

AN INDUSTRIAL HYGIENE SURVEY OF
Raybestos-Manhattan Asbestos Textile Plant
North Charleston, South Carolina

DATE OF SURVEY:

January 15-17, 1974

IWS-32.24e

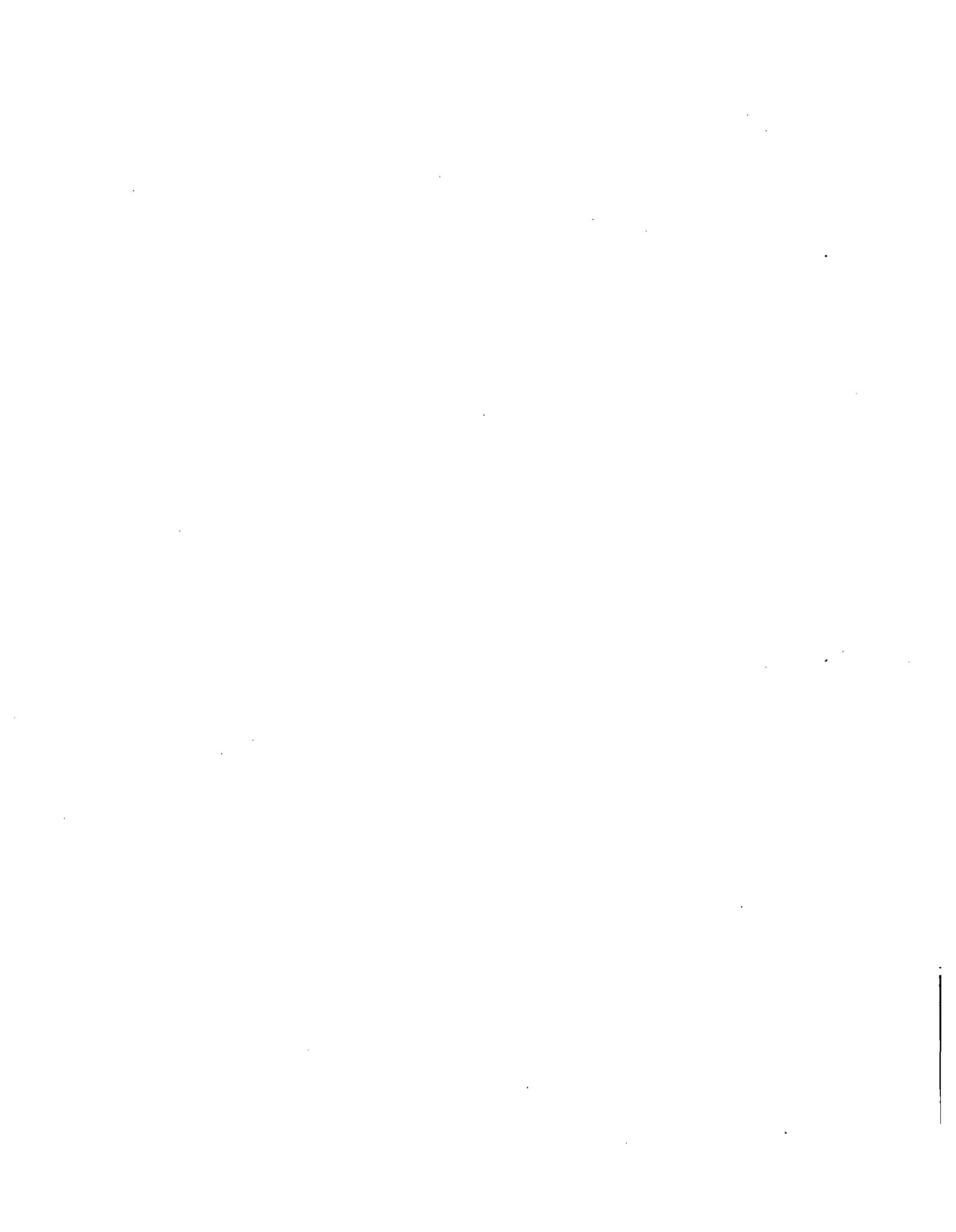
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REPORT DOCUMENTATION PAGE	1. REPORT NO. NIH-32.24e	2. NA	3. Recipient's Accession No. NA
4. Title and Subtitle Industrial Hygiene of Raybestos-Manhattan Asbestos Textile Plant North Charleston, South Carolina		5. Report Date January 17, 1974	
7. Author(s) Curtis, R. A.		6. NA	
9. Performing Organization Name and Address Environmental Investigations Branch, Division of Field Studies and Clinical Investigations, NIOSH, Cincinnati, Ohio		8. Performing Organization Rept. No. NA	
12. Sponsoring Organization Name and Address Same as Above		10. Project/Task/Work Unit No. NA	
		11. Contract(C) or Grant(G) No. (C) NA (G)	
		13. Type of Report & Period Covered Industry-wide Study	
		14. NA	
15. Supplementary Notes NA			
16. Abstract (Limit: 200 words) Asbestos (1332214) and noise exposures at Raybestos-Manhattan Asbestos Textile Company (SIC-3292) in North Charleston, South Carolina, were surveyed on January 15 to 17, 1974. Personal air samples were collected on millipore filters and were analyzed by phase contrast microscopy. Average exposures in the yarn forming, spinning, weaving and cloth cleaning areas were 0.3 to 2.0, 0.50 to 0.64, 0.18 to 0.28, and 0.3 fibers greater than 5 microns per cubic centimeter. The greatest noise level was 93 decibels in the weaving area. Tabulated data on individual measurements is provided.			
17. Document Analysis a. Descriptors Field-study, Asbestos-products, Work-environment, Air-sampling, Textile-mills, Airborne-dusts, Noise-pollution			
b. Identifiers/Open-Ended Terms			
c. COSATI Field/Group			
18. Availability Statement Available to the Public		19. Security Class (This Report) NA	21. No. of Pages 8
		20. Security Class (This Page)	22. Price

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA 22161

ASBESTOS FEASIBILITY STUDY

Raybestos-Manhattan
North Charleston, South Carolina
January 15-17, 1974

1. Table V - PERSONAL SAMPLES
2. Table VI - SUMMARY OF PERSONAL SAMPLES
3. Table VII - NOISE MEASUREMENTS

1. Personal samples were collected on Millipore Type AA 37 mm diameter membrane filters at a flow rate of 2.0 liters per minute provided by MSA Model G Personal Pumps. Cassettes holding the membrane filters were used open face during the sampling and were secured within the breathing zone of the worker. Fiber counts were made at 400 magnification, using phase contrast illumination, with sample mounted in high-viscosity solution of membrane filter material.

2. Ibid.

3. Measurements taken with a General Radio noise level meter.

Table V
 ASBESTOS FEASIBILITY STUDY
 January 15-17, 1974

Raybestos-Manhattan, North Charleston, South Carolina

PERSONAL SAMPLES

ARN FORMING AREA								(fibers/cc) ^a				
		Working Station	Date	Shift	Sample No.	T I M E		Volume (liters)	C O N C E N T R A T I O N			
On	Off					Minutes	Measured		TWA ^b	Avg. TWA/Day ^c	Avg. TWA/Worker ^d	
1)	Yarn Forming Operator	15	1	R-14	0837	1137	180	360	.04	.04	.04	.07
		15	1	R-31	1137	1442	185	370	.04	.04		
		16	1	R-52	0841	1151	190	380	.16	.16	.10	
		16	1	R-68	1151	1445	174	342	.04	.04		
2)	Yarn Forming Operator	15	1	R-16	0841	1440	179	358	.03	.03	.03	.02
		15	1	R-33	1140	1441	181	362	.03	.03		
		16	1	R-49	0839	1151	192	384	.03	.03	.02	
		16	1	R-69	1151	1445	174	348	.01	.01		
3)	Yarn Forming Operator	14	2	R-5	1611	2022	251	502	.06	.06	.06	.04
		14	2	R-8	2022	2242	140	280	.05	.05		
		15	2	R-36	1505	1855	230	460	.04	.04	.04	
		15	2	R-40	1855	2235	219	438	.03	.03		
4)	Yarn Forming Operator	15	1	R-15	0839	1137	178	356	.07	.06	.04	.04
		15	1	R-32	1138	1443	185	370	.02	.02		
		16	1	R-54	0834	1153	179	358	.02	.02	.04	
		16	1	R-70	1154	1445	171	342	.05	.05		
5)	Yarn Forming Operator	14	2	R-2	1613	2020	237	474	.03	.03	.03	.05
		14	2	R-10	2020	2242	142	284	.03	.03		
		15	2	R-27	1506	1853	227	454	.06	.06	.05	
		15	2	R-43	1853	2235	221	442	.04	.04		
		16	2	R-83	1502	1815	193	386	.08	.08	.08	

a - All samples expressed as asbestos fibers/cc greater than 5µ in length, as collected and analyzed by the OSHA method referenced in Federal Register, Vol. 37, No. 202, Par. 1910.93a.

b - Eight-hour time-weighted average based on one sample and assuming zero exposure during work breaks.

c - Average time-weighted average based on all samples collected on one worker on one day.

d - Average time-weighted average based on all samples collected on one worker.

Table V (Continued)
 ASBESTOS FEASIBILITY STUDY
 January 15-17, 1974

Raybestos-Manhattan, North Charleston, South Carolina
 PERSONAL SAMPLES

YARN FORMING AREA		Date	Shift	Sample No.	T I M E		Minutes	Volume (liters)	(fibers/cc) ^a C O N C E N T R A T I O N			
					On	Off			Measured	TWA ^b	Avg. TWA/Day ^c	Avg. TWA/Worker ^d
6)	Yarn Forming Operator	14	2	R-9	2021	2242	141	282	.03	.03	.03	.03
		15	2	R-41	1856	2235	218	436	.03	.03	.03	
		15	2	R-85	1503	1815	192	384	.03	.03		
7)	Porter Laborer	16	1	R-53	0844	1158	134	268	.08	.07	.09	.09
		16	1	R-63	1158	1445	167	334	.12	.11		
8)	Porter Laborer	16	1	R-62	0846	1158	132	264	.13	.12	.32	.32
		16	1	R-64	1158	1445	167	324	.56	.51		
9)	Combination Man	15	1	R-13	0835	1139	184	368	.10	.09	.10	.08
		15	1	R-30	1139	1441	182	364	.12	.12		
		16	1	R-51	0832	1154	202	404	.03	.03	.04	
		16	1	R-67	1154	1445	171	342	.06	.06		
10)	Combination Man	14	2	R-1	2017	2242	145	290	.03	.03	.03	.03
		15	2	R-26	1506	1853	227	454	.02	.02	.02	
		15	2	R-42	1853	2023	210	420	.02	.02		
		16	2	R-81	1509	1815	186	372	.03	.03	.03	
11)	Combination Man	14	2	R-6	2012	2242	150	300	.04	.04	.04	.03
		15	2	R-19	1508	1851	223	446	.04	.04	.02	
		15	2	R-47	1851	2235	223	446	.01	.01		
		16	2	R-86	1500	1815	195	390	.05	.04	.04	
12)	Combination Man	15	2	R-37	1511	1854	223	446	.02	.02	.02	.02
		15	2	R-39	1854	2235	221	442	.02	.02		
		16	2	R-84	1508	1815	187	374	.03	.03	.03	

Table V (Continued)
 ASBESTOS FEASIBILITY STUDY
 January 15-17, 1974

Raybestos-Manhattan, North Charleston, South Carolina
 PERSONAL SAMPLES

YARN FORMING AREA		Working Station	Date	Shift	Sample No.	T I M E		Minutes	Volume (liters)	(fibers/cc) ^d C O N C E N T R A T I O N			
						On	Off			Measured	TWA ^b	Avg. TWA/Day ^c	Avg. TWA/Worker ^d
13)	Combination Man	15	1	R-18	0845	1143	178	356	.01	.01	.02	.02	
		15	1	R-35	1135	1440	177	354	.03	.03			
		16	1	R-48	0838	1153	187	374	.01	.01	.02		
		16	1	R-71	1153	1445	172	344	.02	.02			
14)	Chemical Operator	14	2	R-12	2019	2242	143	286	.04	.04	.04	.04	
		15	2	R-20	1509	1815	174	348	.03	.03	.03		
		15	2	R-44	1850	2235	224	448	.04	.04			
		16	2	R-80	1501	1815	216	432	.04	.04	.04		
15)	Supervisor	14	2	R-4	1610	2019	249	498	.03	.03	.03	.03	
		14	2	R-11	2019	2242	143	286	.03	.03			
		15	2	R-29	1505	1852	227	454	.03	.03	.03		
		15	2	R-38	1852	2235	222	444	.03	.03			
		16	2	R-37	1500	1837	210	420	.05	.04	.04		
16)	Quality Control	15	1	R-17	0844	1143	179	358	.04	.04	.04	.04	
		15	1	R-34	1143	1440	177	354	.05	.04			

Table V (Continued)
 ASBESTOS FEASIBILITY STUDY
 January 15-17, 1974

Raybestos-Manhattan, North Charleston, South Carolina

PERSONAL SAMPLES

PINNING AREA

Working Station	Date	Shift	Sample No.	T I M E		Minutes	Volume (liters)	(fibers/cc) ^a C O N C E N T R A T I O N			
				On	Off			Measured	TWA ^b	Avg. TWA/Day ^c	Avg. TWA/Worker ^d
1) Spinner	15	1	R-21	0740	1140	180	360	1.60	1.47	1.38	.68
	15	1	R-45	1140	1440	180	360	1.40	1.28		
	16	1	R-56	0850	1207	197	394	.61	.56	.35	
	16	1	R-76	1207	1446	159	318	.14	.14		
	17	1	R-92	0843	1136	173	346	.343	.39	.30	
	17	1	R-107	1136	1425	169	338	.23	.21		
	17	1	R-106	1135	1425	170	340	.42	.38		
2) Spinner	15	1	R-22	0840	1140	180	360	1.20	1.10	.92	.60
	15	1	R-50	1140	1440	180	360	.81	.74		
	16	1	R-57	0839	1208	209	418	1.00	.92	.52	
	16	1	R-75	1208	1446	126	252	.13	.12		
	17	1	R-89	0842	1135	173	346	.39	.36	.37	
	17	1	R-106	1135	1425	170	340	.42	.38		
	17	1	R-104	1134	1425	171	342	.07	.07		
3) Winder	15	1	R-23	0925	1140	135	270	1.57	1.44	1.05	.50
	15	1	R-46	1140	1440	180	360	.66	.66		
	16	1	R-60	0837	1153	196	392	.70	.64	.35	
	16	1	R-72	1153	1446	173	346	.07	.06		
	17	1	R-90	0842	1134	107	214	.11	.11	.09	
	17	1	R-104	1134	1425	171	342	.07	.07		
	17	1	R-104	1134	1425	171	342	.07	.07		

Table V (Continued)
 ASBESTOS FEASIBILITY STUDY
 January 15-17, 1974

Raybestos-Manhattan, North Charleston, South Carolina
 PERSONAL SAMPLES

WEAVING AREA				T I M E				(fibers/cc) ^a C O N C E N T R A T I O N			
Working Station	Date	Shift	Sample No.	On	Off	Minutes	Volume (liters)	Measured	TWA ^b	Avg. TWA/Day ^c	Avg. TWA/Worker ^d
1) Weaver	16	1	R-58	0950	1200	130	260	.16	.15	.17	.17
	16	1	R-78	1200	1505	185	370	.21	.19		
2) Weaver	17	1	R-93	0840	1131	171	342	.20	.18	.18	.18
	17	1	R-101	1131	1425	174	348	.19	.19		
3) Area Sample (on Loom above shuttle)	17	1	R-94	0850	1130	160	320	.38	.38	.26	.26
	17	1	R-102	1130	1425	175	350	.13	.13		
4) Area Sample (near Loom Bobbin battery)	16	1	R-64	0930	1200	150	300	.53	.53	.42	.29
	16	1	R-77	1200	1205	185	370	.30	.30		
	17	1	R-93	0845	1130	165	330	.12	.12	.16	
	17	1	R-101	1130	1425	175	350	.21	.21		
5) Area Sample (Gasket Press)	17	1	R-95	1100	1430	210	420	.29	.27	.27	.27
6) Area Sample (between Braiders)	16	1	R-55	0925	1200	155	310	.09	.08	.06	.06
	16	1	R-79	1200	1510	190	280	.05	.04		
	17	1	R-96	0900	1127	147	294	.07	.07	.07	
	17	1	R-105	1127	1425	177	354	.07	.07		

Table V (Continued)

ASBESTOS FEASIBILITY STUDY
January 15-17, 1974

Raybestos-Manhattan, North Charleston, South Carolina
PERSONAL SAMPLES

Working Station	Date	Shift	Sample No.	T I M E		Minutes	Volume (liters)	(fibers/cc) ^a C O N C E N T R A T I O N			
				On	Off			Measured	TWA ^b	Avg. TWA/Day ^c	Avg. TWA/Worker ^d
				LOTH CLEANING AREA							
1) Cloth Cleaner	16	1	R-61	0835	1140	185	370	.01	.01	.02	.02
	16	1	R-74	1205	1425	160	320	.04	.04		
	17	1	R-66	0835	1135	180	360	.02	.02	.02	
	17	1	R-98	1135	1425	170	340	.02	.02		
2) Cloth Cleaner	16	1	R-59	0835	1155	200	400	.02	.02	.02	.03
	16	1	R-73	1155	1445	170	340	.03	.03		
	17	1	R-88	0835	1135	180	360	.06	.08	.04	
	17	1	R-100	1135	1425	170	340	.01	.01		

Table VI

ASBESTOS FEASIBILITY STUDY
Raybestos-Manhattan, North Charleston, South Carolina

January 15-17, 1974

SUMMARY OF PERSONAL SAMPLES
Mean, Range, and Sample Size by Operation^a

Operation	No. of Samples	Range		Mean
		Low	High	
Yarn Forming Area	58	.01	.51	.05
Chemical Operator	8	.01	.04	.03
Yarn Forming Operator	24	.01	.16	.04
Combination Man	15	.01	.12	.04
Porter Laborer	4	.07	.51	.20
Supervisory	7	.03	.04	.03
Spinning/Twisting, Winding Area	18	.06	1.47	.59
Spinner/Twister	12	.12	1.47	.64
Winder	6	.06	1.44	.50
Weaving Area	10	.12	.53	.24
Cloth Weaver	4	.15	.19	.18
Sample placed on Loom	6	.12	.53	.28
Braiding Area	4	.04	.08	.06
Cloth Cleaning Area	8	.01	.08	.03

a. All samples expressed as asbestos fibers/cc greater than 5 μ in length, as collected and analyzed by the OSHA method referenced in Federal Register, Vol. 37, No. 202, Par. 1910.93a.

Table V11

ASBESTOS FEASIBILITY STUDY
Raybestos-Manhattan, North Charleston, South Carolina

January 15-17, 1974

NOISE MEASUREMENTS (dBs)^a

<u>Working Stations</u>	<u>A_s</u>	<u>B_s</u>	<u>C_s</u>
1) Yarn Forming			
Chemical Operator Level	72-75	74-77	75-82
Yarn Forming Platform	77-82	84-86	87-92
Ground Level	77-83	84-87	85-92
2) Winding	76	76	77
3) Spinning/Twisting	80	85	82
4) Weaving	93	93	93
5) Braiding	87	87	87

a. Measurements taken with a General Radio noise level meter.