

PROJECT NO.

INDUSTRIAL HYGIENE EVALUATION AND SURVEY

Date 9-28-71 Time 2:30 PM Project - ASBESTOS STUDY

Department MAINTENANCE Location INSULATION SHOP Bldg. No. 216

Requested by DR. JOINER Reason _____

General Conditions: SAWING KAYLO - SOUTH BREEZE - 85°F

TWO PORTABLE FLOOR FANS - VACUUM HOOD OVER SAW BLADE

AND VACUUM UNDER SAW TABLE. BOTH MEN WEARING DUST

RESPIRATORS

Sampling Method and Equipment MILLIPORE FILTER 0.8 μ PORE SIZE

MICRON AIRE PERSONAL SAMPLER

Shift: Day ☒ Eve. ☐ Mid ☐ No. Employees 2 Sampled by DED - CWP

[illegible]

Special Conditions

CORUNDUM BLADE SAW WITH OVERHEAD
DRUMMED STRIPPING DRUMS
SAWING KAYLO INTO 2"x3" STRIPS

1. CHARLIE WERN - PUSHING MATERIAL INTO SAW - MOST DUST WHICH ESCAPES HOOD GOES BEHIND THE SAW BLADE.
2. BILL MURFF - STANDING ON OPPOSITE SIDE OF SAW - RECEIVING STRIPS AND STACKING THEM IN A BOX.

Remarks:

Sketch - See Reverse Side. Reference No. Analyzed by *DED - CWP* Date *9-29-71*

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 45 Date 10-4-71 Time 8⁰⁰AM

Sampled By: C. PERRY Analyzed By: C. PERRY Method: 38C-29X4-R1

General Conditions: (JOE BURKE) TEARING OUT OLD INSULATION ON 3 MANHEADS
AND 1 VALVE ON #1 HYDROGENERATOR. MANHEAD COVERS WERE SLICED OFF
WITH A KNIFE AND REMOVED INTACT (NOT MUCH VISIBLE DUST) VALVE INSULATION WAS
REMOVED WITH A KNIFE AND WAS DUSTIER THAN THE MANHEADS.
12 MINUTES SPENT ON MANHEADS - 3 MINUTES - VALVE.

FIBER COUNT (Fibers > 5µ in length)

Slide 1	
1	<u>4</u>
2	<u>1</u>
3	<u>3</u>
4	<u>1</u>
5	<u>1</u>
6	<u>2</u>
7	<u>2</u>
8	<u>2</u>
9	<u>1</u>
10	<u>2</u>
11	<u>1</u>
12	<u>1</u>
13	<u>2</u>
14	<u>0</u>
15	<u>0</u>
16	<u>1</u>
17	<u>2</u>
18	<u>1</u>
19	<u>2</u>
20	<u>2</u>

Total 31 Avg. 1.55

Slide 2	
1	<u>3</u>
2	<u>2</u>
3	<u>1</u>
4	<u>1</u>
5	<u>1</u>
6	<u>2</u>
7	<u>1</u>
8	<u>1</u>
9	<u>1</u>
10	<u>0</u>
11	<u>1</u>
12	<u>1</u>
13	<u>2</u>
14	<u>1</u>
15	<u>2</u>
16	<u>2</u>
17	<u>1</u>
18	<u>1</u>
19	<u>2</u>
20	<u>1</u>

Total 27 Avg. 1.35

CALCULATIONS

SAMPLE VOLUME: 15 Min. @ 1.8 LPM = 27.0 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air-Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(1.55 - 0)(885)}{(0.01496)(27.0)(1000)} =$$

3.4 Fibers per Milliliter > 5µ

$$2. \frac{(1.35 - 0)(885)}{(0.01496)(27.0)(1000)} =$$

3.0 Fibers per Milliliter > 5µ

Special Conditions: RAINY WEATHER - VALVE AND 1 MANHEAD WERE REMOVED BEFORE
IT BEGAN TO RAIN - 2 MANHEADS REMOVED DURING MISTY RAIN.

Remarks: _____

UCTC 10956

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 216 Date 10-4-71 Time 1:15 PM

Sampled By: C. PERRY Analyzed By: C. PERRY Method: 38C-29X4-R1

General Conditions: (C.P. HALL)

SAWING KAYLO-20 PIPE INSULATION - SOUTH BRIDGE BLOWING
ANY DUST AWAY FROM OPERATOR

FIBER COUNT (Fibers > 5μ in Length)

Slide 1

1	11
2	12
3	13
4	14
5	15
6	16
7	17
8	18
9	19
10	20

Total _____ Avg. _____

Slide 2

1	11
2	12
3	13
4	14
5	15
6	16
7	17
8	18
9	19
10	20

Total _____ Avg. _____

CALCULATIONS

SAMPLE VOLUME: 9.5 Min. @ 1.8 LPM = 17.1 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air-Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(\quad - \quad)(\quad)}{(\quad)(\quad)(1000)} =$$

< 1 Fibers per Milliliter > 5μ

$$2. \frac{(\quad - \quad)(\quad)}{(\quad)(\quad)(1000)} =$$

< 1 Fibers per Milliliter > 5μ

Special Conditions: _____

Remarks: _____

UCTC 10957

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 216 Date 10-4-71 Time 1:45 PM

Sampled By: C. PERRY Analyzed By: C. PERRY Method: 38C-29X9-R1

General Conditions: (C.P. HALL)

SAWING JOHNS-MANVILLE THERMOBESTOS PIPE INSULATION
12" X 1 1/2" ON BAND SAW

FIBER COUNT (Fibers > 5μ in Length)

Slide 1

1	11
2	12
3	13
4	14
5	15
6	16
7	17
8	18
9	19
10	20

Total _____ Avg. _____

Slide 2

1	11
2	12
3	13
4	14
5	15
6	16
7	17
8	18
9	19
10	20

Total _____ Avg. _____

CALCULATIONS

SAMPLE VOLUME: 19 Min. @ 1.8 LPM = 34.2 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(\quad - \quad)(\quad)}{(\quad)(\quad)(1000)} =$$

< 1 Fibers per Milliliter > 5μ

$$2. \frac{(\quad - \quad)(\quad)}{(\quad)(\quad)(1000)} =$$

< 1 Fibers per Milliliter > 5μ

Special Conditions: _____

Remarks: _____

UCTC 10958

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 216 Date 10-4-71 Time 2:15pm

Sampled By: C. PERRY Analyzed By: C. PERRY Method: 38C-29X4-R1

General Conditions: (C.P. HALL)

SAWING JOHNS-MANVILLE PIPE INSULATION - BAND SAW
12" X 1 1/2"

FIBER COUNT (Fibers > 5μ in Length)

Slide 1

1	11
2	12
3	13
4	14
5	15
6	16
7	17
8	18
9	19
10	20

Total _____ Avg. _____

Slide 2

1	11
2	12
3	13
4	14
5	15
6	16
7	17
8	18
9	19
10	20

Total _____ Avg. _____

CALCULATIONS

SAMPLE VOLUME: 12 Min. @ 1.8 LPM = 21.6 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(\quad - \quad)(\quad)}{(\quad)(\quad)(1000)} =$$

< 1 Fibers per Milliliter > 5μ

$$2. \frac{(\quad - \quad)(\quad)}{(\quad)(\quad)(1000)} =$$

< 1 Fibers per Milliliter > 5μ

Special Conditions: _____

Remarks: _____

UCTC 10959

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 216 Date 10-6-71 Time 9⁰⁰AM

Sampled By: C. PERRY Analyzed By: C. PERRY Method: 39C-29X1-R1

General Conditions: (C.P. HALL)

CUTTING KAYLO-10 20" X 1 1/2" ON THE BAND SAW.
SAW BLADE OPENING SLOT WAS COVERED WITH MASKING TAPE FOR SET-UP
PURPOSES DURING PART OF SAMPLING TIME CAUSING A PARTIAL SHUTOFF TO
THE VACUUM BELOW THE SAW BLADE.

FIBER COUNT (Fibers > 5μ in Length)

Slide 1		Slide 2	
1 <u>4</u>	11 <u>5</u>	1 <u>1</u>	11 <u>2</u>
2 <u>1</u>	12 <u>2</u>	2 <u>4</u>	12 <u>4</u>
3 <u>1</u>	13 <u>2</u>	3 <u>1</u>	13 <u>2</u>
4 <u>4</u>	14 <u>1</u>	4 <u>1</u>	14 <u>0</u>
5 <u>5</u>	15 <u>1</u>	5 <u>0</u>	15 <u>1</u>
6 <u>11</u>	16 <u>2</u>	6 <u>1</u>	16 <u>1</u>
7 <u>3</u>	17 <u>1</u>	7 <u>4</u>	17 <u>2</u>
8 <u>2</u>	18 <u>2</u>	8 <u>2</u>	18 <u>4</u>
9 <u>3</u>	19 <u>2</u>	9 <u>9</u>	19 <u>0</u>
10 <u>3</u>	20 <u>3</u>	10 <u>5</u>	20 <u>3</u>
Total <u>58</u>	Avg. <u>2.90</u>	Total <u>47</u>	Avg. <u>2.35</u>

CALCULATIONS

SAMPLE VOLUME: 12 Min. @ 1.8 LPM = 21.6 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(2.90 - 0)(885)}{(0.01496)(21.6)(1000)} =$$

7.9 Fibers per Milliliter > 5μ

$$2. \frac{(2.35 - 0)(885)}{(0.01496)(21.6)(1000)} =$$

6.4 Fibers per Milliliter > 5μ

Special Conditions: _____

Remarks: _____

UCTC 10960

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 216 Date 10-6-71 Time 9:30 AM

Sampled By: C. PERRY Analyzed By: C. PERRY Method: 38C-29X4-R1

General Conditions: (C. P. HALL)

CUTTING KAYLO-10 20" x 1 1/2" USING THE BAND SAW

FIBER COUNT (Fibers > 5μ in Length)

Slide 1		Slide 2	
1 <u>1</u>	11 <u>0</u>	1 <u>1</u>	11 <u>0</u>
2 <u>0</u>	12 <u>0</u>	2 <u>0</u>	12 <u>2</u>
3 <u>0</u>	13 <u>1</u>	3 <u>0</u>	13 <u>0</u>
4 <u>1</u>	14 <u>0</u>	4 <u>8</u>	14 <u>0</u>
5 <u>0</u>	15 <u>0</u>	5 <u>1</u>	15 <u>0</u>
6 <u>1</u>	16 <u>1</u>	6 <u>0</u>	16 <u>0</u>
7 <u>1</u>	17 <u>0</u>	7 <u>0</u>	17 <u>1</u>
8 <u>0</u>	18 <u>0</u>	8 <u>0</u>	18 <u>0</u>
9 <u>0</u>	19 <u>1</u>	9 <u>1</u>	19 <u>0</u>
10 <u>2</u>	20 <u>0</u>	10 <u>0</u>	20 <u>0</u>
Total <u>9</u>	Avg. <u>0.45</u>	Total <u>14</u>	Avg. <u>0.7</u>

CALCULATIONS

SAMPLE VOLUME: 16 Min. @ 1.8 LPM = 28.8 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(0.45 - 0)(885)}{(0.01496)(28.8)(1000)} = 0.9 \text{ Fibers per Milliliter} > 5\mu$$

$$2. \frac{(0.7 - 0)(885)}{(0.01496)(28.8)(1000)} = 1.4 \text{ Fibers per Milliliter} > 5\mu$$

Special Conditions: _____

Remarks: _____

UCTC 10961

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 216 Date 10-6-71 Time 1:50 PM

Sampled By: C. PERRY Analyzed By: C. PERRY Method: 38C-29X1-R1

General Conditions: (C.P. HALL)

CUTTING JOHNS-MANVILLE PIPE INSULATION + BLOCKS 16"-18" x 24"
USING BAND SAW

FIBER COUNT (Fibers > 5μ in Length)

Slide 1		Slide 2	
1	2	1	4
2	0	2	0
3	0	3	0
4	1	4	1
5	2	5	0
6	0	6	0
7	0	7	1
8	1	8	0
9	3	9	0
10	0	10	1
11	0	11	1
12	0	12	0
13	3	13	0
14	0	14	1
15	1	15	1
16	0	16	0
17	0	17	0
18	2	18	0
19	0	19	1
20	0	20	0
Total	15	Total	11
Avg.	0.75	Avg.	0.55

CALCULATIONS

SAMPLE VOLUME: 15 Min. @ 1.8 LPM = 27.0 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air - Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(0.75 - 0)(885)}{(0.01496)(27.0)(1000)} =$$

1.6 Fibers per Milliliter > 5μ

$$2. \frac{(0.55 - 0)(885)}{(0.01496)(27.0)(1000)} =$$

1.2 Fibers per Milliliter > 5μ

Special Conditions: _____

Remarks: _____

UCTC 10962

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 216 Date 10-6-71 Time 2:30 PM

Sampled By: C. PERRY Analyzed By: C. PERRY Method: 38C-29XA-R1

General Conditions: (C. P. HALL)

SAWING JOHNS-MANVILLE PIPE INSULATION USING BAND SAW
SIZES 16" - 18" - 24"

FIBER COUNT (Fibers > 5μ in Length)

Slide 1				Slide 2			
1	<u>3</u>	11	<u>0</u>	1	<u>0</u>	11	<u>0</u>
2	<u>0</u>	12	<u>0</u>	2	<u>0</u>	12	<u>0</u>
3	<u>0</u>	13	<u>0</u>	3	<u>0</u>	13	<u>0</u>
4	<u>0</u>	14	<u>0</u>	4	<u>0</u>	14	<u>0</u>
5	<u>1</u>	15	<u>0</u>	5	<u>0</u>	15	<u>1</u>
6	<u>0</u>	16	<u>0</u>	6	<u>0</u>	16	<u>0</u>
7	<u>0</u>	17	<u>0</u>	7	<u>0</u>	17	<u>0</u>
8	<u>0</u>	18	<u>0</u>	8	<u>1</u>	18	<u>1</u>
9	<u>1</u>	19	<u>1</u>	9	<u>0</u>	19	<u>0</u>
10	<u>0</u>	20	<u>0</u>	10	<u>1</u>	20	<u>0</u>
Total	<u>6</u>	Avg.	<u>0.3</u>	Total	<u>4</u>	Avg.	<u>0.2</u>

CALCULATIONS

SAMPLE VOLUME: 16.25 Min. @ 1.8 LPM = 27.45 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(0.3 - 0)(885)}{(0.01496)(27.45)(1000)} = 0.6 \text{ Fibers per Milliliter} > 5\mu$$

$$2. \frac{(0.2 - 0)(885)}{(0.01496)(27.45)(1000)} = 0.4 \text{ Fibers per Milliliter} > 5\mu$$

Special Conditions: _____

Remarks: _____

UCTC 10963

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 216 Date 10-7-71 Time 8:30 AM

Sampled By: C. PERRY Analyzed By: C. PERRY Method: 58C-29X1-R1

General Conditions: (C. P. HALL)

SAWING KAYLO-10 BLOCKS ON BAND SAW - 4 MIN

" " " " ON TABLE SAW - 11 MIN

FIBER COUNT (Fibers > 5μ in Length)

Slide 1

1	<u>2</u>	11	<u>5</u>
2	<u>2</u>	12	<u>0</u>
3	<u>0</u>	13	<u>1</u>
4	<u>3</u>	14	<u>0</u>
5	<u>2</u>	15	<u>0</u>
6	<u>0</u>	16	<u>1</u>
7	<u>2</u>	17	<u>4</u>
8	<u>0</u>	18	<u>0</u>
9	<u>1</u>	19	<u>0</u>
10	<u>2</u>	20	<u>1</u>

Total 24 Avg. 1.20

Slide 2

1	<u>0</u>	11	<u>0</u>
2	<u>3</u>	12	<u>0</u>
3	<u>0</u>	13	<u>0</u>
4	<u>0</u>	14	<u>1</u>
5	<u>1</u>	15	<u>0</u>
6	<u>0</u>	16	<u>0</u>
7	<u>2</u>	17	<u>1</u>
8	<u>4</u>	18	<u>0</u>
9	<u>0</u>	19	<u>2</u>
10	<u>0</u>	20	<u>0</u>

Total 14 Avg. 0.70

CALCULATIONS

SAMPLE VOLUME: 15 Min. @ 1.8 LPM = 27.0 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(1.20 - 0)(885)}{(0.01496)(27.0)(1000)} =$$

2.6 Fibers per Milliliter > 5μ

$$2. \frac{(0.7 - 0)(885)}{(0.01496)(27.0)(1000)} =$$

1.5 Fibers per Milliliter > 5μ

Special Conditions: _____

Remarks: _____

UCTC 10964

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 216 Date 10-7-71 Time 8:47 AM

Sampled By: C. PERRY Analyzed By: C. PERRY Method: 38C-29X9-R1

General Conditions: (C.P. HALL)

SAWING KAYLO-10 BLOCKS ON TABLE SAW

FIBER COUNT (Fibers > 5μ in Length)

Slide 1	
1	0
2	0
3	5
4	0
5	0
6	0
7	0
8	1
9	0
10	0
11	0
12	0
13	0
14	0
15	2
16	0
17	0
18	0
19	0
20	0

Total 8 Avg. 0.4

Slide 2	
1	0
2	0
3	1
4	0
5	0
6	0
7	0
8	0
9	0
10	3
11	0
12	0
13	0
14	7
15	0
16	0
17	0
18	0
19	0
20	0

Total 11 Avg. 0.55

CALCULATIONS

SAMPLE VOLUME: 8 Min. @ 1.8 LPM = 14.4 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air-Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(0.4 - 0)(885)}{(0.01496)(14.4)(1000)} =$$

1.6 Fibers per Milliliter > 5μ

$$2. \frac{(0.55 - 0)(885)}{(0.01496)(14.4)(1000)} =$$

2.3 Fibers per Milliliter > 5μ

Special Conditions: _____

Remarks: _____