FILE NAME: Asbestos Cement Pipe and Sheet (ACPS)

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ASBESTOS EXPOSURES DURING THE CUTTING AND MACHINING OF ASBESTOS CEMENT PIPE

Prepared for

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Table 1

Data Obtained in Preliminary Survey of Cutting and Machining Operations on A/C Sewer Pipe

Operation Sampled	Sample No.	Duration (Min.)	Vol. of Air Sampled (Liters)	Operator Peak Fibers/ML Air	Integrated Exposure Fibers/ML Air	Total Dust mg/m^3
Abrasive disc	3	8	14.9	14.7		
Pilot pipe cutter*	5	10	18.6	0.086		
Manual lathe	6	15	27.9	0.12		
Power lathe	7	17	31.6	.05		
Operator integrated	4	57	113		4.3	
Area integrated	2	58	109		2.9	
Total dust	101	58	105			16.8

*A special tool not included in main survey protocol.

Note: Background sample taken for 49 minutes before pipe cutting began contained 0.017 fibers/ml air.

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ssure Pipe

7 Vol. of Air Sampled (Liters)	8 Fibers per ML of Air
24.2	0.72
22.3	0.64
37.2	0.17
	av. 0.51
37.2	0.34
31.6	0.09
27.9	0.67
	av. 0.33
33.5	1.47
26.0	1.82
33.5	1.66
	av. 1.65
13.9	19.8
9.9	23.9
13.9	17.1
	av. 20.3
23.9	3.71
27.9	1.70
19.9	0.56
	av. 1.99
7.4	0.65

Table 3

Helper's Peak Exposures To Asbestos

Tool used for Cutting or Machining	A/C Sewer Pipe				A/C Pressure Pipe			
	1 Sample No.	2 Duration (Min.)	3 Vol. of Air Sampled (Liters)	4 Fibers per ML of Air	5 Sample No.	6 Duration (Min.)	7 Vol. of Air Sampled (Liters)	8 Fibers per ML of Air
Manual lathe	18	12	23.9	0.13	73	16	29.0	0.55
	21	12	23.9	0.07	74	12	21.7	<0.07
	22	10	19.9	0.20	77	20	36.2	0.04
				av. 0.13				av. 0.22
Power lathe	2	14	27.9	0.06	57	18	32.6	0.55
	7	15	29.8	0.16	60	18	32.6	0.39
	10	16	31.8	<0.05	62	14	25.3	0.75
				av. 0.09				av. 0.56
Power hole cutter	12	11	21.9	0.29	64	18	32.6	0.29
	14	14	27.9	0.28	66	14	25.3	0.44
	16	13	25.9	0.12	69	19	34.4	0.41
				av. 0.23				av. 0.38
Abrasive disc	35	4	8.0	58.2	42	5	9.9	62.0
	37	5	9.9	52.6	44	5	9.9	62.0
	39	5	9.9	81.2	46	7	13.9	55.2
				av. 64.0				av. 59.7
Chisel and rasp	26	14	27.9	<0.06	48	11	21.9	1.37
	28	12	23.9	0.13	50	14	27.9	0.40
	33	10	19.9	0.56	52	11	21.9	0.94
				av. 0.25				av. 0.90
Wheeler pipe cutter	25	13	25.9	<0.06	71	5	9.0	0.87

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Table 4

Asbestos Levels in Operator, Helper and Area Integrated Samples and in Background Samples

Operations	Operator Integrated Sample				Helper Integrated Sample				Area Integrated Sample			
	Sample No.	Duration (Min.)	Vol. of Air Sampled (Liters)	Fibers per ML of Air	Sample No.	Duration (Min.)	Vol. of Air Sampled (Liters)	Fibers per ML of Air	Sample No.	Duration (Min.)	Vol. of Air Sampled (Liters)	Fibers per ML of Air
Feb. 8, a.m. Sewer pipe: power lathe, hole cutter, manual lathe, chisel and rasp.	4	184	366	0.09	3	181	246	0.10	6	184	342	0.04
Feb. 8, p.m. Sewer pipe: chisel and rasp, abrasive disc Pressure pipe: abrasive disc chisel and rasp.	31	112	221	3.94	29	113	154	7.07	32	115	214	4.90
Feb. 9, a.m. Pressure pipe: power lathe, hole cutter, manual lathe.	54	182	248	0.75	56	185	368	0.17	58	194	386	0.44
Background, Feb. 8, a.m.	1	97	175	0.01								
Background, Feb. 8, p.m.	53	83	150	0.02								
Background, Feb. 9, a.m.	67	68	135	0.01								
Background, Feb. 9, p.m.	78	130	259	<0.01								

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Table 5

Total Dust From Cutting and Machining Operations

Tool used for Cutting or Machining	A/C Sewer Pipe				A/C Pressure Pipe			
	1 Sample No.	2 Duration (Min.)	3 Vol. of Air Sampled (Liters)	4 Total Dust, (mg/m^3)	5 Sample No.	6 Duration (Min.)	7 Vol. of Air Sampled (Liters)	8 Total Dust, (mg/m^3)
Manual lathe	104	37	67.0	51.5*	113	51	95.9	8.13
Power lathe	102	53	95.9	5.74	110	57	107	2.99
Power hole cutter	103	42	76.0	1.84	111	50	94.0	0.21
Abrasive disc	107	19	34.4	37.5	108	13	23.5	34.0
Chisel and rasp	106	39	70.6	<0.1	109	42	76.0	2.89

*This single value was much greater than would have been expected from the apparent dustiness of the operation - we have no explanation.

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Table

Summary of Data Obtained in Survey of A/C Pipe Cutting and Machining Operations

Type of A/C Pipe	Tool In Operation	Operator's Exposure Fibers/cc Air		Helper's Exposure Fibers/cc Air		Area Integrated Fibers/ cc Air	Total Dust mg/m^3	Background* Fibers/ cc Air
		Peak	Integrated	Peak	Integrated			
Sewer pipe	Power lathe	av.08		av.09			5.74	0.1
	Hole cutter	av.44	0.09	av.23	0.10	0.04	1.84	
	Manual lathe	av.15		av.13			51.5	
	Wheeler cutter	<0.06		<0.06			29.0	
	Chisel and rasp	av.30		av.25			<0.1	
	Abrasive disc	av35.5		av64.0			37.5	
Pressure pipe	Abrasive disc	av20.3	3.94	av59.7	7.07	4.90	34.0	
	Chisel and rasp	av1.99		av.90			2.89	0.02
	Power lathe	av.33		av.56			2.99	0.1
	Hole cutter	av1.65	0.75	av.38	0.17	0.44	0.21	
	Wheeler cutter	0.85		0.87			<0.1	
	Manual lathe	av.51		av.22			8.13	<0.1

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iber concentrations in these ~~rasps~~ tests are only approximate and indicate only that the background was extremely low.