PLAINTIFF'S
EXHIBIT
WH-1027

SAMPLE SHEETS 1934-36

1 - 9	Foundry	Trafford
10 - 12	Air sampling	R&D Center
13 - 30	Foundry	Trafford
31 - 44	Air inside mask	Derry
45 - 61	Foundry; machining, casting, cleaning	Trafford
62 - 67	Molding, grinding, LW-20	Linnart
68 - 82	Sandblasting	Mansfield
83 - 90	Molding, machining, sandblasting	Cleveland
91 - 103	Checking machine; cutting mica tubes	Springfield
104 - 115	Dumping into small mixer	St. Louis
116 - 118	Shot blasting	Sharon
119 - 119b	Dust Test Rm.	
120 - 121	Patt. shop	Trafford
121a- 121e	Pouring #8 alloy, Brass foundry	Linnart
122 - 130	Grinding castings	Attica
131 - 140	Dumping flint; spraying enamel	Derry
141 - 141a	Sandblasting	Mansfield
142 - 155	Mica sandblasting	Linnart
156 - 157	Finish coating	Mansfield
*158 - 159		
160 - 161	Exhaust from precipitron	Homer Laughlin Co.

[redacted] FROM THIS SET

03127584

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. 766

Plant [illegible] Date 7/15/42

Department Dry Press Dept.

Operation Trimming small insulators

SAMPLING DATA

Sampling Location Breathing Level

Time 2:09 P.M. — 2:21 P.M. 12 min Sampling rate 3 cfm Tube No. 55

	Tube Wts.	Electrode Wts.		
After Sampling	65.1732		Cu. Ft. air	36
Before Sampling	65.1682		Cu. meters air	
Difference	.0050		Concentration	

Washed into Flask No. 33 c.c. 250

COUNTING DATA

	(a)			(b)		
Dilution	1-2					
In Flask No.	5					
Illumination	[illegible]					
Magnification	20					
Area of field	[illegible]					
Depth of cell	1.10					
Counts 1	17					
2	21					
3	25					
4	27					
5	2[illegible]					
Sum	116					
Avg.	23					
Control	2					
Part. per field	21					
DUST COUNT (10^6 per cu.ft.)	4.4					

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks: _____

03127643

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. 768

Plant Dorrey Date 7/15/42

Department Dry Press Dept.

Operation Sanding Accumulators

SAMPLING DATA

Sampling Location [illegible] Table

Time 3:05 A.M. - 7:13 P.M. 8 min. Sampling rate 5 cfm Tube No. 26

	Tube Wts.	Electrode Wts.		
After Sampling	54.6362		Cu. Ft. air	24
Before Sampling	[illegible].662		Cu. meters air	
Difference	0.0164		Concentration	

Washed into Flask No. 44 c.c. 200

COUNTING DATA

	(a)			(b)		
Dilution	5-20					
In Flask No.	[illegible]					
Illumination	[illegible]					
Magnification	[illegible]					
Area of field	[illegible]					
Depth of cell	[illegible]					
Counts 1	[illegible]					
2	[illegible]					
3	[illegible]					
4	34					
5	[illegible]					
Sum	[illegible]					
Avg.	40					
Control	[illegible]					
Part. per field	[illegible]					
DUST COUNT (1[illegible] per cu.ft.)	10[illegible]					

Mean particle size _____ Std. Deviation _____

Chemical analysis _____

Remarks: [illegible]

[illegible]

3

03127844

[illegible] SAMPLE RECORD

Electrostatic Weight Sample No. [illegible]

Plant EPgL Date 2-[illegible]-57

Department E5-CL53

Operation Cutting Asbestos on Transmit [illegible]

SAMPLING DATA

Sampling Location Oberton Breathing Level

Time 10:02 + 10:09 / 13 Sampling rate 2 ft³/min Tube No. 53

10:14 – 10:20

	Tube Wts.	Electrode Wts.		
After Sampling	[illegible]		Cu. Ft. air	39
Before Sampling	79.[illegible]		Cu. meters air	1.11
Difference	0.0025		Concentration	

Washed into Flask No. 65 c.c. 50

COUNTING DATA

	(a)			(b)		
Dilution	—			—		
In Flask No.	—			—		
Illumination	LE			LE		
Magnification	[illegible]			[illegible]		
Area of field	[illegible]			[illegible]		
Depth of cell	1.04			1.06		
Counts 1	[illegible]			70		
2	[illegible]			[illegible]		
3	[illegible]			[illegible]		
4	[illegible]			[illegible]		
5	[illegible]			[illegible]		
Sum	[illegible]			[illegible]		
Avg.	[illegible]			[illegible]		
Control	[illegible]			[illegible]		
Part. per field	[illegible]			[illegible]		
	980 × 10³			980 × 10³		

DUST COUNT 0.970 × 10⁶

(10⁶ per cu.ft.)

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks: _____

03127652

Electrostatic Weight Sample No. [illegible]

Plant E. Pgh Date 2-16-51

Department E-5 - [illegible]

Operation Do All Saw

SAMPLING DATA

Sampling Location Operator Breathing Level

Time 10:23 - 10:32 [illegible] Sampling rate [illegible] Tube No. 65

	Tube Wts.	Electrode Wts.		
After Sampling	83.[illegible]		Cu. Ft. air	54
Before Sampling	83.[illegible]		Cu. meters air	1.53
Difference	.0016		Concentration	

Washed into Flask No. 8 c.c. 50

COUNTING DATA

	(a)			(b)		
Dilution						
In Flask No.						
Illumination						
Magnification						
Area of field	2.65 x 2.45			2.65 x .395		
Depth of cell	1.94			1.96		
Counts 1	35			35		
2	33			40		
3	48			31		
4 #9	40		#3	29		
5	29			45		
Sum	180			172		
Avg.	37			34		
Control	0			0		
Part. per field	37			34		
	313 x 10³			326 x 10³		
DUST COUNT	0.320 x 10⁶					
(10⁶ per cu.ft.)						

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks: _____

03127853

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. 2339

Plant East Pittsburgh Date March 20, 1951

Department MA-3

Operation Cutting asbestos liners on horizontal cutter - Boring liners

SAMPLING DATA

Sampling Location Area where operator stands

Time 10:22 - 10:25 A.M. Sampling rate 3 cfm Tube No. 58

	Tube Wts.	Electrode Wts.		
After Sampling	106.2220		* Cu. Ft. air	9
Before Sampling	106.1472		* Cu. meters air	0.255
Difference	0.0748		* Concentration	293 mg/m³

Washed into Flask No. _____ No. 250 2.52 x 10⁶ particles/mg.

COUNTING DATA

	(a)			(b)		
Dilution						
In Flask No.						
Illumination	LF		LF			
Magnification	100		100			
Area of field	0.25 x 0.375		0.25 x 0.375			
Depth of cell	1.64		1.66			
Counts 1	78		78			
2	67		60			
3	82		104			
4	65		68			
5	80		78			
Sum	372		388			
Avg.	74		78			
Control	0					
Part. per field						

DUST COUNT 21 x 10⁶ particles/ft³

(10⁶ per cu.ft.)

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks: After operator gets cut going properly he walks away

03255161

MMBB-0043602

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. 2340

Plant East Pittsburgh Date March 20, 195

Department MA-3

Operation Cutting asbestos liners on horizontal machine - Fasing and breaking liners

SAMPLING DATA

Sampling Location Operator Breathing Level

Time 0820 - 10:34 AM Sampling rate 3cfm Tube No. 72

	Tube Wts.	Electrod. Wts.		
Before Sampling	80.6031		Cu. Ft. air	12
Before Sampling	80.5485		Cu. meters air	0.34
Difference	0.0546		Concentration	164 mg/m³

Washed into Flask No. _____ Vol. 250 3.1x10⁶ particles/mg

COUNTING DATA

BEST AVAILABLE COPY

	(a)			(b)		
Dilution						
Flask No.						
Illumination	LF		LF			
Magnification	100X		100X			
Area of field	0.25x0.375		0.25x0.375			
Dilution	106		104			
Count	67		66			
	76		69			
	82		61			
	50		76			
	66		68			
Sum	341		340			
Avg.	68		68			
Control						
Part. per field						

DUST COUNT 14.2 x 10⁶ particles/ft³

(10 per cu.ft.)

Mean particle size _____ Std. Deviation ____

Chemical Analysis _____

03255162

Remarks: Taken during [illegible]

HHHH-0043604

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. 2341

Plant East Pittsburgh Date March 20, 1951

Department MA3

Operation Grinding asbestos

SAMPLING DATA

Sampling Location Breathing level - after grinding was finished — General atmosphere at operator position

Time 10:35-10:37 A M Sampling rate 3 lpm Tube No. 77

	Tube Wts.	Electrode Wts.		
After Sampling	89.5100		•Cu. Ft. air	6
Before Sampling	89.5079		•Cu. meters air	0.165
Difference	0.0021		•Concentration	12.7 mg/m³
Washed into Flask No.		c.c. 50	•Concentration	6.6×10⁶ particles/mg

Counting Data

				Chemical Analysis
Dilution				
In Flask No.				
Illumination	LF		LF	
Magnification	100		100X	
Area of field	0.25×0.375		0.25×0.375	
Depth of cell	1.06		1.04	
Counts 1	53		33	
2	15		22	
3	38		14	
4	13		22	
5	14		32	
Sum	133		123	
Avg.	27		25	
Control				
Part. per field				

Test Count (per cu.ft.) 2.3 ×10⁶ particles/ft³

Mean particle size

Std. Deviation

Remarks

03255163

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. 234

Plant East Pittsburgh Date March 20,

Department MA-3

Operation Boring Asbestos Liners

SAMPLING DATA

Sampling Location About 15 ft from Borer

Time 11:18 – 11:25 AM Sampling rate 3 cfm Tube No. 59

	Tube Wts.	Electrode Wts.		
After Sampling	82.6138		Cu. Ft. air	21
Before Sampling	82.5324		Cu. meters air	0.595
Difference	0.0814		Concentration	145 mg/m³
Washed into Flask No.		c.c. 100	Concentration	1.83 x 10⁶ particles/ft³

	Counting Data			Chemical Analysis
Dilution				
In Flask No.				
Illumination	LF			
Magnification	100 X			
Area of Field	0.25 x 0.375			
Depth of cell	.04		1.06	
Counts 1	178		230	
2	118		178	
3	80		169	
4	193		45	
5	154		138	
Sum	723		855	
Avg.	145		151	
Control				
Part. per field				

Dust Count (10⁶ per cu.ft.) 7.1 x 10⁶ particles/ft³

Mean particle size

Std. Deviation

Remarks

03255164

HWBB-0043606

NNBB-0043608

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. 2461

Plant E. Pal Date 2-8-52

Department Z-030

Operation Rolling mixture 1393

SAMPLING DATA

Sampling Location Breathing level of operator on No 1 Rol

Time 9:14 AM to 9:20 AM. Sampling rate 3/ft³/min No. 82

	Tube Wts.	Electrode Wts.		
After Sampling	70.2591		* Cu. Ft. air	18
Before Sampling	70.2427		* Cu. meters air	0.51
Difference	0.0164		* Concentration	31.5 mg/m³

Washed into Flask No. 16 c.c. 100 5.2 particles

COUNTING DATA

BEST AVAILABLE COPY

	(a)			(b)		
Dilution	—			—		
In Flask No.	—			—		
Illumination	LF			LF		
Magnification	[illegible]			[illegible]		
Area of field	[illegible]	.377		0.25 × 0.377		
Depth of cell	[illegible]			1.06		
Counts 1	88			87		
2	74			97		
3	54			93		
4	54			87		
5	79			73		
Sum	359			437		
Avg.	80			87		
Control	0			0		
Part. per field	80			87		
	4.5 × 10⁶			4.8 × 10⁶		

DUST COUNT

(10⁶ per cu.ft.) 4.7 × 10⁶

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks: About 75% of the [illegible]

03255165

0043610

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. 2462

Plant E Pgh Date 2-8-52

Department 7-30

Operation Rolling 1393

SAMPLING DATA

Sampling Location Breathing level of operator - No 1 Roll

Time 9:22 AM to 9:27 Sampling rate 3 ft³/min Tube No. 65

	Tube Wts.	Electrode Wts.		
After Sampling	83.1844		* Cu. Ft. air	15
Before Sampling	83.1637		* Cu. meters air	0.425
Difference	0.0207		* Concentration	47 mg/m³

Washed into Flask No. 44 c.c. 200 5.2×10⁶ particles/m

COUNTING DATA

	(a)			(b)		
Dilution	—			—		
In Flask No.	—			—		
Illumination	LF			LF		
Magnification	×100			×100		
Area of field	0.25×0.377 = 0.095			0.25×0.377 = 0.095		
Depth of cell	1.04			1.06		
Counts 1	57			54		
2	53			51		
3	51			54		
4	50			55		
5	48			54		
Sum	259			268		
Avg.	52			54		
Control	0			0		
Part. per field	52			54		
	7.2 ×10⁶			7.2 ×10⁶		

#9 #8

DUST COUNT

(10⁶ per cu.ft.) ~~[illegible]~~ 7.2×10⁶

03255166

~~Mean particle size~~ Std. Deviation

Chemical Analysis

Remarks

WWBB-0043612

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. 816

Plant Steam Division Date 1/29/54

Department Asbestos sewing room

Operation [illegible] wall [illegible] no cutting, running.

SAMPLING DATA

Sampling Location Breathing level & sewer

Time [illegible] A.M. Sampling Rate 3 cfm Tube No. 64

[illegible] A.M.

	Tube Wts.	Electrode Wts.		
After Sampling	1074000		* Cu. Ft. air	36
Before Sampling	1072993		* Cu. meters air	
Difference	.0008		* Concentration	

Washed into Flask No. A c. c. 12

COUNTING DATA

BEST AVAILABLE COPY

	(a)			(b)		
Dilution						
In Flask No.	—			—		
Illumination	LF			LF		
Magnification	x100			x100		
Area of field	0.09			0.09		
Depth of Cell	1.04			1.06		
Counts 1	77			87		
2	90			84		
3	83			91		
4	79			86		
5	80			82		
Sum	409			430		
Avg.	82			86		
Control	0			0		
Part per field	82			86		
DUST COUNT	0.29×10^6			0.30×10^6		
(10^6 per cu.ft.)			0.3×10^6			

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

03255167

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. [illegible]

Plant Team Div. Date 1/29/54

Department Asbestos Room

Operation cutting asbestos cloth with a wolf [illegible] model No. blade made by the wolf machine Co. [illegible]

SAMPLING DATA Fan not on

Sampling Location breathing level of cutter

Time 9:30 – 9:38 A.M. Sampling Rate 3 cfm Tube No. [illegible]

	Tube Wts.	Electrode Wts.		
After Sampling	82 5320		* Cu. Ft. air	24
Before Sampling	82 5298		* Cu. meters air	
Difference	.0022		* Concentration	

Washed into Flask No. 28/15 c. c. 30

COUNTING DATA

	(a)			(b)		
Dilution	—			—		
In Flask No.	—			—		
Illumination	L.F.			L.F.		
Magnification	x100			x100		
Area of field	0.09			0.09		
Depth of Cell	1.04			1.06		
Counts 1	61			59		
2	60			62		
3	63			58		
4	57			65		
5	56			55		
Sum	297			299		
Avg.	59			60		
Control	0			0		
Part per field	59			60		
DUST COUNT	0.79 x10^6			0.78 x10^6		
(10^6 per cu.ft.)			0.8 x10^6			

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks

03255173

HHBB-0043626

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. [illegible]

Plant Steam Div Date 1/29/56

Department Arbeiter sewing room

Operation Same operation, cutting [illegible] in [illegible]

SAMPLING DATA

Sampling Location Breathing level

Time 9:41-9:43 A.M. Sampling Rate 3 cfm Tube No. [illegible]

[illegible] A.M.

	Tube Wts.	Electrode Wts.		
After Sampling	77.3477		* Cu. Ft. air	6
Before Sampling	77.3469		* Cu. meters air	
Difference	.0008		* Concentration	

Washed into Flask No. 20 c. c. 10

COUNTING DATA

	(a)			(b)		
Dilution						
In Flask No.						
Illumination	LE			LE		
Magnification	x100			x100		
Area of field	0.09			0.09		
Depth of Cell	1.06			1.06		
Counts 1	77			79		
2	78			79		
3	87			79		
4	76			85		
5	79			77		
Sum	397			398		
Avg.	79			80		
Control	0			0		
Part per field	79			80		
DUST COUNT	1.38 x10^6			1.39 x10^6		
(10^6 per cu.ft.)			1.7 x10^6			

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks:

03255174

HHBB-0043628

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. 316V

Plant Steam Div Date 1/29/56

Department Asbestos sewing room.

Operation Sewing & cutting with [illegible] Occasion throwing out sections over on [illegible].

SAMPLING DATA

Sampling Location [illegible] sewers breathing level

Time 10:02 10:15 A.M. Sampling Rate 3 Cfm. Tube No. [illegible]

	Tube Wts.	Electrode Wts.		
After Sampling	87.3610		* Cu. Ft. air	39
Before Sampling	87.3596		* Cu. meters air	
Difference	.0014		* Concentration	

Washed into Flask No. 63 c. c. 12

COUNTING DATA

	(a)			(b)		
Dilution						
In Flask No.	—			—		
Illumination	LF			LF		
Magnification	x 100			x 100		
Area of field	0.09			0.09		
Depth of Cell	1.04			1.04		
Counts 1	92			96		
2	89			100		
3	92			101		
4	94			93		
5	91			90		
Sum	456			480		
Avg.	91			96		
Control	0			0		
Part per field	91			96		
DUST COUNT	0.30×10^6			0.32×10^6		
(10^6 per cu.ft.)			0.3×10^6			

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

03255175

BBB-0043630

WEIGHT SAMPLER RECORD

Electrostatic Weight Sample No. 816

Plant Steam Division Date 1/29/54

Department [illegible] Cloth Sewing Room

Operation [illegible] Cutting [illegible]

SAMPLING DATA

Sampling Location Breathing level & sewer

Time [illegible] Sampling Rate 3 cfm Tube No. 52

	Tube Wts.	Electrode Wts.		
After Sampling	76.9229		* Cu. Ft. air	36
Before Sampling	76.9231		* Cu. meters air	
Difference	.0007		* Concentration	

Washed into Flask No. 8 c. c. 20

COUNTING DATA

	(a)			(b)		
Dilution	—			—		
In Flask No.	—			—		
Illumination	LF			LF		
Magnification	[illegible]			x100		
Area of field	0.09			0.09		
Depth of Cell	1.04			1.06		
Counts 1	57			58		
2	51			61		
3	58			58		
4	56			55		
5	55			59		
Sum	277			291		
Avg.	55			58		
Control	0			0		
Part per field	55			58		
DUST COUNT	0.33×10^6			0.34×10^6		
(10^6 per cu.ft.)			0.3×10^5			

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks: _____

03255176

Plant [illegible] Department Maintenance Sample No. 4472 (for [illegible])

Operation Cutting Sample Location Maintenance Shop

Sampling for [illegible] Dust (Magnesite) Date Sampled 4-18-72

Cassette # 5

Sampling Data

Start Times	Stop Times	Sample Collection Time Period
725 (AM) (PM)	11:28 (AM) (PM)	245 min.
12 [illegible] (AM) (PM)	1255 (AM) (PM)	55 min.
(AM) (PM)	(AM) (PM)	min.

Sampling rate ~~[illegible]~~ l/min. Total sample collection time 300.- minutes.

Rate ____ l/min. x time ____ (min.) = volume ____ $l \div 10^3$ = volume ____ M^3

Sampled by Bath

Analysis Data

Filter type ____ Supplier ____

Weight after sampling ____ mg

Weight before sampling ____ mg

Net weight of sample ____ mg ÷ volume ____ M^3 = concentration ____

Chemical Composition of Sample ____

Remarks Sampling cassette contained loose accumulation of transite [illegible] dust. Filter deposit much too heavy to evaluate

Date Analyzed April 30 1973 Analyzed [illegible]

03255195

HWBB-0043668

LIST A

Asbestos

BEST AVAILABLE COPY

NWBB-0044414

20403 AA, AK	Asbestos Fiber
20403 AL - AM	Asbestos Fiber
20404 AA - AD	Vitrifying Flux (Feldspar, Nepheline Syenite)
20404 BA - BB	Feldspar
20408 AA - AB	Fluospar
41111 AB	Filter Material Fibrous
41111 AJ	Asbestos Fibre [illegible] Purity
41211 AA	Asbestos Yarn
4 211 AC - AD	Asbestos Yarn [illegible]
4 3 AH [illegible]	[illegible]
4 321 AA - AC	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]

List "B" Per [illegible]

Hedges 44141 A,J

Asbestos

11-29

Material No.	Description	Storeroom	User
20403AA	Asbestos Fiber	LRA 119	MP1
41211AA	Asbestos YARN	" 154	A B C D
41511AA	Asbestos tape	" 154+105	E31; L50 mai[illegible] A, B, C, D, 3L
41511BA	Asbestos Cloth	" 108	A 4, E-5, [redacted], m
41511BB	Asbestos Cloth	" 105	E-5 D-16
41521CB	Cloth Asbestos, VARNISH treat.	" 108	E-5 to cut the Distributed
41524LD	.015 x 36.0 Roll	" 105	E5 to cut then distributed 3L L
42251AA	Asbestos sheet packing Compressed, ungraphited	" 105	E-5 to cut then distributed
42331AA	Asbestos paper	" 105	AA1, A4, D3, H1 LW10, TC3, L50
42341BN	Paper Asbestos Shellacked	" 108	E5 then Distributed
42351AA	Asbestos sheet untreated	" 105	E5, CM20
44141 Series	See Attached	" 112	Distributed From
44149AA	Micarta sheet, Melamine Asbestos Cloth	Swgr 613	Z x 10 to LRA
45723AA	Asbestos Neoprene sheet or molded gasket	PCB 702	TC5
46316 Series	See Attached	Swgr 613	Z x 10 to LRA
53311AM	Cement Filling	LRA 119	01, A, B, C, D, 3L [illegible]
62714AA	Cable + Wire Polyvinyl Chloride And Asbestos Ins.	PCB 702	TC60, TC61, T[illegible]
65127AA	Cable Flexible Asbestos And Varnished Cambric	LRA 133	B4, D12, MC9, R60
65111FD	Asbestos Varnished Fixed Cable	Swgr. 610	K60
65711AJ .081 .010	Cable + Wire Asbestos + Asb. VC Insulated	Swgr 610	159, 162, 165, 175 A4, M01
66121AA	Insulated Asbestos thermo-couple cable	Swgr 610	165 MA3 K60, R[illegible] K17

03255392

HHBB-0044415

List "B" Per Wm Phillips

Hedges 44141 A.J

Asbestos

11-29-72

Material No.	Description	Storeroom	Users
20403AA	Asbestos Fiber	LRA 119	MP1
41211AA	Asbestos Yarn	" 154	A, B, C, D
41511AA	Asbestos tape	" 154+105	E31; L50 maint. A, B, C, D, 3L Lab
41511BA	Asbestos Cloth	" 108	A-4, E-5, [redacted], MC9
41511BB	Asbestos Cloth	" 105	E-5, D-16
41521CB	Cloth Asbestos, varnish treat.	" 108	E-5 to cut then Distributed
41524LD	.015 x 36.0 Roll	" 108	E5 to cut then distributed 3L Lab
42251AA	Asbestos sheet packing Compressed, ungraphited	" 105	E-5 to cut then distributed
42331AA	Asbestos paper	" 105	AA1, A4, D3, H1, LW10, TC3, L50
42341BN	Paper Asbestos Shellacked	" 108	E5 then Distributed
42351AA	Asbestos sheet untreated	" 105	E5, CM20
44141 Series	See Attached	" 112	Distributed from E5
44149AA	Micarta sheet, Melamine Asbestos Cloth	Swgr 613	2x10 to LRA
45723AA	Asbestos Neoprene sheet or molded gasket	PCB 702	TC5
46316 Series	See Attached	Swgr 613	2x10 to LRA
53311AM	Cement Filling	LRA 119	D1, A, B, C, D, 3L Lab
62714AA	Cable & Wire Polyvinyl Chloride and Asbestos Ins.	PCB 702	TC60, TC67, TC68
65127AA	Cable Flexible Asbestos and varnished Cambric	LRA 133	B4, D12, MC9, R60 WS3
65111FD	Asbestos varnished Fixed Cable	Swgr. 610	K60
65711AJ .081 .010	Cable & Wire Asbestos + Asb. VC Insulated	Swgr 610	159, 162, 165, 175 B4, A4, MB1
66121AA	Insulated Asbestos thermo-couple cable	Swgr 610	165 MB3 K60 R60 T10 [illegible] K17

03255393

NWBB-0044416

BEST AVAILABLE COPY

NWDB-0044417

53806 GX Molding Mixture

53806 JH Molding Mixture

~~53806 LE Molding Mixture Polyester~~

33211 AA Paint, Asphalt Block Undercoating

41418 BC-BD Paper, Glass - Asbestos

41421 AM Paper Asbestos-Glass Epoxy Treated

41424 FA Paper Glass Asbestos Epoxy Treated

41511 AA Asbestos tape

41511 AB Tape, Asbestos Cement

41511 AG Tape, Asbestos

41511 AL Asbestos Tape, Impregnated with Synthetic

41511 AP Cloth Asbestos

41511 AU Cloth, Asbestos Wire Inserted

41511 BA Asbestos Cloth

41511 BF Cloth Asbestos

41511 BH-BJ Cloth Asbestos

41511 BK Asbestos cloth

41511 BL Asbestos Cloth

41511 BM Asbestos Cloth, Impregnated - Graphite

41511 CA Cloth Asbestos

41511 DA-DC Asbestos Woven Sleeving

41511 EB EF Asbestos Rope Packing

41511 GA-GE Asbestos Block Form

41511 GC-GD Asbestos Block Form

41511 GE- Asbestos Block Form

41511 HA Asbestos Glass Cloth

41521 AJ Tape, Asbestos Epoxy Resin Treated

41521 CB Cloth, Asbestos, Phenolic Treated

03255394

BEST AVAILABLE COPY

HWDB-0044418

41521 CC	Asbestos Cloth, Silicone Varnished
41521 CD	Cloth Asbestos Epoxy Resin Treated
41521 CF	Cloth Asbestos Polyester, unspecified
41521 CK	Asbestos Cloth Polyester Resin Treated
41521 CP	Cloth, Asbestos Vulcanized or
41521 CT	Asbestos Cloth Treated, Unspecified
41521 DA	Asbestos Rope Packing, Unspecified
41521 EA	Asbestos Packing, Unspecified
41521 EG	Packing, Asbestos [illegible] Mica Treated
41521 EJ	Asbestos Cloth [illegible]
41521 EM	Cloth, Asbestos [illegible] Treated
41521 FJ	Asbestos [illegible]
41521 GA	Fabric, Asbestos Glass [illegible]
42231 AA-AB	Asbestos paper
42241 AA-AF	Asbestos sheet [illegible]
42241 BA	Asbestos paper [illegible]
42251 AA AB	Asbestos Sheet packing [illegible]
42251 BA-BC	Asbestos-Rubber sheet [illegible]
42261 AE	Asbestos-Rubber Sheet
42261 AJ	Asbestos Rubber Sheet
42261 AK	Paper board asbestos [illegible]
42261 AP	Asbestos-Rubber Sheet [illegible]
42331 AA-AC	Asbestos paper
42331 AE	Asbestos paper light [illegible] 03255395
42331 BA-EF	Asbestos paper
42331 DA	Asbestos paper tubing [illegible]
42341 AA-AB	Paper, asbestos, [illegible]
42341 AH	Paper, Asbestos, treated

BEST AVAILABLE COPY

HWBB-0044419

42341 AK	Paper, asbestos, treated
42341 AP	Paper, asbestos, varnish treated
42341 AT	Asbestos paper, inorganic bound
42341 BG	Paper asbestos shellac treated
42341 BN	Paper asbestos, shellacked
42341 BV	Paper, asbestos, treated
42341 [redacted] DH	Laminate Asbestos paper, fish paper
42341 DN-DM	Laminate asbestos paper [illegible]
42341 DT-[illegible]	Laminate asbestos paper polyester [illegible]
42341 FA	Paper, asbestos collodion [illegible] treated
42341 FP	Paper tubing, asbestos
4234[illegible] FQ	Paper tubing, asbestos
42[illegible] AA	Laminate Rubber - asbestos [illegible]
44[illegible]41 AA	Micarta sheet asbestos phenolic
(*) 44[illegible]41 AF-AK	Micarta sheet asbestos cloth [illegible]
44[illegible]41 PA	Micarta tubing, asbestos - phenolic [illegible]
44[illegible]41 [illegible]A	Micarta shapes phenolic [illegible]
441[illegible] [illegible]A	Micarta bars phenolic [illegible]
44[illegible]9 AA	Micarta sheet melamine [illegible]
44[illegible]63 AB	Laminate glass cloth - asbestos [illegible]
44[illegible] AA	Laminate, micarta and glass [illegible]
44341 AA	Micarta sheet, phenolic asbestos [illegible]
44341 PA	Micarta tubing, phenolic asbestos [illegible]
44341 [illegible]A	Micarta shapes phenolic - asbestos [illegible]
44344 AA	Micarta sheet, phenolic - asbestos [illegible]
44345 AA	Laminate, micarta - glass - asbestos [illegible]
44[illegible] PA	Paper tubes, asbestos rectangular [illegible]
44369 AA	Laminated comp. plate melamine - asbestos paper

03255396

BEST AVAILABLE COPY

HWBB-0044420

44641AA	Molded Composition phenolic asbestos filled
44641AE	Molded Comp. Phenolic asbestos wood flour filled
44643AA	Molded shapes, polyester - asbestos
44643HT	Molded Comp. Polyester Asbestos + Fiberglas filled
44644CE	Friction block metallic asbestos
44646BA	Molded Comp. Asphalt Asbestos Fiber [illegible]
44[illegible]1AA	Molded Comp. Polypropylene asbestos filled
44[illegible]5CE	Dacron Nylon - Asbestos [illegible]
44[illegible]1CA	Asbestos brake lining (friction block) [illegible]
45723AA	Asbestos Neoprene sheet or molded [illegible]
45723AB	Asbestos neoprene sheet or [illegible]
45[illegible]3AA	Hose Asbestos - Neoprene [illegible]
4[illegible] CBA	Cement insulation asbestos
4[illegible] CBB	Cement, Heat insulating [illegible]
4[illegible] A CA	Asbestos cement sheet
48[illegible]BB	Heat insulating block
533[illegible]	Cement, Filling
533[illegible]K	Cement Fibrous High [illegible]
[illegible]	Compound sealing
[illegible] CF	Compound sealing
53[illegible] JX	Compound sealing
53[illegible] YA-YC	Compound sealing
53351 YP	Compound Filling sealing
53[illegible]70 MP	Compound, sealing, [illegible]
53[illegible]71 RA	Adhesive Epoxy, Resin asbestos filled
54257 AA AC	Compound insulating thermal [illegible]
63711 AP	Cable, Silicone Rubber [illegible] asbestos [illegible]
[illegible]124 BA	Cable, flexible, asbestos insulated [illegible]

03255397

BEST AVAILABLE COPY

HWBB-0044421

[illegible]	62724 AA	Cable and Wire Polyvinyl Chloride and Asbestos Ins
	62724 AA-AB	Cable Flexible Rubber and Asbestos Insulated
	64727 AA	Cable Thermocouple Asbestos Insulated
	64727 BA	Cable and Wire Asbestos Polyester Film Ins
[illegible]	[illegible]27 AA	Cable Flexible Asbestos and [illegible]
	[illegible] CB	Wire Asbestos Insulated
[illegible]	[illegible] FD	[illegible]
[illegible]	[illegible] AA AV	Cable and Wire Asbestos and [illegible] Insulated
	[illegible]727 AA	Cable Asbestos [illegible]
	[illegible] AD	Monel Metal Cable Asbestos [illegible]
	[illegible] CA CB	Copper Nickel Wire Asbestos [illegible]
	[illegible] BA BC	Copper Wire and Cable Asbestos Insulated
	[illegible] DD-F	Fixture Wire Asbestos [illegible]
	[illegible]	Copper Wire and Cable Asbestos Insulated
[illegible]	[illegible] AA	[illegible]
	[illegible] CA CB	Cable Flexible Asbestos [illegible]
	[illegible] 22 AA	Cable Flexible Asbestos [illegible]
	[illegible] AA	Cable Asbestos Insulated [illegible]
	[illegible] AB	Cable Flexible Asbestos [illegible]
	[illegible] AA AB	Fixture Wire Asbestos [illegible]
	[illegible]	Wire and Cable Asbestos [illegible]
	[illegible] FA	Nickel Chromium Wire Asbestos Insulated
	[illegible]	Nickel Wire Asbestos [illegible]
	[illegible]	Fixture Wire and Cable Asbestos [illegible]
	[illegible] AA	Cable Teflon Type Asbestos [illegible]

BEST AVAILABLE COPY

RESULTS OF AIR SAMPLES TAKEN IN SECTION E-5
LARGE ROTATING APPARATUS DIVISION, EAST PITTSBURGH WORKS
DURING THE MONTHS OF MARCH AND APRIL

Sample Number	Operation Machine	Material Number	Shop Order Number	Column Number or Location	Date Sampled	Duration of Sample (minutes)	Results Fibers per Cubic Centimeter	Standard Deviation (1σ) Fibers per Cubic Centimeter
4399	Milling	441A1AK	81P185	50W	3-5-73	70.-	0.6	± 0.2
4398	Deburring	441A1AK	80P800	48W	3-5-73	71.-	0.1	± 0.1
4403	Slotting	441A1AK	81P0185	49W	3-12-73	60.-	1.9	± 0.4
4402	Circular Saw	441A1AK	78P0490	50W	3-12-73	63.-	17.-	± 2.-
4405	Jig Saw	42251AA	P0E99863P1	52W	3-20-73	59.-	0.6	± 0.1
4404	Band Saw	42251AA	P0E99863P1	52W	3-20-73	43.-	1.1	± 0.2
4407	Speed Milling	441A1AK	80P0590	48W	4-4-73	70.-	0.6	± 0.1
4406	Disc Sander	441A1AK	80P0590	49W	4-6-73	45.-	12.-	± 1.-

BEST AVAILABLE COPY

03255399

4-24-73

~~To: [illegible] Co. [illegible] R. J. Van Veen~~ 12-27-72

ASBESTOS TAPE & CLOTH FOR USE ON 75P605
DIABLO CANYON UNIT #1
SF 69500 (SFP 69500-14)

DICK

THE SOLDERING PROCESS CALLS FOR THE USE OF ASBESTOS CLOTH AND TAPE. I HAVE BEEN ADVISED THAT O.S.H.A. REGULATIONS REQUIRE SPECIAL RESPIRATOR APPARATUS FOR WORKMAN USING OR WORKING IN THE AREA WHERE ASBESTOS IS BEING USED. FURTHERMORE, THE ATMOSPHERE IN THE VICINITY OF THE ASBESTOS WORK MUST BE MONITORED BY SPECIAL EQUIPMENT TO DETECT ASBESTOS DUST, WHICH MUST BE KEPT BELOW A CERTAIN LEVEL. THE MINIMUM COST OF THIS DUST DETECTOR WILL BE $ 250 PER DAY.

I SUGGEST YOU CHECK WITH THOSE CONCERNED AND SEE IF AN ALTERNATE MATERIAL CAN BE SUPPLIED.

PLEASE ADVISE ME OF YOUR FINDINGS AND THE DISPOSITION OF THE ASBESTOS I HAVE ON HAND. (I THINK PG&E WANTS IT REMOVED FROM THE SITE)

Thanks,
Bob Hughes

W. G. Craig 4N 5 - 2024

WIN [illegible]
[illegible]

JAN 03 1973

SAN FRANCISCO PG-5 R. L. HUGHES

03128695

Cust-Asbestos

BEST AVAILABLE COPY

~~WEIGHT~~ SAMPLER RECORD

~~[illegible]~~ Weight Sample No. 4367

Plant _____ Date [illegible]

Department _____

Operation _____

SAMPLING DATA

Sampling Location _____

Time _____ Sampling Rate _____ ~~Tube~~ No. _____

	Tube Wts.	Electrode Wts.		
After Sampling			* ~~Cu.~~ Ft. air	
Before Sampling			* Cu. meters air	
Difference			* Concentration	

Washed into Flask No. _____ c. c. _____

COUNTING DATA

	Slide No.	Slide No.	Slide No.	Slide No.
Dilution				
In Flask No.				
Illumination				
Magnification				
Area of field				
Depth of Cell				
Counts 1				
2				
3				
4				
5				
Sum				
Avg.				
Control				
Part per field				
~~DUST~~ COUNT				
(10^6 per cu.ft.)				

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks: _____

03255181

HHBB-0043640

Dust - [illegible]

~~[illegible]~~ SAMPLER RECORD

BEST AVAILABLE COPY

~~[illegible]~~ Sample No. _____

HWBB-0043642

Plant _____ Date _____

Department _____

Operation _____

SAMPLING DATA

Sampling Location _____

Time _____ Sampling Rate _____ ~~Tube~~ No. _____

	Tube Wts.	Electrode Wts.		
After Sampling			* ~~Cu. Ft.~~ air	[illegible]
Before Sampling			* Cu. meters air	
Difference			* Concentration	

Washed into Flask No. _____ c. c. _____

COUNTING DATA

	Slide No.	Slide No.	Slide No.	Slide No.
Dilution				
In Flask No.				
Illumination	[illegible]			
Magnification	[illegible]			
Area of field	[illegible]			
Depth of Cell				
Counts 1	[illegible]	[illegible]		
2	[illegible]	[illegible]		
3	[illegible]	[illegible]		
4	[illegible]	[illegible]		
5	[illegible]	[illegible]		
Sum	[illegible]			
Aug.				
Control				
~~Part~~ per field	0.077			
~~[illegible]~~ COUNT	11			
(10^6 per cu.ft.)				

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks: _____

03255182

Dust-Asbestos

BEST AVAILABLE COPY

HWBB-0043644

~~WEIGHT~~ SAMPLER RECORD

[redacted]ht Sample No. [illegible]

Plant _____ Date [illegible]

Department [illegible]

Operation [illegible]

SAMPLING DATA

Sampling Location [illegible]

Time [illegible] Sampling Rate [illegible] ~~Tube~~ No. [illegible]

	Tube Wts.	Electrode Wts.		
After Sampling			* ~~Cu. Ft.~~ air	[illegible]
Before Sampling			* Cu. meters air	
Difference			* Concentration	

Washed into Flask No. _____ c. c. _____

COUNTING DATA

	Slide No.	Slide No.	Slide No.	Slide No.
Dilution				
In Flask No.				
Illumination	[illegible]	[illegible]		
Magnification	[illegible]			
Area of field	[illegible]	[illegible]		
Depth of Cell				
Counts 1				
2	[illegible]			
3				
4				
5				
Sum				
Avg.				
Control				
~~Part~~ per field	[illegible]			
~~TEST~~ COUNT	[illegible]			
(10^6 per cu.ft.)				

Mean particle size [illegible] Std. Deviation _____

Chemical Analysis _____

Remarks: _____

03255183

Dust Asbestos

BEST AVAILABLE COPY

HWBB-0043646

~~WEIGHT~~ SAMPLER RECORD

~~Electrostatic Weight~~ Sample No. 4370

Plant _____ Date [illegible]

Department [illegible]

Operation [illegible]

SAMPLING DATA

Sampling Location _____

Time _____ Sampling Rate _____ ~~Tube~~ No. 1

	Tube Wts.	Electrode Wts.		
After Sampling			* Cu. Ft. air	
Before Sampling			* Cu. meters air	
Difference			* Concentration	

Washed into Flask No. _____ c. c. _____

COUNTING DATA

	Slide No.	Slide No.	Slide No.	Slide No.
Solution				
In Flask No.				
Illumination				
Magnification				
Area of field				
Depth of Cell				
Counts 1				
2				
3				
4				
5				
Sum				
Aug.				
Control				
Part per field				
DUST COUNT				
(10^6 per cu.ft.)				

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks: _____ 03255184

~~Electrostatic Weight~~ Sample No. 437

Plant E Pgh

Date 1-26-7

Department LRA

Operation Tear and Shake once asbestos cloth from sect D-16

SAMPLING DATA

Sampling Location Breathing Zone I.H. Shop rooms.

Time 2.0 min Sampling Rate 1.15 l/m Cassette ~~Tube~~ No. 9

	Tube Wts.	Electrode Wts.		
After Sampling			* ~~Cu. Ft.~~ CC air	2.3×10^3
Before Sampling			* Cu. meters air	
Difference			* Concentration	

Washed into Flask No. _____ c. c. _____

COUNTING DATA

	Slide No. 7	Slide No.	Slide No.	Slide No.
Dilution				
In Flask No.				
Illumination	[illegible]			
Magnification	400 x			
Area of field	3.25×10^{-3} cm²			
Depth of Cell				
Counts 1	18 fibers			
2	100 fields			
3				
4				
5				
Sum				
Avg.				
Control				
fibers ~~Part~~ per field	0.055			
fiber ~~BEST~~ COUNT/cc	22±5			
(10^6 per cu.ft.)				

Mean particle size > 5 μm fiber length Std. Deviation _____

Chemical Analysis _____

Remarks: _____

03255186

HWBB-0043650

HWBB-0043656

~~[illegible]~~ SAMPLER RECORD

~~Electrostatic Weight~~ Sample No. 437

Plant [illegible] Date 1-28-7

Department L.R.A

Operation Tear [illegible] of [illegible] both once fold and lay out every 1/2 hr

SAMPLING DATA

Sampling Location [illegible]

Time 330 min. Sampling Rate [illegible] ~~Tube~~ Cassette No. 12

	Tube Wts.	Electrode Wts.		
After Sampling			* ~~Cu. Ft.~~ cc air	3.8×10^5
Before Sampling			* Cu. meters air	
Difference			* Concentration	

Washed into Flask No. _____ c. c. _____

COUNTING DATA

	Slide No.	Slide No.	Slide No.	Slide No.
Dilution				
In Flask No.				
Illumination	[illegible]	[illegible]		
Magnification	[illegible]			
Area of field	[illegible]			
Depth of Cell				
Counts 1	[illegible]			
2	[illegible]			
3				
4				
5				
Sum				
Avg.				
Control				
~~Part~~ per field	[illegible]			
~~DUST~~ COUNT/cc	[illegible]			
(10^6 per cu.ft.)				

Mean particle size _____ Std. Deviation _____

Chemical Analysis _____

Remarks: _____

03255189

East Pittsburgh - 4NS
236-2024
January 31, 1973
Use of Asbestos Cloth, Paper and Tape in Soldering Operations
OSHA Standards
Pacific Gas and Elec.
Diablo Canyon - Unit 1
G.O. SP-69500

TO: SAN FRANCISCO OFFICE
Power Generation Service

Mr. R. L. Hughes

cc: San Francisco Office, Power Generation Service - Mr. R. L. Bergquist
cc: East Pittsburgh, 6G, Power Generation Service - Messrs. H. Smallwood/ R. Van Veen
cc: East Pittsburgh, 10-L, Ins. Dev. Eng. - Messrs. D. Reilly/ P. Curtis
cc: East Pittsburgh, 5NN, Turbine Gen. Eng. - Mr. J. D. Davidson
cc: East Pittsburgh, 4NN, Ins. Design Eng. - Mr. J. C. Botts
cc: East Pittsburgh, 4NS, Service Perf. Eng. - Mr. R. J. Hillen
cc: East Pittsburgh, 2-G, Ind. Hygiene - Mr. H. W. Speicher
cc: East Pittsburgh, 4G-10, Accident Prevention - Mr. E. J. Hlavaty

A question regarding the use of asbestos materials in soldering or brazing operations on large generator windings has been raised by Pacific Gas and Electric Co. on the Diablo Canyon erection job. The OSHA section of the Federal Register dated October 18, 1972, concerning precautions to be observed in the use of asbestos materials has been cited by the Customer as being restrictive in connection with this operation. Since we use asbestos generally in soldering and brazing operations on our equipment, it was of great interest to us to establish that the OSHA limitation was not being exceeded.

A test was set up in our laboratory simulating a solder operation and using asbestos cloth, tape and paper in the same manner that these materials are employed in actual practice. Our Industrial Hygiene Department arranged to take air samples over an eight hour period as prescribed in the OSHA Federal Register to determine the degree of compliance with the standards set forth therein. The test results indicate that no problems exist in the use of asbestos in this operation. The maximum allowable limits for peak concentrations and weighted eight hour average were not exceeded.

If there are further questions, please advise.

W. G. Craig

W. G. Craig
Service Performance Engineering
Large Generator Department
Large Rotating Apparatus Division

/jdb Would it be possible for us to get a copy of the test data obtained on this operation we conducted in the lab. Since I am sure we will be asked for specific values before this matter is forgotten.
W G Craig

03128694

HWBB-0044436

East Pittsburgh - 41
236-2024
January 31, 1973
Use of Asbestos Clo
Paper and Tape in
Soldering Operation
OSHA Standards
Pacific Gas and Elec.
Diablo Canyon - Unit 1
G.O. SF-69500

TO: SAN FRANCISCO OFFICE
Power Generation Service

Mr. R. L. Hughes

cc: San Francisco Office, Power Generation Service - Mr. R. L. Bergquist
cc: East Pittsburgh, 6G, Power Generation Service - Messrs. H. Smallwood/R. Van Veen
cc: East Pittsburgh, 10-L, Ins. Dev. Eng. - Messrs. D. Reilly/P. Curtis
cc: East Pittsburgh, 5NN, Turbine Gen. Eng. - Mr. J. D. Davidson
cc: East Pittsburgh, 4NN, Ins. Design Eng. - Mr. J. C. Botts
cc: East Pittsburgh, 4NS, Service Perf. Eng. - Mr. R. J. Hillen
cc: East Pittsburgh, 2-G, Ind. Hygiene - Mr. H. W. Speicher
cc: East Pittsburgh, 4G-10, Accident Prevention - Mr. E. J. Hlavaty

A question regarding the use of asbestos materials in soldering or brazing operations on large generator windings has been raised by Pacific Gas and Electric Co. on the Diablo Canyon erection job. The OSHA section of the Federal Register dated October 18, 1972, concerning precautions to be observed in the use of asbestos materials has been cited by the Customer as being restrictive in connection with this operation. Since we use asbestos generally in soldering and brazing operations on our equipment, it was of great interest to us to establish that the OSHA limitation was not being exceeded.

A test was set up in our laboratory simulating a solder operation and using asbestos cloth, tape and paper in the same manner that these materials are employed in actual practice. Our Industrial Hygiene Department arranged to take air samples over an eight hour period as prescribed in the OSHA Federal Register to determine the degree of compliance with the standards set forth therein. The test results indicate that no problems exist in the use of asbestos in this operation. The maximum allowable limits for peak concentrations and weighted eight hour average were not exceeded.

If there are further questions, please advise.

W. G. Craig

03255407

W. G. Craig
Service Performance Engineering
Large Generator Department
Large Rotating Apparatus Division

13db Would it be possible for us to get a copy of the test data obtained in this operation we conducted in the lab. Since Jan one we will be asked for specific values before this matter is forgotten.

SAN FRANCISCO OFFICE
727-2224
FEBRUARY 7, 1973
USE OF ASBESTOS MATERIAL IN SOLDERING OPERATIONS.

EAST PITTSBURGH WORKS
4NS SERVICE PERFORMANCE ENGINEERING
MR. W. G. CRAIG

cc: East Pittsburgh Works - 6G, PGSD
Mr. H. H. Smallwood

cc: East Pittsburgh Works - 2G
Industrial Hygiene
Mr. H. W. Speicher

cc: San Francisco PGSD
Mr. S. B. Murphy

Referring to your letter to Mr. R. L. Hughes, dated January 31, 1973, I would appreciate receiving a description of the laboratory test arrangement as well as the test data for the recent simulation of the soldering operation using asbestos cloth, tape and paper. While our jobsite personnel will advise the customer that our test indicate the operation to be within the OSHA limitations, we fully expect that because of the operation being conducted on customer property, their personnel will require more definitive information. Therefore, we would like to be forearmed in this respect and request this information so that we might be able to answer any customer questions or objections.

R. L. Bergquist
Safety Coordinator
Pacific Coast Area, PGS

/dh

03128692

From: Accident Prevention, 4G10
Phone: 236-2163
Date: February 7, 1973
Subject: Use of Asbestos Cloth, Paper and Tape in Soldering Operations

EAST PITTSBURGH

Mr. W. G. Craig
Service Performance Engineering

cc:	San Francisco Office, Power Generation Service	- Mr. R. L. Bergquist
	East Pittsburgh, 6G Power Generation Service	- Messrs. H. Smallwood/ R. Van Veen
	East Pittsburgh, 10-L Ins. Dev. Eng.	- Messrs. D. Reilly/ P. Curtis
	East Pittsburgh, 5NN, Turbine Gen. Eng.	- Mr. J. D. Davidson
	East Pittsburgh, 4NN, Ins. Design Eng.	- Mr. J. C. Botts
	East Pittsburgh, 4NS, Service Perf. Eng.	- Mr. R. J. Hillen
→	East Pittsburgh, 2G46, Industrial Hygiene	- Mr. H. W. Speicher

Based upon the results of tests which were submitted to you in writing by H. W. Speicher concerning the concentrations of asbestos during the handling of asbestos cloth, I would like to call your attention to the negative aspects of Mr. Speicher's report to you.

The test report left some doubt that the use of asbestos in this operation is no health problem, particularly considering the excessive levels found after the cloth was torn by hand.

Although Mr. Speicher has requested a sample of several square feet of the asbestos cloth used at the California operation for testing, I would recommend that the personnel out there obtain the services of a consultant who can take samples during the handling of the asbestos cloth during normal soldering operations since the condition of the cloth and the technique in handling is critical in creating airborne asbestos fibers.

Efforts should be directed to find suitable substitutes for asbestos bearing materials such as fiberglass or rockwool.

E. J. Hlavaty

E. J. Hlavaty, Manager
Accident Prevention

/djr

03128693

East Pittsburgh - 4NS
236-2024
February 13, 1973
Use of Asbestos Materials in Soldering Operations

TO: EAST PITTSBURGH WORKS, 2-G
Industrial Hygiene

Mr. H. W. Speicher

cc: East Pittsburgh, 4G-10, Accident Prevention - Mr. E. J. Hlavaty
cc: East Pittsburgh, 6G, Power Gen. Service - Mr. H. H. Smallwood
cc: San Francisco, Power Generation Service - Mr. S. B. Murphy
cc: San Francisco, P.G.S. Safety Coordinator - Mr. R. L. Bergquist
cc: East Pittsburgh, 10L, Ins. Dev. Eng. - Mr. P. Curtis
cc: East Pittsburgh, 4NN, Ins. Design Eng. - Mr. J. C. Botts
cc: East Pittsburgh, 5NN, Turbine Gen. Eng. - Mr. J. D. Davidson

Please refer to previous correspondence on the above subject, the most recent being Mr. Bergquist's letter of February 7, 1973 and Mr. Hlavaty's letter of the same date.

It is apparent that a detailed report of the tests made in the 3L-38 Lab on January 23, 1973, is required in order to present the issue for a fair evaluation. It may be that this Customer will require a similar test at the site when the soldering operation is performed in any event, but we should provide them with the specific data we obtained.

The simulated solder operation performed in the 3L-38 Lab consisted of the following:

9:00 A.M. -- Operator W. G. Craig was fitted with the monitor placed on his chest just below the mouth. A seven minute sample was taken while asbestos cloth was cut from a roll using shears and several large pieces were placed over a case representing the stator winding. A piece of wood 2 x 4 was used to simulate a coil connection and this was taped with asbestos tape in a manner similar to that used by a winder in taping over areas to be protected during soldering. This monitor sample was removed and a new sample was taken in the area from 9:15 A.M. to 12:00 Noon.

1:30 P.M. -- Operator W. G. Craig was again fitted with the monitor placed as before and a 10 minute sample was taken while asbestos cloth and tape was cut and placed as before. In addition, asbestos paper was torn and placed around the test area (the asbestos paper was not available for the morning test). The monitor sample was removed and a new sample was taken in the area from 1:45 P.M. to 4:30 P.M.

03128690

An analysis of the monitor samples was made by Mr. John ~~Davis~~ for Mr. Speicher and a report of those findings should be issued by Mr. Speicher to complete the test data.

It should be noted that Mr. Hlavaty's recent letter indicates a questionable level of particle content in a test sample apparently taken at another time by Mr. Speicher when asbestos cloth was torn by hand. The soldering operation which is used in the field by Power Generation Service and shop winders does not involve the tearing of asbestos cloth by hand. It is always cut using either shears or knife and should be evaluated only on that basis rather than by tearing.

It is the writer's opinion that the use of asbestos cloth tape and paper in this application does not exceed the limitations imposed by the OSHA Federal Register and the test results obtained at this time support that position.

Please arrange to provide the data obtained in the January 23, 1973 test and, if it is felt to be necessary, arrange to perform similar tests on the Customer's property when the Power Generation Service Division starts the work on the Diablo Canyon unit for Pacific Gas and Electric.

We hope this action will satisfy the question which has been raised by the issue of the OSHA Federal Register limitations on the use of asbestos materials in our operation.

W. G. Craig

W. G. Craig
Service Performance Engineering
Large Generator Department
Large Rotating Apparatus Division

/jdb

03128691

HWBB-0044429

East Pittsburgh NS
236-2024
February 13, 1
Use of Asbesto
Materials in Sc in
Operations

TO: EAST PITTSBURGH WORKS, 2-G
Industrial Hygiene

Mr. H. W. Speicher

cc: East Pittsburgh, 4G-10, Accident Prevention - Mr. E. J. Hlavaty
cc: East Pittsburgh, 6G, Power Gen. Service - Mr. H. H. Smallwood
cc: San Francisco, Power Generation Service - Mr. S. B. Murphy
cc: San Francisco, P.G.S. Safety Coordinator - Mr. R. L. Bergquist
cc: East Pittsburgh, 10L, Ins. Dev. Eng. - Mr. P. Curtis
cc: East Pittsburgh, 4NN, Ins. Design Eng. - Mr. J. C. Botts
cc: East Pittsburgh, 5NN, Turbine Gen. Eng. - Mr. J. D. Davidson

Please refer to previous correspondence on the above subject, the most recent being Mr. Bergquist's letter of February 7, 1973 and Mr. Hlavaty's letter of the same date.

It is apparent that a detailed report of the tests made in the 3L-38 Lab on January 23, 1973, is required in order to present the issue for a fair evaluation. It may be that this Customer will require a similar test at the site when the soldering operation is performed in any event, but we should provide them with the specific data we obtained.

The simulated solder operation performed in the 3L-38 Lab consisted of the following:

9:00 A.M. -- Operator W. G. Craig was fitted with the monitor placed on his chest just below the mouth. A seven minute sample was taken while asbestos cloth was cut from a roll using shears and several large pieces were placed over a case representing the stator winding. A piece of wood 2 x 4 was used to simulate a coil connection and this was taped with asbestos tape in a manner similar to that used by a winder in taping over areas to be protected during soldering. This monitor sample was removed and a new sample was taken in the area from 9:15 A.M. to 12:00 Noon.

1:30 P.M. -- Operator W. G. Craig was again fitted with the monitor placed as before and a 10 minute sample was taken while asbestos cloth and tape was cut and placed as before. In addition, asbestos paper was torn and placed around the test area (the asbestos paper was not available for the morning test). The monitor sample was removed and a new sample was taken in the area from 1:45 P.M. to 4:30 P.M.

03255403

East Pittsburgh

February 14, 197

EAST PITTSBURGH 4-MS
IRA Engineering Service

W. O. Craig

MWBB-0044427

cc: E.Pgh. - 4-G-10 - Accident Prevention - E. J. Elavaty, Mgr.

With reference to your letter to R. H. Hughes dated January 31, 1973 concerning the asbestos fiber concentrations reported in my letter to you dated January 29, 1973, see attached Table I for the asbestos fiber counts.

As can be seen from these results, the asbestos concentration can vary over a broad range depending upon the nature and condition of the specimen and how it is handled. Under no circumstances should any specimen be torn or "shaken out" since this will most likely result in exceeding the short-term ceiling concentration of 10 fibers per cubic centimeter.

If there are any questions, I'm interested in knowing about them.

H. Wilbur Speicher, Administrator
Headquarters Industrial Hygiene

cmm
Attachment

03255402

East Pittsburgh

February 14, 197

EAST PITTSBURGH 4-MB
IRI Engineering Service

W. G. Craig

NWDB-0044427

cc: E.Pgh. - 4-G-10 - Accident Prevention - E. J. Elavaty, Mgr.

With reference to your letter to R. H. Hughes dated January 31, 1973 concerning the asbestos fiber concentrations reported in my letter to you dated January 29, 1973, see attached Table I for the asbestos fiber counts.

As can be seen from these results, the asbestos concentration can vary over a broad range depending upon the nature and condition of the specimen and how it is handled. Under no circumstances should any specimen be torn or "shaken out" since this will most likely result in exceeding the short-term ceiling concentration of 10 fibers per cubic centimeter.

If there are any questions, I'm interested in knowing about them.

H. Wilbur Speicher, Administrator
Headquarters Industrial Hygiene

cmm
Attachment

03255402

East Pittsburgh

February 1[illegible], 19[illegible]

EAST PITTSBURGH 4-HB
LRA Engineering Service

W. G. Craig

cc: E.Pgh. - 4-G-10 - Accident Prevention - E. J. Klavaty, Mgr.

With reference to your letter to R. H. Hughes dated January 31, 1973 concerning the asbestos fiber concentrations reported in my letter to you dated January 29, 1973, see attached Table I for the asbestos fiber counts.

As can be seen from these results, the asbestos concentration can vary over a broad range depending upon the nature and condition of the specimen and how it is handled. Under no circumstances should any specimen be torn or "shaken out" since this will most likely result in exceeding the short-term ceiling concentration of 10 fibers per cubic centimeter.

If there are any questions, I'm interested in knowing about them.

H. Wilbur Speicher, Administrator
Headquarters Industrial Hygiene

cmc
Attachment

03255402

MWBB-0044427

[illegible]

~~WEIGHT~~ SAMPLER RECORD

~~Electrostatic Weight~~ Sample No. 4399

Plant East Pittsburgh Works Date March 5, 197

~~Department~~ Large Rotating Apparatus Division

Operation Milling Micarta Shop Order # 81 P1 85

SAMPLING DATA

Sampling Location Breathing Zone, Column 50W, Section E-5

Time ON 1.23 pm time OFF 2:33 PM Sampling Rate 1.15 l/m ~~Tube~~ Cassette No. 1.-

	Tube Wts.	Electrode Wts.		
After Sampling			* Cu. Ft. air	
Before Sampling			* Cu. meters air	
Difference			* Concentration	0.6 fibers/cc

Washed into Flask No. _____ c. c. 8.0×10^4

COUNTING DATA

	Slide No. 1	Slide No.	Slide No.	Slide No.
Dilution				
In Flask No.				
Illumination	[illegible]			
Magnification	400x phase contrast			
Area of field	3.25×10^{-5} cm²			
Depth of Cell				
Counts 1	-1-------			
2	--21----1-			
3	---------2			
4	-----2---			
5	----------			
Sum	9			
Avg.				
Control				
~~Part~~ fibers per field	9/50=0.18			
DUST COUNT				
(10^6 per cu.ft.)				

~~Mean particle size~~ faster $\frac{2.7 \times 10^5}{8.0 \times 10^4}$ = 3.37 Std. Deviation $\frac{\sqrt{9}}{9}$ = ±30%

Chemical Analysis

M 44141 AK 80% Asbestos

Remarks:

03255191

HWBB-0043660

~~Electrostatic Weight~~ Sample No. 440

Plant East Pittsburgh Works Date March 12, 197

~~Department~~ Large Rotating Apparatus Division

Operation Sawing 1" micarta cross grain Shop Order number 78 00490

HWBB-0043666

SAMPLING DATA

Sampling Location Breathing Zone, Circular saw at Column 50, Section E-5

Time ON 1:18 PM Time OFF 2:21 PM Sampling Rate 1.15 l/m ~~Tube~~ Casette No. 5.-

	Tube Wts.	Electrode Wts.		
After Sampling			* Cu. Ft. air	
Before Sampling			* Cu. meters air	
Difference			* Concentration	17 fibers/cc

Washed into Flask No. _____ c. c. 7.25×10^4

COUNTING DATA

	Slide No. 5	Slide No.	Slide No.	Slide No.
Dilution				
In Flask No.				
Illumination	Köhler			
Magnification	400x phase contrast			
Area of field	3.25×10^{-5} cm²			
Depth of Cell				
Counts 1	6 5 2 5			
2	6 6 5 5			
3	- 4 4 4			
4	6 2 6 5			
5	7 2 5 7			
Sum	92			
Avg.				
Control				
fiber ~~Bert~~ per field	92 ÷ 20 = 4.6			
DUST COUNT				
(10^6 per cu.ft.)				

~~Mean particle size~~ Factor $\frac{2.7 \times 10^5}{7.25 \times 10^4} = 3.73$ Std. Deviation = ± 10%

Chemical Analysis

M 44141 AK 80% Asbestos [illegible]

[illegible]

03255194

Plant [illegible] Department Maintenance Sample No. #41 (for [illegible])

Operation [illegible] Sample Location Maintenance Shop

Sampling for Asbestos Dust (Marinite) Date Sampled 4-18-1973

Cassette # 6

Sampling Data

Start Times	Stop Times	Sample Collection Time Period
1255 (AM) (PM)	355 (AM) (PM)	180 min.
(AM) (PM)	(AM) (PM)	min.
(AM) (PM)	(AM) (PM)	min.

Sampling rate ~~[illegible]~~ l/min. Total sample collection time 180.— minutes.

Rate ____ l/min. x time ____ (min.) = volume ____ l ÷ 10^3 = volume ____ M^3

Sampled by Bath

Analysis Data

Filter type ____ Supplier ____

Weight after sampling ____ mg

Weight before sampling ____ mg

Net weight of sample ____ mg ÷ volume ____ M^3 = concentration ____ mg/M^3

Chemical Composition of Sample ____ 03255196

Remarks Sampling cassette contained loose accumulation of transite (marinite) [illegible] filter, deposit much too heavy to [illegible]

Date Analysed April 30, 1973

MWRD-0043670

TO: SAN FRANCISCO OFFICE
Power Generation Service

Mr. R. L. Bergquist

From: East Pittsburgh - 4NN
Ext: 236-2024
Date: April 19, 1973
Subject: Use of Asbestos in Solder Operations -- Test Results

cc: East Pittsburgh, 6G, Gen. Service, P.G.S. - Mr. R. H. Smallwood
cc: East Pittsburgh, 2G, Industrial Hygiene - Mr. H. W. Speicher
cc: San Francisco, Power Gen. Service - Mr. R. B. Murphy
cc: Diablo Canyon Power Plant - Messrs. R. Wilburn/ R. Morton
cc: East Pittsburgh, 4NS, Service Perf. Eng. - Mr. R. J. Millen
cc: East Pittsburgh, 10L, Dev. Eng. & Tech. Serv. - Mr. L. P. Curtis
cc: East Pittsburgh, 5NN, Turbine Gen. Eng. - Mr. J. D. Davidson
cc: East Pittsburgh, 4NN, Ins. Design Eng. - Mr. J. C. Botts

Your letter of April 16, 1973, requesting the test data obtained by Mr. Speicher during our simulated solder operation has been reviewed and the attached data sheet is provided for your information.

It should be noted that Tests 1 to 5 were made during the simulated solder operation and Tests 6, 7 and 8 were made in the Industrial Hygiene Lab.

When asbestos cloth is used in the solder operations, it should be cut, not torn, and only new material should be used without shaking it out as you would to clean a rug or blanket.

At the present time the OSHA Standards specify maximum concentrations of 10 fibers, five micrometers in length with weighted eight-hour average airborne maximum concentrations of five fibers longer than five micrometers per cubic centimeter of air as determined by the method used by Mr. Speicher in the above Test Program.

In July, 1976, the eight-hour average airborne concentration will be reduced to two fibers per cubic centimeter and at that time we will have to consider a substitute for the asbestos cloth we now use.

The samples of glass cloth and treated material you provided are being forwarded to Mr. Speicher for analysis as a possible substitute for the asbestos cloth.

If there are further comments, please advise.

W. G. Craig
Service Performance Engineering
Large Generator Dept., L.R.A.D.

/jdb
Attach.

03128688

Plant Bath Lane Department Maintenance Sample No. 4414 (for J Haney) A

Operation [illegible] Sample Location [illegible]

Sampling for Asbestos Dust (Marinite) Date Sampled 4-19-1973

Cassette # 7

Sampling Data

Start Times		Stop Times		Sample Collection Time Period	
918	(AM) (PM)	1130	(AM) (PM)	132	min.
1200	(AM) (PM)	2:30	(AM) (PM)	150	min.
	(AM) (PM)		(AM) (PM)		min.

Sampling rate [illegible] l/min. Total sample collection time 282.- minutes.

Rate ____ l/min. x time ____ (min.) = volume ____ $1 \div 10^3$ = volume ____ M^3

Sampled by Bath

Analysis Data

Filter type ____ Supplier ____

Weight after sampling ____ mg

Weight before sampling ____ mg

Net weight of sample ____ mg ÷ volume ____ M^3 = concentration ____ mg/M^3

Chemical Composition of Sample ____

Remarks Sampling cassette contained loose accumulation of transite (Marinite) dust. Filter [illegible] much too heavy to evaluate

03255197

Date Analyzed April [illegible] 1973 [illegible]

HWDB-0043672