3.70	55.5			750	0.014		
ARMH	BZ-COS-WK#4	AA500	7/15	0838	0853	15	3.20	48.0			750	0.016		
ARMH	BZ-REM-WK#1	AA465	7/15	1045	1245	120	2.75	330.0			6000	0.018		
ARMH	BZ-REM-WK#2	AA464	7/15	1045	1252	127	3.20	406.4			6000	0.015		
ARMH	BZ-REM-WK#3	AA494	7/15	1043	1245	122	3.00	366.0			2000	0.005		
ARMH	BZ-REM-WK#4	AA466	7/15	1044	1245	121	2.90	350.9			6000	0.017		
ARMH	BZ-RMS-WK#1	AA501	7/15	1326	1341	15	2.30	34.5			750	0.022		
ARMH	BZ-RMS-WK#2	AA477	7/15	1306	1321	15	3.15	47.3			1500	0.032		
ARMH	BZ-RMS-WK#3	AA470	7/15	1108	1123	15	3.10	46.5			2000	0.043		
ARMH	BZ-RMS-WK#3	AA511	7/15	1345	1355	10	3.20	32.0			750	0.023		
ARMH	BZ-RMS-WK#4	AA461	7/15	1357	1410	13	3.20	41.6			1500	0.036		
ARMH	CT-COV	AA473	7/15	0755	1045	170	3.10	527.0			3000	0.006		
ARMH	CT-COV	AA510	7/15	0755	1045	170	3.10	527.0			3000	0.006		
ARMH	CT-REM	AA474	7/15	1045	1243	118	3.10	365.8			3000	0.008		
ARMH	CT-REM	AA490	7/15	1045	1243	118	3.00	354.0			2000	0.006		
ARMH	IA-COV	AA495	7/15	0755	1045	170	3.20	544.0			7000	0.013		
ARMH	IA-COV	AA508	7/15	0755	1045	170	3.25	552.5			1500	0.003		
ARMH	IA-REM	AA497	7/15	1045	1241	116	3.30	382.8			2000	0.005		
ARMH	IA-REM	AA498	7/15	1045	1241	116	3.20	371.2			3000	0.008		
ARMH	QA-REM	AA476	7/15	1048	1243	115	3.30	379.5			750	0.002		
ARMH	QA-REM	AA507	7/15	1048	1243	115	3.30	379.5			750	0.002		
4CE	BZ-COV-WK#1	AA506	7/15	0810	1045	155	2.80	434.0			2000	0.005		
4CE	BZ-COV-WK#2	AA514	7/15	0811	1045	154	3.20	492.8			3000	0.006		
4CE	BZ-COV-WK#3	AA468	7/15	0811	1030	139	2.80	389.2			750	0.002		
4CE	BZ-COV-WK#4	AA472	7/15	0811	1044	153	3.20	489.6			5000	0.010		
4CE	QA-COV	AA504	7/15	0755	1045	170	3.20	544.0			750	0.001		
4CE	QA-COV	AA509	7/15	0755	1045	170	3.20	544.0			750	0.001		
4FB	FB-COV-7/18	AA525	7/15								750			
4FB	FB-REM-7/18	AA545	7/15								750			
4FO	AM-FTM	AA467	7/15	0816	1420	364	3.00	1082.0			750	0.001		
4FO	AM-FTM	AA469	7/15	0816	1420	364	2.90	1055.6			750	0.001		
ARMH	BZ-REM-WK#1	AA411	7/16	0756	1130	214	3.20	684.8			10000	0.015		
ARMH	BZ-REM-WK#2	AA489	7/16	0756	1130	214	3.15	674.1			9000	0.013		
ARMH	BZ-REM-WK#3	AA491	7/16	0756	1130	214	3.00	642.0						
ARMH	BZ-RMS-WK#1	AA485	7/16	0959	1014	15	3.20	48.0			750	0.016		
ARMH	BZ-RMS-WK#2	AA483	7/16	0824	0839	15	3.10	46.5			3000	0.065		
ARMH	BZ-RMS-WK#3	AA484	7/16	0803	0818	15	3.00	45.0			9000	0.200		
ARMH	BZ-RMS-WK#3	AA486	7/16	0941	0956	15	3.10	46.5			4000	0.086		
ARMH	CT-REM	AA480	7/16	0745	1130	225	3.00	675.0						
ARMH	CT-REM	AA505	7/16	0745	1130	225	3.00	675.0			9000	0.013		
ARMH	IA-REM	AA475	7/16	0756	0822	26	3.00	78.0			4000	0.051		
ARMH	IA-REM	AA487	7/16	0745	1130	225	3.20	720.0						
ARMH	IA-REM	AA488	7/16	0745	1130	225	3.20	720.0			9000	0.013		
ARMH	QA-REM	AA462	7/16	0743	1130	227	3.20	726.4			2000	0.003		
ARMH	QA-REM	AA463	7/16	0743	1130	227	3.40	771.8			750	0.001		
4FB	FB-REM-7/18	AA554	7/16								750			
4FB	FB-REM-7/18	AA555	7/16								750			
4FO	AM-FTM	AA492	7/16	0737	1325	348	2.80	974.4			750	0.001		
4FO	AM-FTM	AA499	7/16	0737	1325	348	2.90	1009.2			750	0.001		

TABLE BA-2 (Continued - page 3)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (l/m)	VOL. (l)	MAGISCAN II		UETL		MIOSE	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
ARMJ	BZ-REM-WK#1	AA502	7/17	0924	1133	129	2.95	380.6			750	0.002		
ARMJ	BZ-REM-WK#1	AA536	7/17	1243	1343	60	2.90	174.0			4000	0.023		
ARMJ	BZ-REM-WK#2	AA515	7/17	1040	1341	181	3.15	570.2			3000	0.005		
ARMJ	BZ-REM-WK#3	AA482	7/17	0922	1133	131	3.00	393.0			1500	0.004		
ARMJ	BZ-REM-WK#3	AA544	7/17	1243	1340	57	3.10	176.7			3000	0.017		
ARMJ	BZ-REM-WK#4	AA496	7/17	1238	1343	65	3.10	201.5			2000	0.010		
ARMJ	BZ-REM-WK#4	AA528	7/17	1313	1328	15	3.00	45.0			750	0.017		
ARMJ	BZ-REM-WK#1	AA535	7/17	0936	0951	15	3.05	45.8			750	0.016		
ARMJ	BZ-REM-WK#2	AA543	7/17	1332	1340	8	2.75	22.0			750	0.034		
ARMJ	BZ-REM-WK#3	AA527	7/17	1100	1115	15	3.00	45.0			750	0.017		
ARMJ	BZ-REM-WK#3	AA532	7/17	0956	1011	15	3.20	48.0			750	0.016		
ARMJ	BZ-REM-WK#4	AA542	7/17	1257	1312	15	3.05	45.8			2000	0.044		
ARMJ	CT-REM	AA478	7/17	0730	1134	244	3.10	756.4			4000	0.005		
ARMJ	CT-REM	AA481	7/17	0730	1134	244	3.00	732.0			750	0.001		
ARMJ	CT-REM	AA521	7/17	1240	1341	61	3.20	195.2			750	0.004		
ARMJ	CT-REM	AA537	7/17	1240	1341	61	3.30	201.3			1500	0.007		
ARMJ	IA-REM	AA512	7/17	0730	1134	244	3.15	768.6			5000	0.007		
ARMJ	IA-REM	AA516	7/17	0730	1134	244	3.10	756.4			1500	0.002		
ARMJ	IA-REM	AA517	7/17	1240	1341	61	3.10	189.1			2000	0.011		
ARMJ	IA-REM	AA519	7/17	1240	1341	61	3.40	207.4			750	0.004		
ARMJ	OA-REM	AA493	7/17	0730	1134	244	3.40	829.6			750	0.001		
ARMJ	OA-REM	AA513	7/17	0730	1134	244	3.30	805.2			750	0.001		
ARMJ	OA-REM	AA526	7/17	1240	1341	61	3.40	207.4			750	0.004		
ARMJ	OA-REM	AA534	7/17	1240	1341	61	3.30	201.3			750	0.004		
4FB	FB-REM-7/18	AA558	7/17								750			
4FB	FB-REM-7/18	AA562	7/17								750			
4FO	AM-FTM	AA529	7/17	0745	1411	366	3.00	1158.0			750	0.001		
4FO	AM-FTM	AA540	7/17	0745	1411	366	2.90	1119.4			750	0.001		

TABLE BA-2 (Continued - page 4)

LOC.	SAMPLE CLASS	SAMPLE		PERIOD		TIME (min)	RATE (lpm)	VOL. (L)	MAGISCAN II		DETL		MIOSE	
		No.	Date	Start	Stop				Fibers	f/cc	Fibers	f/cc	Fibers	f/cc
ARMI	IA-PST-AGGR	AA538	7/18	1638	2440	482	3.50	1687.0	85085	0.050	7000	0.004		
ARMI	IA-PST-AGGR	AA552	7/18	1638	2440	482	3.25	1566.5	94710	0.060	5000	0.003		
ARMI	IA-PST-AGGR	AA553	7/18	1638	2440	482	3.25	1566.5	51500	0.033	3000	0.002	10395	0.007
ARMI	IA-PST-AGGR	H058	7/18	1638	2440	482	3.50	1687.0	41040	0.024	8000	0.005		
ARMI	IA-PST-AGGR	H068	7/18	1638	2440	482	3.00	1446.0	73102	0.051	1750	0.001	2992	0.002
ARMI	IA-PST-AGGR	H069	7/18	1638	2440	482	3.50	1687.0	129105	0.077	7000	0.004		
ARMI	QA-PST-AGGR	AA557	7/18	1645	2440	475	3.25	1543.8	54285	0.035	750	0.000		
ARMI	IA-PST-WAGR	AA549	7/18	0727	1530	483	3.20	1545.6	54285	0.035	1500	0.001	7315	0.005
ARMI	IA-PST-WAGR	AA559	7/18	0727	1530	483	3.10	1497.3	43120	0.029	750	0.001		
ARMI	IA-PST-WAGR	AA560	7/18	0727	1530	483	3.20	1545.6	31185	0.020	2000	0.001		
ARMI	IA-PST-WAGR	H057	7/18	0727	1530	483	3.15	1521.5	54720	0.036	1750	0.001	2992	0.002
ARMI	IA-PST-WAGR	H059	7/18	0727	1530	483	3.50	1690.5	50445	0.030	3500	0.002		
ARMI	IA-PST-WAGR	H073	7/18	0727	1530	483	3.50	1690.5	69939	0.041	3500	0.002	2992	0.002
ARMI	QA-PST-WAGR	AA548	7/18	0727	1530	483	3.05	1473.2	45045	0.031	4000	0.003	7893	0.005
ARME	IA-PST-AGGR	AA523	7/18	1625	2435	490	3.50	1715.0	97405	0.057	3000	0.002	1347	0.001
ARME	IA-PST-AGGR	AA551	7/18	1625	2435	490	3.00	1470.0	165550	0.113	4000	0.003		
ARME	IA-PST-AGGR	AA566	7/18	1625	2435	490	3.25	1592.5	60060	0.038	2000	0.001		
ARME	IA-PST-AGGR	H061	7/18	1625	2435	490	3.50	1715.0	29925	0.017	3500	0.002		
ARME	IA-PST-AGGR	H066	7/18	1625	2435	490	3.00	1470.0	34200	0.023	5000	0.003		
ARME	IA-PST-AGGR	H074	7/18	1625	2435	490	3.50	1715.0	50530	0.029	1750	0.001		
ARME	QA-PST-AGGR	AA556	7/18	1625	2435	490	3.00	1470.0	98330	0.068	2000	0.001	6160	0.004
ARME	IA-PST-WAGR	AA550	7/18	0726	1530	484	3.25	1573.0	8701	0.006	750	0.000	8701	0.006
ARME	IA-PST-WAGR	AA563	7/18	0726	1530	484	3.15	1524.6	48895	0.032	750	0.000		
ARME	IA-PST-WAGR	AA565	7/18	0728	1530	482	2.90	1397.8	77385	0.055	750	0.001		
ARME	IA-PST-WAGR	H052	7/18	0728	1530	482	3.00	1448.0	29070	0.020	1750	0.001	11115	0.008
ARME	IA-PST-WAGR	H067	7/18	0726	1530	484	3.20	1548.8	29925	0.019	1750	0.001		
ARME	IA-PST-WAGR	H070	7/18	0726	1530	484	3.40	1645.6	73102	0.044	1750	0.001	2992	0.002
ARME	QA-PST-WAGR	AA564	7/18	0728	1530	482	3.10	1494.2	78155	0.052	750	0.001		
4FB	FB-PST-7/18	AA520	7/18						16940		750			
4FB	FB-PST-7/18	AA524	7/18						5813					
4FB	FB-PST-7/18	H071	7/18						3249		1750			
4FB	FB-PST-7/18	H072	7/18						4275		1750			
4FO	AM-FTM	AA547	7/18	0729	2435	1026	3.00	3078.0	108185	0.035	750	0.000		
4FO	AM-FTM	AA561	7/18	0729	2435	1026	2.90	2975.4	45045	0.015	2000	0.001		

APPENDIX C

**TABULATION OF DATA OBTAINED USING
TRANSMISSION ELECTRON MICROSCOPY (TEM)**

TABLE C-1. FACILITY 1 PRE- AND POST-REMOVAL SAMPLING -- ANALYSED BY TEM

Sample Number	Structures/cc					Asbestos structures/cc			Fibers/cc			
	Total	Nonasbestos	Asbestos	Chrysotile	Amphibole	Matrix	Cluster	Bundle	Total	Asbestos	Chrysotile	Amphibole
PRE-REMOVAL - Nonaggressive												
+N-373	0.200	0.104	0.096	0.088	0.008	-	-	0.016	0.184	0.080	0.072	0.008
+N-375	0.095	0.043	0.052	0.026	0.026	-	-	-	0.087	0.052	0.026	0.026
+N-376	0.576	0.456	0.120	0.056	0.064	-	0.008	-	0.560	0.112	0.048	0.064
*N-363	0.048	0.008	0.040	0.032	0.008	-	-	0.016	0.032	0.024	0.016	0.008
*N-367	0.095	0.008	0.087	0.080	0.008	-	0.008	0.016	0.072	0.064	0.056	0.008
*N-371	0.078	0.009	0.069	0.034	0.034	-	-	0.009	0.060	0.060	0.026	0.034
Avg	0.182	0.105	0.077	0.053	0.025				0.166	0.065	0.041	0.025
PRE-REMOVAL - Aggressive												
+N-360	0.936	0.780	0.156	0.078	0.078	0.009	-	0.009	0.867	0.139	0.061	0.078
+N-369	0.440	0.328	0.112	0.088	0.024	-	0.008	0.016	0.408	0.088	0.064	0.024
+N-374	1.333	1.174	0.160	0.120	0.040	-	-	-	1.280	0.160	0.120	0.040
*N-316	0.528	0.237	0.292	0.229	0.063	0.032	-	0.016	0.457	0.229	0.166	0.063
*N-359	0.386	0.158	0.229	0.173	0.055	0.024	-	-	0.315	0.166	0.110	0.055
*N-372	0.146	0.092	0.055	0.027	0.027	-	-	-	0.146	0.055	0.027	0.027
Avg	0.628	0.461	0.167	0.119	0.048				0.579	0.139	0.091	0.048
POST-REMOVAL - Nonaggressive												
+N-664	0.141	0.111	0.030	0.007	0.022	0.007	-	-	0.119	0.022	0.007	0.015
+N-685	0.312	0.286	0.026	0.017	0.009	-	-	-	0.225	0.026	0.017	0.009
+N-686	0.264	0.124	0.140	0.107	0.033	-	0.008	-	0.206	0.132	0.099	0.033
*N-682	0.199	0.087	0.113	0.095	0.017	-	0.008	0.017	0.173	0.087	0.069	0.017
*N-687	0.545	0.294	0.252	0.168	0.084	-	-	-	0.512	0.252	0.168	0.084
*N-688	0.364	0.035	0.329	0.234	0.095	-	-	0.009	0.355	0.321	0.225	0.095
Avg	0.304	0.156	0.148	0.105	0.043				0.265	0.140	0.098	0.042
POST REMOVAL - Aggressive												
+N-667	0.514	0.283	0.231	0.214	0.017	-	0.009	0.017	0.445	0.205	0.188	0.017
+N-672	0.521	0.308	0.213	0.205	0.007	-	0.007	0.044	0.396	0.161	0.154	0.007
+N-673	0.753	0.402	0.342	0.248	0.094	0.043	0.017	0.009	0.651	0.274	0.180	0.094
+N-673R	0.659	0.419	0.231	0.197	0.034	0.026	-	-	0.608	0.197	0.163	0.034
*N-668	0.927	0.287	0.639	0.639	0.000	0.139	0.019	0.009	0.695	0.463	0.463	0.000
*N-674	0.824	0.140	0.676	0.659	0.016	0.181	-	0.008	0.560	0.478	0.461	0.016
*N-683	0.711	0.351	0.359	0.319	0.040	0.056	-	0.016	0.567	0.279	0.240	0.040
Avg	0.701	0.313	0.385	0.355	0.029				0.560	0.294	0.264	0.030

+ = Room A * = Room B R = Recount using original grid preparation

TABLE C-2. FACILITY 2 PRE- AND POST-REMOVAL SAMPLING -- ANALYZED BY TEM

Sample Number	Structures/cc				Asbestos structures/cc			Fibers/cc				
	Total	Nonasbestos	Asbestos	Chrysotile	Amphibole	Matrix	Cluster	Bundle	Total	Asbestos	Chrysotile	Amphibole
PRE-REMOVAL - Nonaggressive												
*#-267	0.070	0.016	0.054	0.054	0.000	-	-	0.016	0.054	0.039	0.039	0.000
*#-277	0.638	0.482	0.155	0.062	0.093	-	-	0.019	0.622	0.140	0.047	0.093
*#-279	0.226	0.092	0.134	0.100	0.033	-	-	0.025	0.201	0.109	0.075	0.033
*#-257	0.100	0.038	0.062	0.054	0.008	-	-	-	0.100	0.062	0.054	0.008
*#-263	0.057	0.032	0.024	0.016	0.008	-	-	-	0.057	0.024	0.016	0.008
*#-273	0.100	0.015	0.085	0.046	0.038	-	-	0.015	0.085	0.069	0.031	0.038
Avg	0.196	0.113	0.086	0.056	0.030	-	-	-	0.186	0.074	0.044	0.030
PRE-REMOVAL - Aggressive												
*#-253	0.152	0.093	0.059	0.017	0.042	-	-	-	0.152	0.059	0.017	0.042
*#-261	0.087	0.032	0.055	0.032	0.024	-	-	-	0.087	0.055	0.032	0.024
*#-275	0.181	0.134	0.047	0.016	0.032	-	-	-	0.181	0.047	0.016	0.032
*#-265	0.381	0.333	0.048	0.024	0.024	-	-	-	0.341	0.048	0.024	0.024
*#-269	0.321	0.186	0.135	0.068	0.068	-	-	-	0.287	0.127	0.068	0.059
*#-271	2.698	2.328	0.370	0.132	0.238	0.026	-	-	2.513	0.344	0.106	0.238
Avg	0.637	0.519	0.119	0.048	0.071	-	-	-	0.594	0.113	0.044	0.070
POST-REMOVAL - Nonaggressive												
*#-792	1.511	0.876	0.635	0.272	0.363	-	0.030	0.015	1.421	0.589	0.227	0.363
*#-793	0.627	0.517	0.110	0.093	0.017	-	-	0.008	0.585	0.102	0.085	0.017
*#-875	0.634	0.317	0.317	0.183	0.133	0.008	-	0.017	0.600	0.292	0.167	0.125
*#-676	0.347	0.226	0.121	0.057	0.065	-	0.008	0.016	0.315	0.097	0.032	0.065
*#-680	0.331	0.121	0.210	0.186	0.024	-	-	0.024	0.291	0.170	0.153	0.016
*#-789	0.267	1.000	0.167	0.108	0.058	0.008	-	0.008	0.233	0.142	0.083	0.058
Avg	0.619	0.360	0.260	0.150	0.110	-	-	0.015	0.574	0.232	0.125	0.107
POST-REMOVAL - Aggressive												
*#-671	0.986	0.828	0.158	0.099	0.059	-	-	0.010	0.897	0.148	0.089	0.059
*#-795	0.848	0.562	0.286	0.276	0.010	0.039	-	-	0.700	0.227	0.227	0.000
*#-799	3.286	2.662	0.624	0.526	0.099	0.033	-	-	3.024	0.526	0.427	0.099
*#-796	2.402	2.113	0.264	0.216	0.048	0.048	-	-	1.705	0.168	0.120	0.048
*#-797	2.426	2.233	0.192	0.096	0.096	0.024	-	-	2.113	0.120	0.072	0.048
*#-800	0.627	0.454	0.173	0.173	0.000	0.050	-	-	0.519	0.115	0.115	0.000
Avg	1.762	1.475	0.283	0.231	0.052	-	-	-	1.493	0.217	0.175	0.042

+ = Room D * = Room E

TABLE C-3. FACILITY 3 PRE- AND POST-REMOVAL SAMPLING -- ANALYSED BY TEM

Sample Number	Structures/cc					Asbestos structures/cc			Fibers/cc			
	Total	Monasbestos	Asbestos	Chrysotile	Amphibole	Matrix	Cluster	Bundle	Total	Asbestos	Chrysotile	Amphibole
PRE-REMOVAL - Aggressive												
+N-307R	0.350	0.254	0.096	0.076	0.021	0.048	-	-	0.296	0.048	0.027	0.021
+N-310R	0.064	0.028	0.035	0.021	0.014	-	-	-	0.057	0.035	0.021	0.014
+N-320R	0.282	0.220	0.062	0.041	0.021	1.014	-	-	0.254	0.048	0.027	0.021
*N-306R	0.673	0.309	0.364	0.350	0.014	0.137	-	0.027	0.399	0.199	0.182	0.007
*N-309R	0.588	0.385	0.203	0.181	0.022	0.087	-	0.007	0.486	0.109	0.004	0.015
*N-311R	0.055	0.014	0.041	0.041	0.000	-	-	-	0.055	0.041	0.041	0.000
Avg	0.335	0.202	0.133	0.118	0.015	-	-	-	0.258	0.080	0.067	0.013
POST-REMOVAL - Aggressive												
+N-665R	0.215	0.072	0.143	0.131	0.012	-	-	0.006	0.209	0.137	0.125	0.012
+N-666R	0.089	0.044	0.044	0.033	0.011	0.011	-	-	0.077	0.033	0.022	0.011
+N-790R	0.477	0.364	0.113	0.087	0.024	0.036	-	0.006	0.393	0.072	0.048	0.024
*N-670R	0.485	0.173	0.312	0.201	0.111	0.021	-	0.021	0.416	0.270	0.173	0.097
*N-679R	0.071	0.019	0.052	0.026	0.026	-	-	0.006	0.065	0.045	0.019	0.026
*N-788R	0.130	0.032	0.097	0.091	0.006	-	-	0.013	0.117	0.084	0.078	0.006
Avg	0.245	0.117	0.127	0.098	0.03	-	-	-	0.212	0.107	0.078	0.029

+ = Room F * = Room G R = Recount using original grid preparation.

TABLE C-4. FACILITY 4 PRE- AND POST-REMOVAL SAMPLING -- ANALYSIS BY TEM

Sample Number	Structures/cc					Asbestos structures/cc			Fibers/cc			
	Total	Monasbestos	Asbestos	Chrysotile	Amphibole	Matrix	Cluster	Bundle	Total	Asbestos	Chrysotile	Amphibole
PRE-REMOVAL - Aggressive												
+N-807D	1.331	1.102	0.228	0.108	0.121	-	-	0.027	1.277	0.202	0.081	0.121
+N-808D	0.444	0.052	0.392	0.318	0.074	-	-	0.059	0.377	0.333	0.259	0.074
+N-809D	1.645	1.548	0.097	0.081	0.016	-	-	0.032	1.435	0.065	0.048	0.018
*N-801R	0.386	0.149	0.237	0.193	0.044	0.044	-	0.018	0.325	0.178	0.141	0.035
*N-802R	0.363	0.257	0.106	0.083	0.023	0.015	-	0.008	0.302	0.083	0.060	0.023
*N-806D	0.817	0.246	0.517	0.518	0.053	0.132	-	0.079	0.562	0.360	0.307	0.053
Avg	0.831	0.509	0.272	0.217	0.055	-	-	0.037	0.711	0.203	0.149	0.054
POST-REMOVAL - Aggressive												
+N-944R	0.201	0.108	0.093	0.036	0.057	0.014	-	0.007	0.172	0.072	0.014	0.057
+N-947R	0.239	0.206	0.033	0.020	0.013	0.007	-	-	0.206	0.027	0.013	0.013
+N-948R	0.368	0.312	0.086	0.060	0.027	-	-	0.013	0.332	0.073	0.046	0.027
*N-917R	0.150	0.069	0.081	0.069	0.013	0.025	-	0.006	0.119	0.050	0.038	0.013
*N-937D	2.107	1.940	0.167	0.167	0.000	0.021	-	0.021	1.710	0.125	0.125	0.000
*N-940D	1.123	1.101	0.022	0.011	0.011	-	-	-	0.887	0.022	0.011	0.011
Avg	0.703	0.622	0.080	0.061	0.020	-	-	-	0.571	0.062	0.041	0.020

+ = Room H * = Room I R = Recount using original grid preparation.

D = Duplicate count from grid prepared from the same filter; original grid preparation not suitable for recounting.

TABLE C-5. MIXED CELLULOSE ESTER FILTERS FROM FACILITY 1 ANALYZED BY TEM

Sample Number	Total Structures (g/cc)	Asbestos Structures (g/cc)						Non-Asbestos Structures (g/cc)						Total Fibers (f/cc)
		Total	Fibers	Matrix	Cluster	Bundle	Unknown	Total	Fibers	Matrix	Cluster	Bundle	Unknown	
A. Concentrations Measured During Removal Operations														
AA 3	6.854	1.828	0.718	1.044	-	-	0.065	5.026	3.394	1.110	-	-	0.522	4.112
AA 12	4.142	2.106	0.932	1.070	-	0.069	0.035	2.037	1.726	0.069	-	-	0.242	2.658
AA 14	3.359	1.838	0.887	0.729	-	0.032	0.180	1.521	1.426	0.032	-	0.032	0.032	2.313
AA 26	4.537	2.339	0.567	1.701	-	0.071	-	2.198	1.914	0.248	-	-	0.035	2.481
AA 27	4.251	2.589	0.657	1.778	-	0.155	-	1.662	1.391	0.193	-	-	0.077	2.048
AA 47	4.369	2.185	0.551	1.575	-	0.039	-	2.204	2.008	0.118	-	0.039	0.039	2.559
AA 122	6.547	2.896	1.322	1.196	0.189	-	0.189	3.651	3.211	0.252	-	-	0.189	4.533
AA 125	5.666	4.040	1.899	1.889	0.052	0.105	0.105	1.626	1.416	0.105	-	-	0.105	3.305
AA 138	5.084	2.871	1.224	1.600	-	0.047	-	2.212	2.118	0.094	-	-	-	3.342
AA 142	4.915	3.601	1.022	2.482	-	0.049	0.049	1.314	1.022	0.915	-	0.049	0.049	2.044
AA 157	3.752	1.914	0.563	1.351	-	-	-	1.839	1.538	0.263	-	-	0.038	2.101
AA 158	3.783	2.270	1.211	1.021	-	-	0.038	1.513	1.248	0.151	-	-	0.113	2.459
Avg	4.772	2.538	0.962	1.453	-	-	-	2.234	1.868	0.236	-	-	-	2.830
B. Concentrations Measured During Preparation Operations														
AA 44	0.014	0.014	0.014	-	-	-	-	-	-	-	-	-	-	0.014
AA 45	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-	-	0.000
AA 91	1.272	0.054	0.013	0.040	-	-	-	1.218	1.125	-	-	0.094	-	1.138
AA 111	0.374	0.249	0.180	0.055	-	-	0.014	0.125	0.111	0.014	-	-	-	0.291
Avg	0.415	0.079	0.052	-	-	-	-	-	-	-	-	-	-	0.361

APPENDIX D
STATISTICAL ANALYSIS

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STATISTICAL ANALYSIS

Goals of Analysis

Do asbestos levels increase because of the removal operations? We study this question by making a variety of comparisons:

- a.) comparison of the pre- and post-removal nonaggressive structure and fiber counts.
- b.) comparison of the pre- and post-removal aggressive structure and fiber counts.

These first two sets of comparisons are meant to answer the question directly -- is there more asbestos in the given room after removal than there was before removal?

Other comparisons that answer related questions are the following:

- c.) comparison of the fraction of fibers that are asbestos, pre- vs. post-removal.
- d.) comparison of the fraction of structures that are asbestos, pre- vs. post-removal.

The two above comparisons, which could each be made for the aggressive and nonaggressive data separately, could give information on the nature of the removal process.

Other comparisons are as follows:

- e.) comparison of the pre-aggressive and pre-nonaggressive data.
- f.) comparison of the post-aggressive and post-nonaggressive data.

The above comparisons provide information on the value of the aggressive and nonaggressive data.

Remarks on Statistical Analysis

The comparisons (a), (b), (e), and (f) were carried out on the (natural) log scale, where the residuals seem to behave nicely. There is little indication of outliers. Since several samples were taken simultaneously, the residual mean square from each analysis of variance reflects the sampling and counting variability associated with the TEM method. The estimated relative standard deviation associated with this variability was no bigger than 80%, and as low as 60%. (The comparisons for (c) and (d) were carried out on the untransformed scale.)

Aggressive Sampling -- Changes in Fiber Counts Due to Removal

We begin by discussing comparisons (a) and (b). For the aggressive measurements, the differences among rooms within a facility are not significant at the 5% level. We must consider the asbestos measurements separately for the total (fiber and structure) measurements. See the table below for the ratios

of post/pre measurements, for aggressive sampling.) In the first two facilities, the post removal measurements on asbestos fibers and structures are higher than the corresponding pre-removal figures by over 100% (ratio 2.69 and 2.23 from table below). This is not true in the Facilities 3 and 4. In Facility 3, there appears to be no statistically significant difference between the pre- and post-removal figures. In Facility 4, the post-removal asbestos measurements are lower -- by about 70% (ratios 0.293 and 0.308). It is not clear whether these differences have to do with the state of the asbestos or with the effectiveness of the glove control methods. Although one might expect that the figures on total structures and fibers would yield results similar to those for asbestos, there are some differences. Only for Facility 2 are the post-aggressive figures higher than the pre-removal figure -- by almost 400% (ratio = 4.831). This could indicate some differences in the material being removed from the various sites. One might presume that the change in asbestos material present after removal would be similar to the change in all material -- since the asbestos is presumably mixed in with other fibrous material. This, however, is not true for Facilities 1 and 4, the first and the last. Indeed, it is not true for Facility 2, either. Below is the table presenting post/pre ratios from the fitted models for total and asbestos fibers and structures, from the aggressive sampling:

Fitted Values (Post/Pre) -- Aggressive Sampling

Facility	Struc/Tot	Struc/Asb	Ratio	Fiber/Tot	Fiber/Asb	Ratio
1	1	2.69	2.69	1	2.23	2.23
2	4.831	2.69	0.557	4.267	2.23	0.523
3	1	1	1	1	1	1
4	1	0.293	0.293	1	0.308	0.308

For three facilities, there is no statistically significant difference between post- and pre-removal totals (of structures or fibers). However, the corresponding ratios for asbestos take on all three possible trends: increase (Facility 1), stay the same (Facility 3), or decrease (Facility 4). This suggests that any kind of change is possible, and makes it difficult to assign reasons for such change.

Nonaggressive Data -- Changes in Fiber Counts Due to Removal

For the nonaggressive data, Room A in Facility 1 is peculiar. For that room alone, there is no statistically significant difference between the pre- and post-removal data. For all other rooms (in Facilities 1 and 2), the post data are higher -- on average, by between 200% and 300%. We note that the nonaggressive measurements by TEM were not made in Rooms 3 and 4.

These observations can also be made by studying a table analogous to the one constructed above. Here we distinguish between Room A and the other rooms, in agreement with the statistical results discussed above.

Fitted Values (Post/Pre) -- Nonaggressive Sampling

Room	Struc/Tot	Struc/Asb	Ratio	Fiber/Tot	Fiber/Asb	Ratio
A	1.02	0.567	0.556	0.850	0.545	0.641
non-A	4.137	3.093	0.748	4.491	3.357	0.747

We recall that nonaggressive data are available only for Facilities 1 and 2. Thus, the non-A rooms above include both rooms from Facility 2 and one room from Facility 1. The fitted values for the non-A rooms agree fairly well with the aggressive sampling ratios for Facility 2 given in the previous table. The nonaggressive sampling ratios for Room A differ somewhat from the aggressive sampling ratios for Facility 1 from the previous table -- especially in the ratios for asbestos structures and asbestos fibers. The reason why these ratios should indicate an increase in asbestos (ratios 2.69 and 2.23) for the aggressive sampling and a decrease (ratios 0.567 and 0.545) for nonaggressive sampling are unclear.

How Much Higher Are Aggressive Than Nonaggressive Counts?

Rather than just compare the ratios, it might make some sense, as is stated in (e) and (f) at the beginning of these remarks, to compare the actual nonaggressive measurements with the corresponding aggressive measurements. Again, recall that such comparisons are limited to the first two facilities. For the pre-removal data, Room D has different results than the three other rooms, when the aggressive and nonaggressive data are compared. For all four measures, the Room D data yield results for the aggressive measurements that are lower than the nonaggressive -- on average between 30 and 50% lower. For the three other rooms, the aggressive results are over 100% higher. The reason for this discrepancy is not clear.

For the post-removal data, Facility 2 (which includes Room D) shows no statistically significant difference between the aggressive and nonaggressive measurements, for either asbestos fibers or structures. Facility 1 data indicates that the aggressive measurements for asbestos fibers and structures are about 150% higher than the nonaggressive. For the total structures and fibers, the facilities are consistent, and both total structures and fibers are about 250% higher when aggressive sampling is used.

Summary

In summary, a main question here is the effectiveness of glove bags in containing asbestos material during the removal process, the conclusion that the first two facilities shows signs of additional asbestos after removal, whereas the fourth facility show signs of decrease in such material allows the possibility that the removal crew did improve its removal techniques, so that the glove bag methods used in the fourth facility were more effective in containing the asbestos material. (Note that the analysis of PCM data in Table 5-7, comparing pre- and post-removal counts, led to a similar conclusion concerning the decrease in asbestos after removal.)

