RESULTS OF AIR SAMPLES

JOHNS-MANVILLE
Long Beach, California
and
Stockton, California

Report Prepared By:
Jeremiah R. Lynch

July, 1968

PLANTS 33, 34 & 35

July 19, 1968

Mr. Clifford Shackler
Manager of Occupational
Environmental Control
Johns-Manville Corp.
Research and Engineering
Center
Manville, New Jersey 08935

Dear Clif:

The analysis of air samples collected at your plants in Stockton and Long Beach, California during our survey in June 1967 has been completed and the results are attached. The impinger samples were counted in accordance with the American Conference of Governmental Industrial Hygienist method and the membrane filter sample with the method described in the attached preprint.

The present Threshold Limit Value (TLV) for asbestos is 5 mppcf as measured by impinger. A tentative TLV of 2 mppcf by impinger or 12 fibers longer than 5 µ/cc has been accepted by the TLV Committee. Based on these limits the impinger results may be summarized as follows:

	Over 5 mppcf	Over 2 mppcf
Stockton (pipe)	1	2
Long Beach (pipe)	1	11
Long Beach (insulation)	1	7

In only two cases, the abrasive cut off saw at Stockton and the special fitting operation at Long Beach pipe, were the fiber counts over 12 fibers >5 µ/cc and in both these cases the companion impinger samples were over 5 mppcf. In all cases where only the 2 mppcf limit was exceeded, the environment was shown

to be acceptable by fiber count. Thus the more relevant fiber count measurement is advantageous in mixed dust situations.

Your cooperation in this study is sincerely appreciated and the data gained from your plant is of considerable value.

Sincerely yours,

Jeremiah K. Lynch
Asst. Chief, Environmental
Activities
Field Studies
Occupational Health Program

Attachments (3)

cc: Prog. Mgmt. Offcr.
Dr. Cralley

JRLYNCH:ms

Results of Air Samples of June 1967

Johns-Manville, Long Beach, California

Insulation Plant

Operation		Impinger		Membrane Filter		
		Sample #	mppcf	Sample #	Total f/cc	Fibers/cc > 5 u
Mixing						
Mixer	B	300	0.4	301	0.2	0.2
	P			203	5.8	2.3
				233	4.8	2.7
	G	29	0.3			
Forming						
Press Operator	B	212	1.0	213	0.7	0.3
		228	2.0	229	0.2	1.6
		302	0.6	303	0.9	0.4
		304	0.8	305	3.3	0.2
	P			202	1.7	0.5
				204	0.3	0.2
				210	2.8	0.7
				211	0.3	0.1
				216	0.6	0.6
				218	1.1	0.6
				223	0.3	0.2
				224	2.0	0.4
				227	2.3	1.1
				230	0.6	0.5
				231	1.0	0.5
				232	0.9	0.7
				237	1.0	0.4
Inspector	P			206	1.0	0.6
				226	0.3	0.3
				234	0.8	0.6

NOTES:

B - Breathing zone simultaneous impinger-membrane filter samples.

P - Personal membrane filter samples collected by a sampling pump worn by the worker.

G - General air samples.

Johns-Manville - Insulation Plant

Operation		Impinger Sample #	Impinger f/cc	Membrane Filter Sample #	Membrane Filter Fibers/cc Total	Membrane Filter Fibers/cc 5 u +
Curing						
Oven Tender	P			205	0.4	0.2
				221	0.4	0.3
Finishing						
Planer	B	102	3.2	103	0.3	0.0
		214	4.1	215	6.8	2.6
		306	2.2	307	1.3	0.8
		108	3.3	109	0.8	0.3
	P			201	1.0	0.7
Saw Table	B	100	7.4	101	17.1	2.1
	P			203	2.1	1.6
				219	1.1	0.7
				222	1.4	0.7
				238	4.2	0.4
				241	1.4	0.2
	G	110	1.7			
Material Handler	G	12	2.4			
		8	1.4			
Inspection and Packing						
Packer	B	104	0.7	105	1.5	0.2
		106	1.9	107	0.4	0.2
	P			217	2.0	1.3
				235	0.9	0.2
				242	6.5	0.3
				243	1.7	0.3
				245	3.6	0.4
Forklift and						
Bonnaker	B	239	2.2	240	2.7	2.7
	P			232	2.3	1.0
				246	1.0	0.3
				244	6.9	1.3

Johns-Manville - Insulation Plant

Operation		Impinger	Membrane Filter	
				Fibers/cc
		Sample # appr.	Sample #	Total 5 u +
Miscellaneous Mechanic	F		207	0.6 0.5
Maintenance Supervisor	F		200	0.6 0.4

Results of Air Samples of June 1967

Johns-Manville, Stockton, California

Operation		Impinger		Membrane Filter		
		Sample	mppcf	Sample	Fibers/cc Total	5 μ +
Mixing						
Mixer	B	306	0.8	307	5.1	1.0
		304	1.1	305	1.9	0.1
	P			157	1.1	0.5
				158	0.9	0.3
				207	1.7	1.3
				211	1.7	0.7
				212	4.7	3.1
				213	3.6	2.3
	G	8	0.5			
Fork Lift Operator	B	300	2.7	[illegible]	12.1	9.9
	P			208	9.2	5.4
Box Car Unloader	P			209	5.0	3.5
Forming						
Machine Tender	B	11	0.4	12	1.4	1.2
	P			156	0.4	0.1
				201	2.1	1.8
				204	1.9	1.5
				205	3.6	2.9
				210	44.7	4.0
				214	0.6	0.3
				220	0.5	0.4
				221	18.7	1.8
				222	0.5	0.4

NOTES: B - Breathing zone simultaneous impinger-membrane filter samples.

P - Personal membrane filter samples collected by a sampling pump worn by the worker.

G - General air samples.

Johns-Manville

Operation		Impinger		Membrane Filter		
		Sample #	mppcf	Sample #	Total f/cc	Fibers/cc 5 μ +
Forming						
Console Operator	B	302	1.3	303	6.4	3.9
	P			155	0.2	0.1
				159	0.9	0.5
				202	3.3	2.2
Foreman	P			206	1.8	1.3
Bead Former	P			120	0.8	0.7
Curing						
Mandrel Puller	B	28	0.8	29	0.6	0.6
		225	1.4	224	0.8	0.6
	P			219	0.7	0.5
				309	2.5	0.3
				312	1.9	1.2
				314	4.6	1.5
				319	2.4	2.1
	G	25	0.4			
Curer & Pipe Stacker	P			153	1.0	0.7
				200	2.9	0.7
				215	9.1	1.6
				216	7.6	1.3
				218	0.6	0.4
				223	2.8	0.6
				310	13.4	2.6
	B	29	1.1	24	1.0	0.6
Pipe Finishing						
Lathe Operator	B	37	0.6	38	2.3	0.6
		100	0.8	101	1.4	0.8
		102	1.4	103	1.4	0.8
		104	1.0	105	4.1	0.6
		235	1.0	234	0.0	0.0

Johns-Manville

Operation		Impinger		Membrane Filter		
		Sample #	mppcf	Sample	Fibers/cc Total	5 μ +
Pipe Finishing						
Lathe Operator	P			139	1.2	0.5
				145	5.1	5.1
				147	0.7	0.6
				148	0.6	0.4
				125	1.4	0.7
				118	0.4	0.2
				114	0.2	0.2
				122	1.5	0.9
				332	2.5	0.5
				333	1.5	0.8
				338	0.2	0.2
	G	239	0.6			
Abrasive Cut Off Saw	B	229	19.7	228	43.4	21.4
	P			342	4.9	2.2
Fork Lift Driver	P			140	-0.0	0.0
				117	1.1	0.6
				160	1.0	0.4
Handlers & Insf.	B	43	0.8	44	1.4	0.6
	P			115	0.2	0.2
				119	5.3	3.1
				124	0.3	0.2
				138	13.4	0.3
				141	1.7	0.9
				143	1.1	1.0
				144	5.3	0.7
				146	0.6	0.3
				330	1.2	0.3
Boiler & Hydro Flex Tester	B	39	1.1	40	2.5	1.6
	P			123	3.8	2.5
				331	5.7	1.0
				336	0.7	0.1
				337	2.0	1.1
				343	2.0	1.0

Johns-Manville

Operation		Impinger		Membrane Filter		
		Sample #	mppcf	Sample #	Total Fibers/cc	5 μ +
Coupling Finishing						
Coupling Lathe	B	106	0.7	107	6.8	1.0
		108	1.9	109	4.5	0.8
		110	0.9	111	4.9	0.6
		231	1.3	230	1.8	0.3
		233	0.5	232	0.4	0.2
		344	0.6	345	2.1	0.2
	P			137	3.0	0.4
				142	0.9	0.4
				151	4.4	3.0
				152	0.7	0.4
				308	1.3	0.6
				313	6.8	4.9
				316	0.8	0.7
				317	5.7	1.7
				323	3.0	0.4
				322	5.3	2.2
				332	2.0	1.1
				340	5.1	3.8
				341	2.0	1.4
	C	134	0.5			
		346	0.9			
Abrasive Cut Off Saw	B	112	1.2	113	9.9	1.2
	P			150	2.8	1.5
				116	6.3	2.9
				311	13.1	2.0
				315	4.4	1.0
				318	17.8	4.4
				335	0.7	0.3
	C	45	0.5			
Radial Drill	B	41	1.0	42	2.3	1.8
	P			121	1.4	0.7

Johns-Manville

Operation		Impinger		Membrane Filter		
		Sample #	Upper	Sample #	Fibers/cc Total	5 μ +
Coupling Finishing						
Coupling Tester	P			149	1.1	0.8
				320	1.5	1.1
				321	2.4	1.5
				326	3.4	0.7
				339	5.3	1.1
Plug Cleaner	P			217	1.5	1.2
Epoxy						
Special Fittings Maker	B	227	0.9	226	3.1	1.0
	P			126	2.0	0.3
				324	3.7	2.0
				325	2.3	1.4
				328	3.8	1.9
				329	8.5	4.2
	G	236	0.2			
Packing						
Packer & Loader	P			128	0.3	0.3
				129	1.4	0.1
				130	0.4	0.4
				132	0.8	0.5
				133	1.4	0.2
Lift Truck Driver	P			127	0.2	0.2
				131	1.2	1.1
Miscellaneous						
Sweeper	P			154	1.2	0.3
Mechanic	P			202	2.0	1.5

Results of Air Samples of June 1967

Johns-Manville, Long Beach, California

Asbestos Cement Pipe Plant

Operation		Impinger		Membrane Filter		
		Sample #	mppcf	Sample #	Fibers/cc Total	5 μ +
Mixing						
Mixing	B	308	1.0	309	1.8	1.8
		322	1.6	323	2.1	1.4
		123	0.9	126	8.4	3.2
	P			56	6.3	3.1
				105	6.9	2.9
				107	6.0	4.0
				108	6.8	5.2
				114	17.8	11.1
				116	15.0	10.1
				135	8.3	3.9
Scrap Grinder	B	37	0.8	38	1.4	0.4
	P			121	9.1	5.8
				124	11.1	7.6
Hopper Car Unloader	B	244	1.0	245	0.8	0.0
	P			111	3.0	1.9
	G	326	0.9			
		329	0.8			
		32	2.3			

NOTES: B - Breathing zone simultaneous impinger-membrane filter samples.

P - Personal membrane filter samples collected by a sampling pump worn by the worker.

G - General air samples.

Johns-Manville

Operation		Impinger		Membrane Filter		
		Sample #	mppcf	Sample #	Fibers/cc Total	5 μ +
Forming						
Machine Tender	B	141	1.4	142	5.6	2.6
		319	1.9	321	11.1	4.5
		316	2.8	317	2.7	2.5
		318	2.3	319	0.4	0.4
	P			94	1.8	0.4
				[illegible]	[illegible]	[illegible]
				44	0.8	0.2
				100	2.1	0.3
				110	1.8	1.4
				117	4.3	3.1
				120	3.7	3.0
				123	3.9	2.7
				131	2.2	0.6
				133	1.5	0.6
				134	3.1	1.1
				137	1.3	0.9
Cemsel Operator	P			95	1.2	0.5
				106	2.3	1.1
Bead Former	P			113	4.6	1.5
				119	1.7	0.3
	C	64	4.2			
Curing						
Mandrel Puller	B	143	0.5	144	0.8	0.6
		137	3.8	313	5.5	1.8
	P			104	0.9	0.4
				109	2.9	1.1
				122	7.3	4.6
				129	1.1	0.4
				138	1.3	1.0
				148	2.4	0.9
Pipe Stacker	B	127	2.0	128	1.4	1.0
		314	1.6	315	1.4	1.0

Johns-Manville

Operation		Impinger		Membrane Filter		
					Fibers/cc	
		Sample #	Impcf	Sample #	Total	5 μ
Curing						
Pipe Stacker	P			97	1.6	0.9
				101	1.2	0.6
				102	2.0	1.1
				115	3.7	1.5
				118	5.6	2.0
				130	3.3	1.6
				136	2.9	0.7
				139	4.3	1.1
				152	1.9	0.7
Forklift Operator	P			47	0.2	0.1
				48	1.9	0.6
				103	0.9	0.3
				132	1.9	0.4
				205	2.3	0.7
Pipe Finishing						
Pipe Lathe	B	230	0.9	231	3.1	1.0
		232	2.1	233	7.8	2.3
		240	1.3	241	2.1	0.2
		262	0.5	263	2.1	0.6
	P			39	5.2	2.8
				46	1.8	1.2
				206	2.8	1.0
				208	0.4	0.3
				213	5.3	1.2
				216	2.7	0.7
				219	7.5	3.6
				247	3.8	2.7
				248	7.1	2.4
				256	3.2	0.5
				503	4.2	3.5
	G	88	1.4			
Hydro-Flex Tester	B	155	1.2	156	2.5	0.6
		234	1.2	235	2.2	0.0

Johns-Manville

Operation		Impinger		Membrane Filter		
		Sample #	Fibers/cc	Sample #	Total Fibers/cc	5 μ +
Pipe Finishing						
Hydro-Flex Testes	P			201	3.1	1.6
				211	2.2	0.4
				254	3.5	2.2
				255	3.9	0.7
Roller	B	260	1.3	261	4.1	1.4
	P			43	1.6	0.4
				202	3.1	1.6
Pipe Cutter	B	226	2.4	227	45.4	8.6
	P			207	14.6	6.3
				218	31.5	5.5
Inspector	B	258	1.2	259	0.5	0.7
				204	2.9	2.2
				40	3.9	1.7
				42	2.1	1.1
				257	8.6	1.9
				501	8.6	1.9
Forklift Operator	P			251	1.2	0.6
				504	2.4	0.6
CPL Finishing						
Coupling Lathe	B	145	2.9			
		224	3.0	225	12.9	4.9
		228	0.9	229	0.3	0.3
		242	1.2	243	3.1	0.0
	P			45	0.5	0.3
				48	6.6	2.0
				49	11.1	5.4
				150	9.7	5.6
				200	3.3	0.2
				210	27.3	5.9
				212	5.8	1.9
				214	4.8	1.7
				215	0.8	0.6
				217	2.6	1.9
				223	1.8	0.5
				[illegible]	[illegible]	[illegible]

Johns-Manville

Operation		Impinger		Membrane Filter		
		Sample #	mppcf	Sample #	Total Fibers/cc	Asbestos Fibers/cc
CPL Finishing						
CPL Tester	B	264	0.9	265	2.6	0.2
	P			253	0.9	0.5
				502	6.6	1.1
Drill Operator	B	320	4.0	321	17.8	4.6
CPL Cutoff	P			41	37.3	8.2
				250	2.5	0.7
	G	75	0.8			
		78	0.9			
Epoxy						
Spec. Fitting Maker	B	35	6.5	36	23.2	12.9
		236	1.3	237	2.8	0.0
		238	1.8	239	2.7	0.0
	P			149	6.2	2.4
				151	3.8	1.4
(new)				147	3.4	0.6
				154	5.4	2.6
	G	91	1.1			
Packing						
Forklift	P			267	0.9	0.3
				268	1.2	0.5
				269	1.0	0.3
				270	7.5	7.2
				272	0.6	0.3
				273	2.9	0.6
				274	3.9	0.8
				276	6.1	1.3
Miscellaneous						
Tool Grinder	P			222	3.3	0.6
Ind. Engineer	P			221	2.0	1.3
Sweeper Mach	P			140	3.8	1.7

Johns-Manville

Operation		Impinger		Membrane Filter		
		Sample #	mmcf	Sample #	Total f/cc	Fibers/cc > 5 μ
Lined Pipe						
Mixing Resin	P			167	2.0	0.3
Sander	B	173	1.6	174	4.9	-0.0
		175	1.2	173	2.1	0.4
	P			158	6.4	2.9
Coater	P			162	0.5	0.1
				156	1.2	0.2
				169	1.5	0.5
				151	2.9	0.4
Handler	B	171	0.4	172	0.4	-0.0
	P			159	0.9	0.2
				160	1.1	0.4
				163	2.2	0.5
				165	1.2	0.2
				170	1.4	-0.0
Plastic Pipe						
Extruder	B	279	0.2			
	P			164	0.6	0.0
				184	2.5	0.5
Roller	B	277	0.3	278	3.1	0.4
	P			178	0.4	0.3
				183	0.2	0.1
Mixer	P			181	1.3	0.3
Inspector	P			180	0.5	0.2
Packer	P			266	1.6	0.2
Saw Op.	P			179	0.3	0.1

Johns-Manville

Operation		Impinger	Membrane Filter		
				Fibers/cc	
		Sample #	Sample #	Total	5 μ +
Gasket					
Warehousing	P		335	0.8	0.2
Gasket Maker	P		330	6.4	1.6
			331	2.3	0.4
			334	3.9	1.2
Punch Press	P		332	3.6	0.9
			333	3.6	0.5