AIRBORNE FIBER COUNTS

for

Georgia Pacific Corporation
Akron, New York

February 26, 1973

Personnel Present: R. Schifferle
Georgia Pacific Corporation

D. E. Furlani
Union Carbide Corporation

B. L. Ingalls
Union Carbide Corporation

Samples Collected & Analyzed By: E. J. Kleber
Union Carbide Corporation

UNION CARBIDE CORPORATION
Mining and Metals Division
Niagara Falls, New York

PLAINTIFF'S EXHIBIT
UC-1407

OBJECTIVES

Monitor airborne asbestos dust in Georgia Pacific's joint plant and during the unloading of a car of asbestos.

SAMPLE LOCATIONS

Tests were conducted January 18, 1973 at Georgia Pacific Corporation, Akron, New York.

The unloading of a car of SG-210 was monitored in the following way: 3 separate samples were taken at the storage bay area, 1 before, 1 during and 1 after placement of pallets. Two samples were taken in the car, 1 prior to and 1 during the actual unloading. The forklift operator was also monitored throughout the entire unloading process.

Samples taken in the joint plant concentrated on two areas, the packer, bagging topping compound and the man actually dumping asbestos into the mix tank.

APPARATUS & PROCEDURE

Sampling and dust counting were carried out in accordance with OSHA Regulation 1910.93a, using the Bayer, Zummalde and Brown method for counting asbestos fibers by phase contrast microscopy (Bureau of Occupational Safety and Health, February 1969).

Battery powered air pumps (M.S.A. type) calibrated to 2 liters per minute were used to collect personal breathing zone and environmental samples on Millipore membrane filters of 0.8 micron porosity.

Fiber counting was performed on a Vickers Phase Contrast Microscope at 400X utilizing a Porton Reticle for sizing and field definition.

TEST RESULTS

The figures reported are expressed in fibers, greater than 5 microns in length, per cubic centimeter of air sampled.

INTERPRETATION

The OSHA Regulations have been established with a limit of 5 fibers, greater than 5 microns in length, per cubic centimeter on a time weighted average (TWA). The formula $\frac{C\ T + C\ T + C\ T}{\Sigma\ T}$ describes TWA where C=fiber count in fibers/cc and T=time. For example, if the operator in sample 1929-86-8 dumped asbestos 10 times per day at two minutes per dump and the rest of the day he was exposed as in sample 1929-86-9 his TWA would be $\frac{(10)(2)(5.6)+(460)(1.3)}{480} = \frac{112+598}{480}$ = 1.5 fibers/cc, 8-hour TWA.

SUMMARY OF FIBER COUNTS

N.B. No.	Field No.	Description	Fibers/cc >5
		I) CAR UNLOADING	
1929-86-1	116	Environmental (27 min.) - Stocking bay storage area for SG-210. 5-1/2 feet above floor - before car unloading	0.2
1929-86-2	56	Environmental (13 min.) - In car monitoring air immediately after door is opened and prior to unloading. 2 feet above floor just inside door	0.3
1929-86-3	103	Personal (62 min.) - Fork lift operator unloading car. Takes pallets from car and places in storage area, about 50 feet from car	6.3
1929-86-4	31	Environmental (47 min.) - Same as 1929-86-1 during placement of pallets	5.6
1929-86-5	138	Environmental (45 min.) - In center of car 8 feet above floor during unloading	10.6
1929-86-6	90	Environmental (56 min.) - Same as 1929-86-4 after completion of pallet placement	0.8
1929-86-7	52	Personal (85 min.) - Packer on bagging machine, bagging topping compound	4.0
1929-86-8	145	Personal (2 min.) - Operator dumping 2 bags Canadian 7RF9 into raw materials mixer for topping compound	5.6
1929-86-9	95	Personal (63 min.) - Operator after dump cleaning, preparing other mixes, etc.	1.3

THRESHOLD LIMIT VALUE FOR ASBESTOS FIBERS[1]

AIRBORNE ASBESTOS

1910.93a Asbestos.

(a) Definitions. For the purpose of this section, (1) "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(2) "Asbestos fibers" means asbestos fibers longer than 5 micrometers.

(b) Permissible exposure to airborne concentrations of asbestos fibers - (1) Standard effective July 7, 1972. The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(3) Ceiling concentration. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centrimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(e) Method of measurement. All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400-450 x (Magnification) (4 millimeter objective) with phase contrast illumination.

[1] Source: Federal Register, Vol. 37, No. 110 - Wednesday, June 7, 1972.

52
SAMPLE

DATE

INST.

2 l/m
FLOW RATE

BLANK

85.0 min
TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: Packer at Bagging machine – Bagging Topping Cmpd.

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

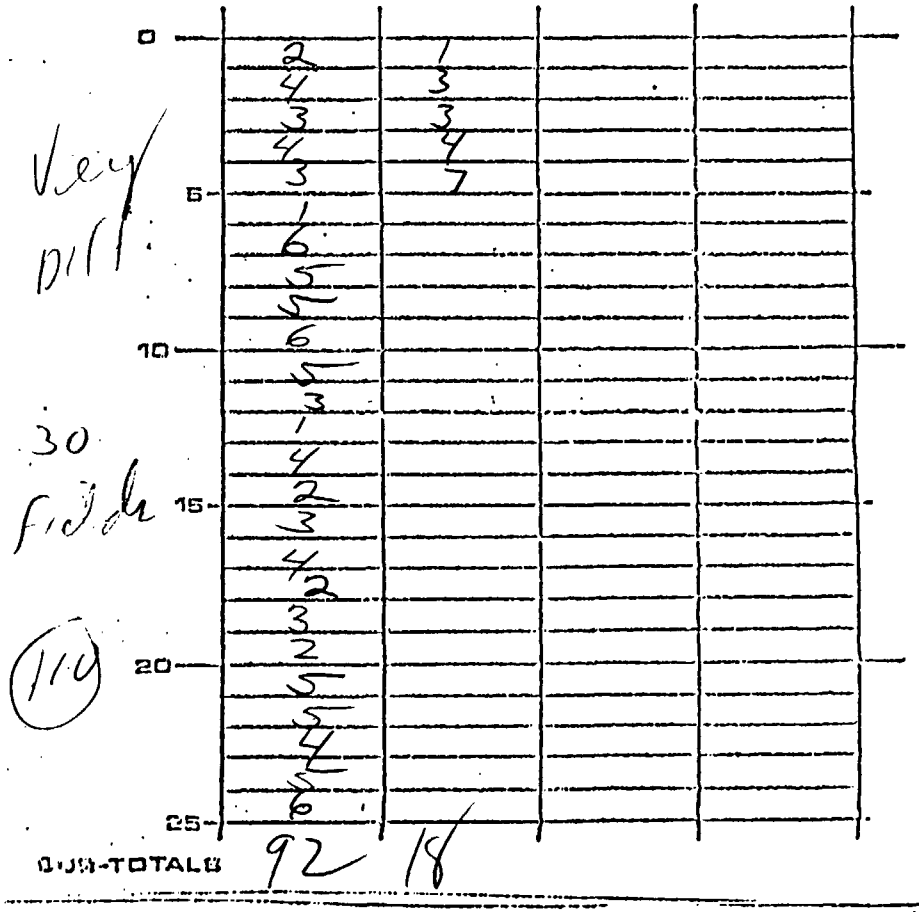
SAMPLE# OPERATION

FLOW TIME VOLUME DATE

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 3.67 CONCENTRATION 4.0

COMMENTS:



145

SAMPLE

DATE

INST.

2 l/m

FLOW RATE

BLANK

2 m

TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: Dumping 2 Bags

7 R F 9

DESCRIPTION OF CONTROLS:

BESTOS COUNT RECORD SHEET

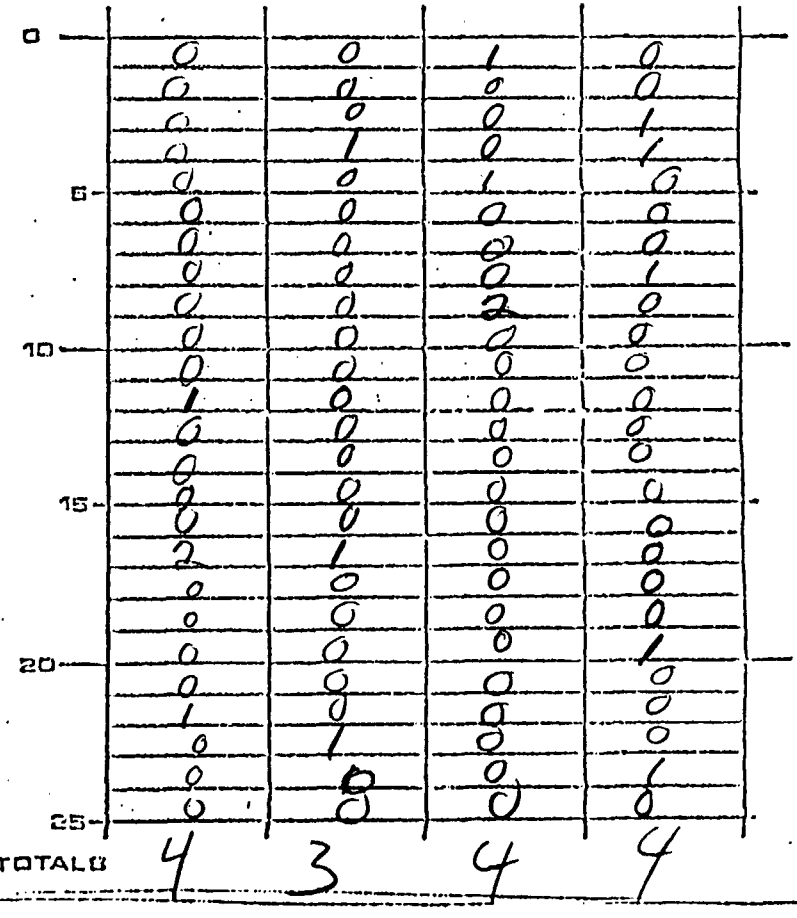
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE _____

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT .12 CONCENTRATION 5.6

COMMENTS:



0	0	0	1	0
	0	0	0	0
	0	0	0	1
	0	1	0	1
5	0	0	1	0
	0	0	0	0
	0	0	0	0
	0	0	0	1
	0	0	2	0
10	0	0	0	0
	0	0	0	0
	1	0	0	0
	0	0	0	0
	0	0	0	0
15	0	0	0	0
	0	0	0	0
	2	1	0	0
	0	0	0	0
	0	0	0	0
20	0	0	0	1
	0	0	0	0
	1	0	0	0
	0	1	0	0
	0	0	0	1
25	0	0	0	0
SUB-TOTALS	4	3	4	4

#116
SAMPLE

1/18/73
DATE

~~2~~
INST.

2 l/m
FLOW RATE

BLANK

27.0 min
TOTAL TIME

54.0 l
TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: STAGE - AREA
Before unloading

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

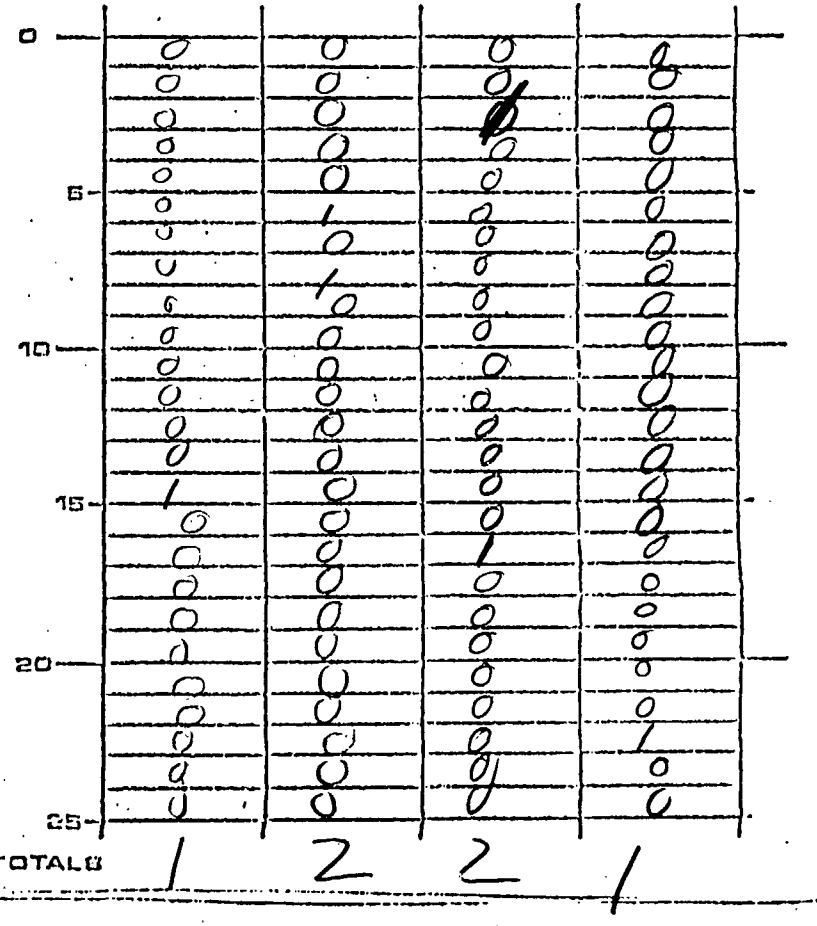
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE _____

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT .06 CONCENTRATION 0.2

COMMENTS:



95
SAMPLE

DATE

INST.

2 l/m
FLOW RATE

BLANK

63 min
TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: Operator after dump

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 1.85 CONCENTRATION 1.3

COMMENTS:

0	4	1	1	2
	2	0	1	0
	1	2	1	1
	0	0	0	1
5	1	0	0	1
	0	1	0	1
	1	1	1	1
	0	3	3	0
	0	2	0	1
10	1	0	2	0
	2	3	1	1
	0	1	2	0
	0	1	0	1
	1	1	1	1
15	0	2	0	2
	0	0	0	0
	0	1	2	0
	2	0	0	1
	0	0	1	1
20	0	0	0	0
	2	0	1	0
	0	2	1	0
	0	1	2	0
	1	2	0	2
25	1	1	1	2
SUB-TOTALS	19	25	21	20

#103
SAMPLE

DATE

2l
INST. FLOW RATE

BLANK

62
TOTAL TIME

124
TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: fork lift Operator

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

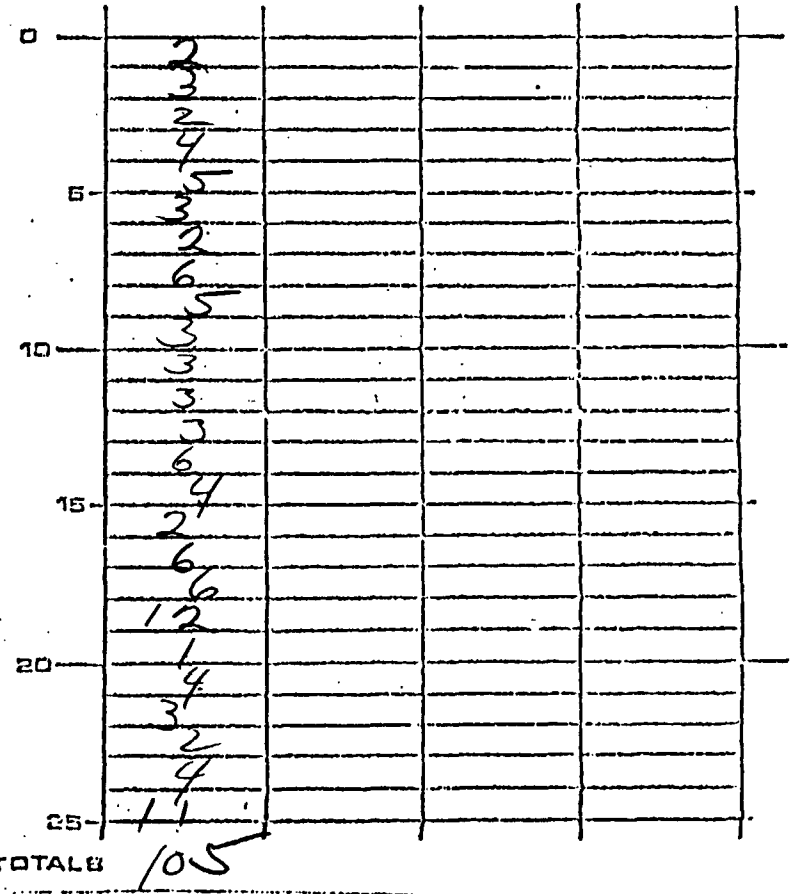
SAMPLE# OPERATION

FLOW TIME VOLUME DATE

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 4.2 CONCENTRATION 6.3

COMMENTS:



31
SAMPLE

DATE

INST.

2l
FLOW RATE

BLANK

47
TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: Stocking are Dirty unloading

DESCRIPTION OF CONTROLS:

BESTOS COUNT RECORD SHEET

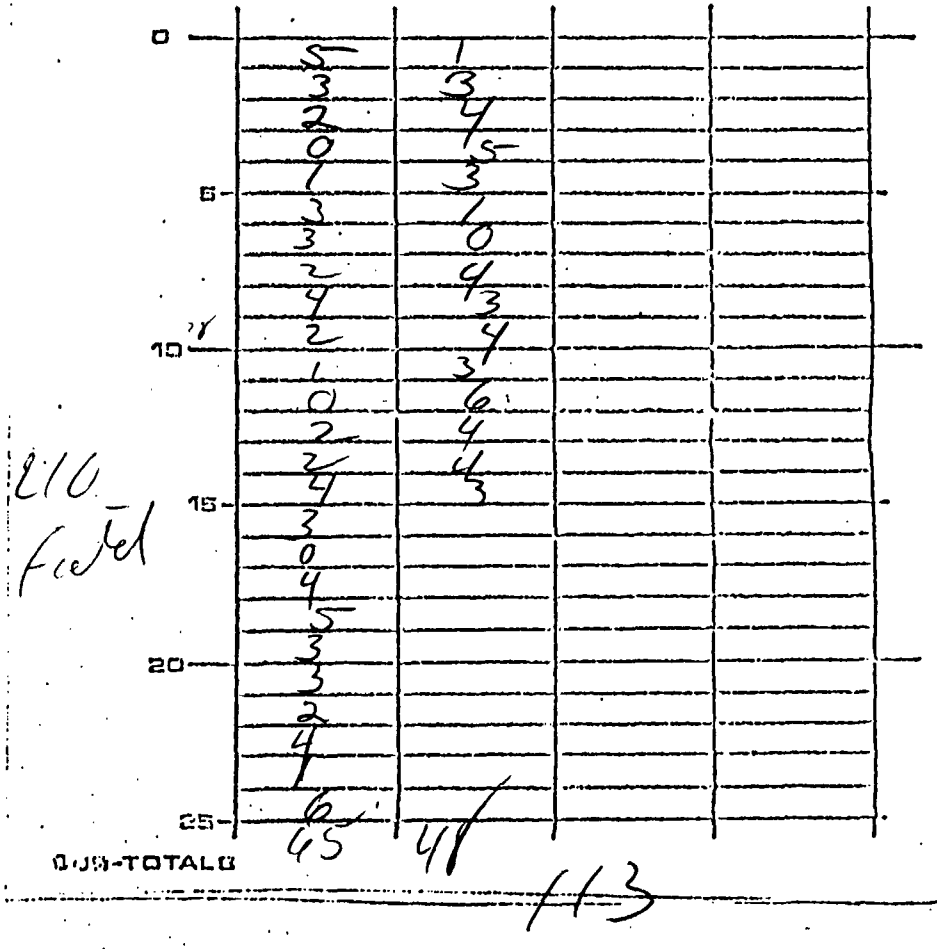
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE _____

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 2.83 CONCENTRATION 5.6

COMMENTS:



0	5	1		
	3	3		
	2	4		
	0	5		
5	1	3		
	3	1		
	3	0		
	2	4		
	4	3		
10	2	4		
	1	3		
	0	6		
	2	4		
	2	4		
15	4	3		
	3			
	0			
	4			
	5			
20	3			
	3			
	2			
	4			
	1			
25	6			
	45	48		

210 Field

SUB-TOTALS

113

90
SAMPLE

DATE

INST.

2 1/4
FLOW RATE

BLANK

56.0
TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: Stocking area after completion of Storage

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

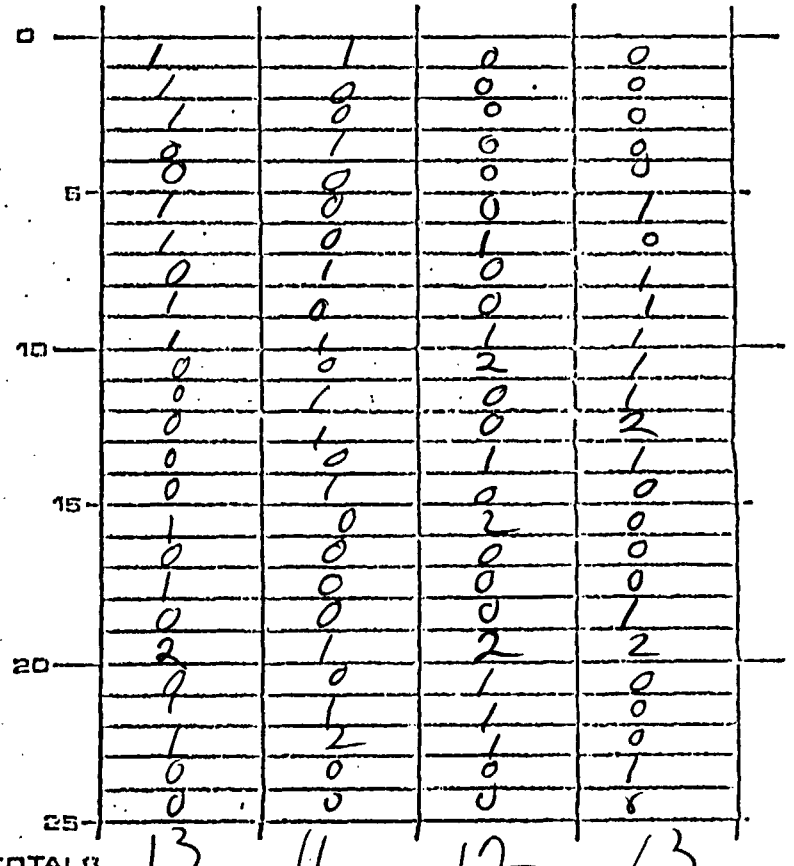
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE /

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 4.9 CONCENTRATION 0.8

COMMENTS:



56
SAMPLE

DATE

INST.

2
FLOW RATE

BLANK

13.0 min.
TOTAL TIME

26.0 l
TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: 1st Car Before unloading

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

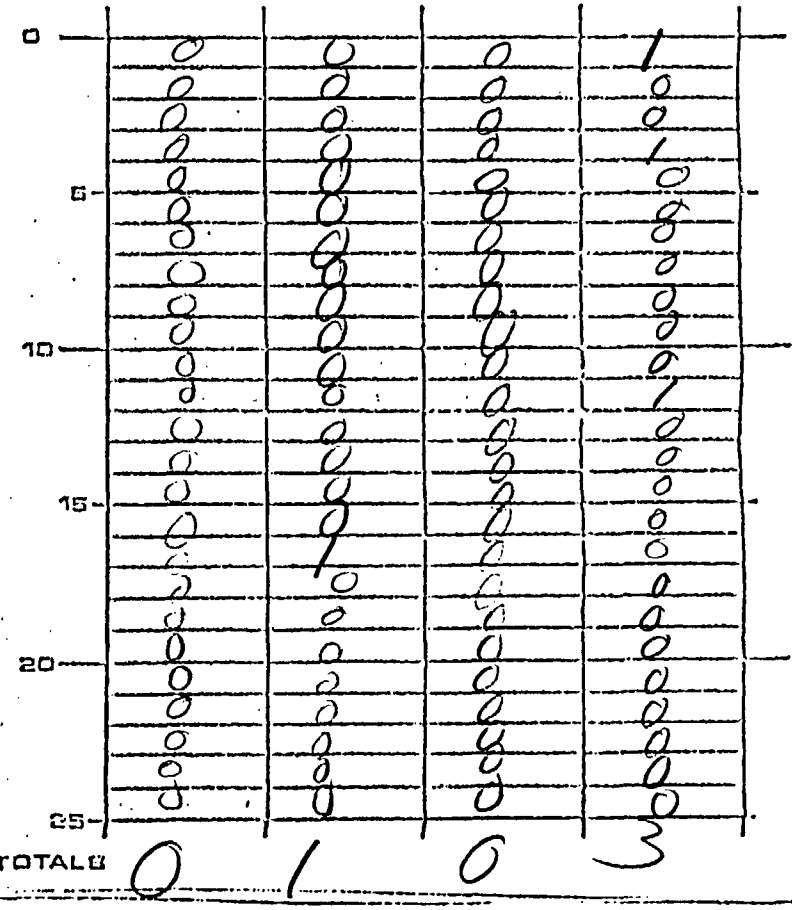
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA .0046 BLK.CNT.AV. _____

AV.COUNT .04 CONCENTRATION 0.3

COMMENTS:



138 F

SAMPLE

DATE

INST.

2 l/m

FLOW RATE

BLANK

45.0

TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: in car 8 FT Above floor Driving unloading

DESCRIPTION OF CONTROLS:

BESTOS COUNT RECORD SHEET

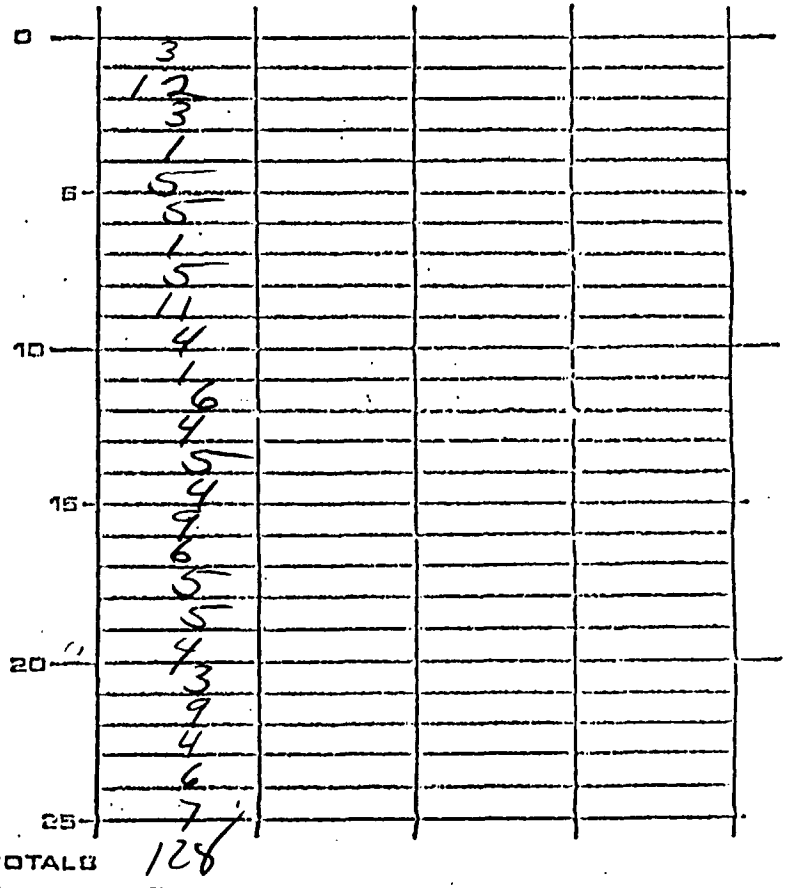
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 5.12 CONCENTRATION 10.6

COMMENTS:



0	3			
	12			
	3			
	1			
5	5			
	5			
	1			
	5			
	11			
10	4			
	1			
	6			
	4			
	5			
15	4			
	9			
	6			
	5			
	5			
20	4			
	3			
	9			
	4			
	6			
25	7			

SUB-TOTALS 128

~~D.E. Furlani~~

D J KLEBER
RFD
BLDG #94

Niagara Falls, New York, January 26, 1973

REPORT NO. 73-T-7

935-1093

UNION CARBIDE CORPORATION
MINING AND METALS DIVISION
ENGINEERING DEPARTMENT

TRIP TO:	Georgia-Pacific Company Akron, New York
DATE:	January 18, 1973
PURPOSE:	Inspect Rail Shipment of Shrink-Wrapped Asbestos Pallets
BY:	D.E. Furlani
WITNESSED BY:	D.E. Furlani B.L. Ingalls D.J. Kleber

A shipment of palletized asbestos SG-210 was shipped from King City by rail in a boxcar and arrived at the Georgia-Pacific plant in Akron, New York on January 17, 1973. Two of the pallets had been shrink-wrapped to determine the feasibility of using a shrink-wrapped polyethylene film as a method of packing our asbestos. There was some concern regarding the visibility of asbestos leakage from the bags and the physical stability of the pallet. The pallets were prepared at King City using a hand-held heater to effect the shrink wrapping.

A description of the pallets, as received, follows. The pallets are arbitrarily referred to as 1 or 2 for identification purposes. Pictures were taken of the pallets and prints forwarded to John Myers and Larry Larrison.

Pallet No. 1 - All spouts taped, no glue used to hold array,

(a) - Physical stability excellent - no shifting of bags noted.

(b) - Very clean - only asbestos dust visible was from an improperly taped spout.

(c) - No rips or tears in plastic noted.

(d) - No puffing noted from taped spouts or bag airhole perforations when bag was struck.

(e) - Overall this was the cleaner pallet.

Pallet No. 2 - Spouts Untaped, Bags Unglued

(a) - Physical stability excellent.

(b) - Very clean on side where spouts were unexposed, fair amount of leakage evident on opposite side where spouts were adjacent to plastic film.

(c) - No rips or tears in plastic noted.

(d) - Hitting spouts caused asbestos to puff from bags.

The condition of pallets Nos. 1 and 2 as listed above was as noted in the boxcar and also as noted after transfer to the warehouse. In general, both shrink-wrapped pallets were in even better shape overall than equivalently wrapped pallets which had been shipped to Niagara Falls by truck(1). This is probably because this shipment experienced less handling. Sweepout of the empty boxcar yielded 16 pounds, or about half a bag, of asbestos powder.

Dennis E. Furlani

DEFURLANI:vrs

cc: Messrs. R.E. Byrne
J.F. Emerson/A.C. Sada
*F.H. Larrison/R.O. Marsten
*J.L. Myers
W.G. Piper
H.B. Rhodes
J.A. Riddle
R.J. Klotzbach

*(Pictures attached)

(1) Memo to Mr. R.J. Klotzbach from O.J. Malacarne, January 16, 1973

Calidria ASBESTOS

cc for T. P. Norris
W. C. Thurber
J. E. Walsh
KC-File
NF-File
E. J. Kleber ✓

UNION CARBIDE CORPORATION
P.O. Box 579 Niagara Falls, N.Y. 14302

By B. L. Ingalls

Date 6/11/73

Full Name	Georgia-Pacific Corp. Bestwall Gypsum Div.	Interviewed	
Address	Bloomingdale Road Akron, NY	John Rauch, Plant Mgr. (Telecon)	
Mfrs. of			

Called subject to determine if they were aware of the April EPA regulations regarding asbestos. Mr. Rauch said that he was not aware of these regulations and was most appreciative of my taking the opportunity of informing him of their existence. I pointed out that our legal department had not as yet clarified the fine points of the regulations; however, it would be to their (G-P) advantage to familiarize themselves with the regulations as soon as possible in order to assure they were in compliance. John said he would attend to this as soon as possible.

I asked John if he had heard anything from OSHA regarding the most recent inspection of their plant and he said he had just heard from them by letter this week. There was no specifics in the letter except to say that the Akron plant had been found to be in violation on 9 accounts regarding asbestos use; 2 serious and 7 nonserious. They are being penalized with fines totaling $3,000. John said that the letter lends no information as to the nature of the violations and they (G-P) had not decided as yet whether to "fight it" until they have some specific information.

RECOMMENDED ACTION

BLI Follow up within a couple of weeks.

Typed 6/11/73
cjb

REPORT OF CALL

cc for O. J. Malacarne/V. D. Holt
T. P. Norris
W. C. Thurber
KC - File
NF - File

UNION CARBIDE CORPORATION
P.O. Box 579 Niagara Falls, N.Y. 14302

By J. L. Myers with
E. J. Kleber
Date July 17, 1973

Full Name Georgia-Pacific Corporation Address Akron, NY Mfrs. of Tel. 542-5431	Interviewed W. Nalbone, Chemist J. D. Rauch, Plant Manager John DiLorenzo, Chief Eng.(Corporate from Portland, OR) Earl Harvey, Consulting Engineer

I visited the plant to discuss their recent OSHA citation and problems with compliance. This was done at the request of Mr. DiLorenzo. Ed Kleber accompanied me and obtained several dust samples at Mr. Rauch's request.

Georgia-Pacific was cited for several asbestos violations and was fined $3000. They have until July 27 to present a plan and timetable to reach compliance. They wanted to review our knowledge of the standards, our dust counting experience, and our plant compliance status.

I left with them our drawing numbers 241-344 and 241-345 depicting our bagging enclosure arrangement. We discussed this operation and I have alerted F. H. Larrison that Mr. DiLorenzo may visit our plant in the near future. I left samples of SG-200X and RG-100 for their lab evaluation and a sample of SG-200X has been sent to E. O'Neill at their Tigard R&D center. We briefly discussed bulk handling and the economics of pellets in bags or bulk but they cannot solve their immediate problem with pellets.

I discussed T-135-O for spray textures with Nalbone; and, although they are trying to remove asbestos, he seemed interested and a sample will be sent. He said he had not heard of T-135-O before.

Mr. Harvey is familiar with several of our engineering personnel and may contact O. J. Malacarn to discuss our dust control equipment. He has apparently designed a system which Georgia-Pacific is "going with" for OSHA.

Ed obtained samples during ready-mix preparation. They are expecting another OSHA inspection on July 30 and wanted data on this operation. We advised Mr. Rauch that a car containing six test pallets (tuck-in sleeves with shrink-film) of SG-210 would be sent to them later

this month. We observed several different dusty products packaged with tuck-in sleeves, including Carey 7RF9, and all of the sleeves were filled with material and "dribbling." The OSHA dust warning is in small print (same as bag manufacturer's data) on the back of Carey's bags - definitely not prominent.

ACTION

B. L. Ingalls — Follow-up with Nalbone on T-135-0 and pellet samples. Advise Rauch when car with test pallets leaves King City, arrange for inspection and dust sampling during unloading at Akron.

O. J. Malacarne/F. H. Larrison — Be prepared for visits and/or calls.

E. J. Kleber — Report dust sample results.

J. L. Myers — Prepare comments on their citation and distribute as appropriate.

Typed 7/18/73
/ds

this month. We observed several different dusty products packaged with tuck-in sleeves, including Carey 7RF9, and all of the sleeves were filled with material and "dribbling." The OSHA dust warning is in small print (same as bag manufacturer's data) on the back of Carey's bags - definitely not prominent.

ACTION

B. L. Ingalls — Follow-up with Nalbone on T-135-0 and pellet samples. Advise Rauch when car with test pallets leaves King City, arrange for inspection and dust sampling during unloading at Akron.

O. J. Malacarne/F. H. Larrison — Be prepared for visits and/or calls.

E. J. Kleber — Report dust sample results.

J. L. Myers — Prepare comments on their citation and distribute as appropriate.

Typed 7/18/73
/ds

OBJECTIVES

Monitor airborne asbestos dust in Georgia Pacific's joint plant and during the unloading of a car of asbestos.

SAMPLE LOCATIONS

Tests were conducted January 18, 1973 at Georgia Pacific Corporation, Akron, New York.

The unloading of a car of SG-210 was monitored in the following way: 3 separate samples were taken at the storage bay area, 1 before, 1 during and 1 after placement of pallets. Two samples were taken in the car, 1 prior to and 1 during the actual unloading. The forklift operator was also monitored throughout the entire unloading process.

Samples taken in the joint plant concentrated on two areas, the packer, bagging topping compound and the man actually dumping asbestos into the mix tank.

APPARATUS & PROCEDURE

Sampling and dust counting were carried out in accordance with OSHA Regulation 1910.93a, using the Bayer, Zummalde and Brown method for counting asbestos fibers by phase contrast microscopy (Bureau of Occupational Safety and Health, February 1969).

Battery powered air pumps (M.S.A. type) calibrated to 2 liters per minute were used to collect personal breathing zone and environmental samples on Millipore membrane filters of 0.8 micron porosity.

Fiber counting was performed on a Vickers Phase Contrast Microscope at 400X utilizing a Porton Reticle for sizing and field definition.

TEST RESULTS

The figures reported are expressed in fibers, greater than 5 microns in length, per cubic centimeter of air sampled.

INTERPRETATION

The OSHA Regulations have been established with a limit of 5 fibers, greater than 5 microns in length, per cubic centimeter on a time weighted average (TWA). The formula $\frac{C\ T + C\ T + C\ T}{\Sigma\ T}$ describes TWA where C=fiber count in fibers/cc and T=time. For example, if the operator in sample 1929-86-8 dumped asbestos 10 times per day at two minutes per dump and the rest of the day he was exposed as in sample 1929-86-9 his TWA would be $\frac{(10)(2)(5.6)+(460)(1.3)}{480} = \frac{112+598}{480} = 1.5$ fibers/cc, 8-hour TWA.

SUMMARY OF FIBER COUNTS

N.B. No.	Field No.	Description	Fibers/cc >5
		1) CAR UNLOADING	
1929-86-1	116	Environmental (27 min.) - Stocking bay storage area for SG-210. 5-1/2 feet above floor - before car unloading	0.2
1929-86-2	56	Environmental (13 min.) - In car monitoring air immediately after door is opened and prior to unloading. 2 feet above floor just inside door	0.3
1929-86-3	103	Personal (62 min.) - Fork lift operator unloading car. Takes pallets from car and places in storage area, about 50 feet from car	6.3
1929-86-4	31	Environmental (47 min.) - Same as 1929-86-1 during placement of pallets	5.6
1929-86-5	138	Environmental (45 min.) - In center of car 8 feet above floor during unloading	10.6
1929-86-6	90	Environmental (56 min.) - Same as 1929-86-4 after completion of pallet placement	0.8
1929-86-7	52	Personal (85 min.) - Packer on bagging machine, bagging topping compound	4.0
1929-86-8	145	Personal (2 min.) - Operator dumping 2 bags Canadian 7RF9 into raw materials mixer for topping compound	5.6
1929-86-9	95	Personal (63 min.) - Operator after dump cleaning, preparing other mixes, etc.	1.3

THRESHOLD LIMIT VALUE FOR ASBESTOS FIBERS[1]

AIRBORNE ASBESTOS

1910.93a Asbestos.

(a) Definitions. For the purpose of this section, (1) "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(2) "Asbestos fibers" means asbestos fibers longer than 5 micrometers.

(b) Permissible exposure to airborne concentrations of asbestos fibers - (1) Standard effective July 7, 1972. The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(3) Ceiling concentration. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centrimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(e) Method of measurement. All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400-450 x (Magnification) (4 millimeter objective) with phase contrast illumination.

[1] Source: Federal Register, Vol. 37, No. 110 - Wednesday, June 7, 1972.

52
SAMPLE

DATE

INST.

2 l/m
FLOW RATE

BLANK

85.0 min
TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: Pack at Bagging Machine - Bagging Topping Cmpn.

DESCRIPTION OF CONTROLS:

BESTOS COUNT RECORD SHEET

SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

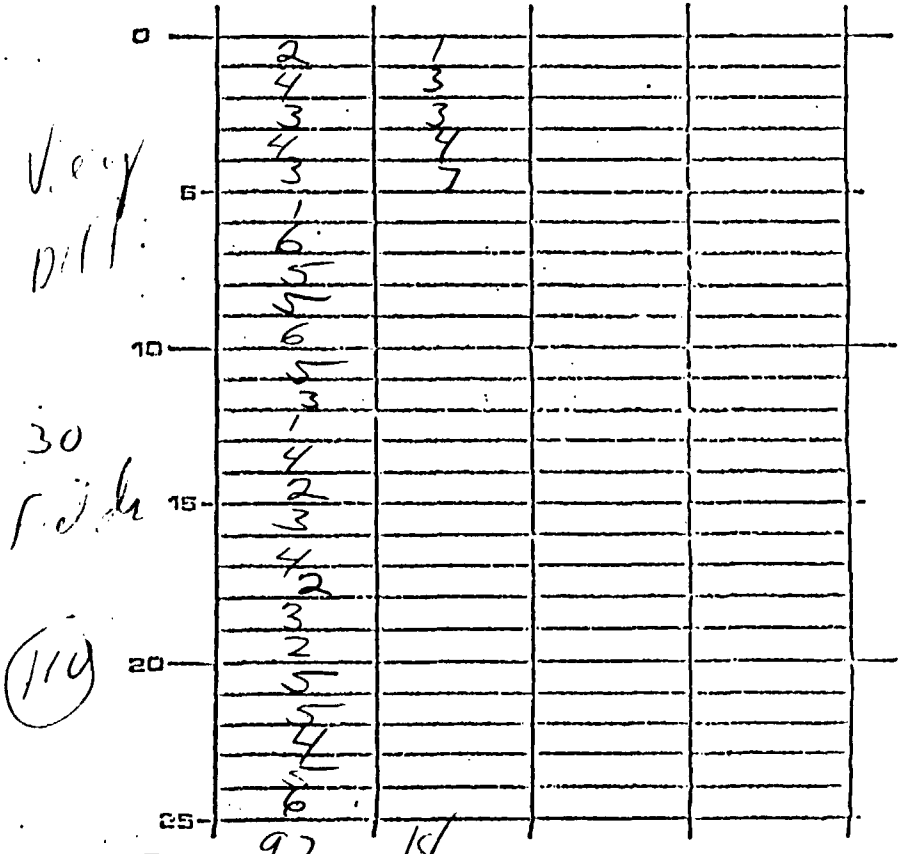
INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 3.67 CONCENTRATION 4.0

COMMENTS:

0	2	1			
	4	3			
	3	3			
	4	4			
	3	7			
5	1				
	6				
	5				
	5				
	6				
10	5				
	3				
	1				
	4				
	2				
15	3				
	4				
	2				
	3				
	2				
20	5				
	5				
	4				
	5				
	6				
25					
SUB-TOTALS	92	18			

Very dill.



30 fields

110

145

SAMPLE

DATE

INST.

2 l/m

FLOW RATE

BLANK

2 m

TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: Dumping 2 Bags 7 RF 4

DESCRIPTION OF CONTROLS:

BESTOS COUNT RECORD SHEET

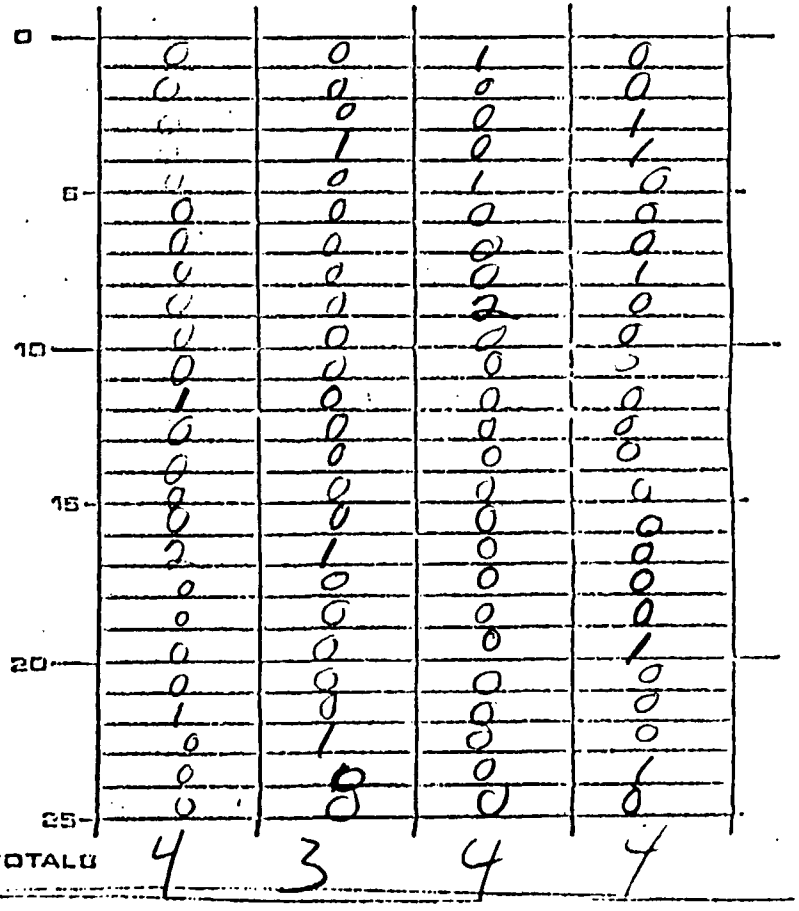
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT .12 CONCENTRATION 5.6

COMMENTS:



0	0	0	1	0
	0	0	0	0
	0	0	0	1
	0	1	0	1
5	0	0	1	0
	0	0	0	0
	0	0	0	0
	0	0	0	1
	0	0	2	0
10	0	0	0	0
	0	0	0	0
	1	0	0	0
	0	0	0	0
	0	0	0	0
15	0	0	0	0
	0	0	0	0
	2	1	0	0
	0	0	0	0
	0	0	0	0
20	0	0	0	1
	0	0	0	0
	1	0	0	0
	0	1	0	0
	0	0	0	1
25	0	0	0	0
SUB-TOTALS	4	3	4	4

#116
SAMPLE

11/8/73
DATE

~~29~~
INST.

2 l/m
FLOW RATE

BLANK

27.0 min
TOTAL TIME

54.0 l
TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: STOPE AREA
Before unloading

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

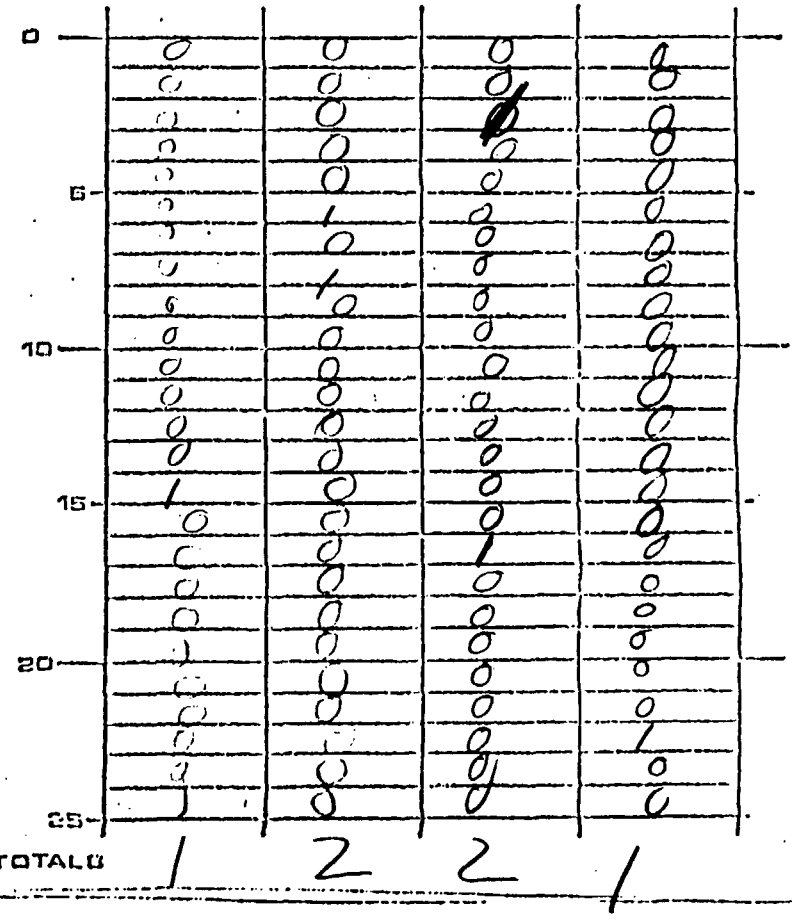
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT .06 CONCENTRATION 0.2

COMMENTS:



95
SAMPLE

DATE

INST.

2 l/m
FLOW RATE

BLANK

63 min
TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: Operator after Samp

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

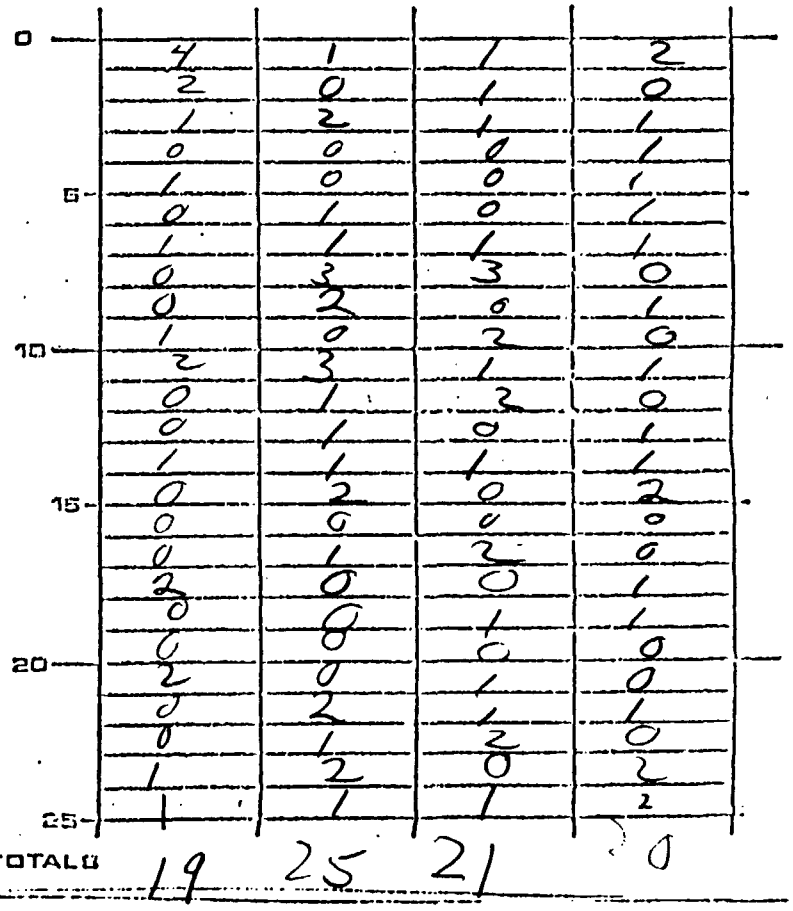
SAMPLE# OPERATION

FLOW TIME VOLUME DATE

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT 1.85 CONCENTRATION 1.3

COMMENTS:



#103
SAMPLE

DATE

INST.

2l
FLOW RATE

BLANK

62
TOTAL TIME

124
TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: fork lift Operator

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

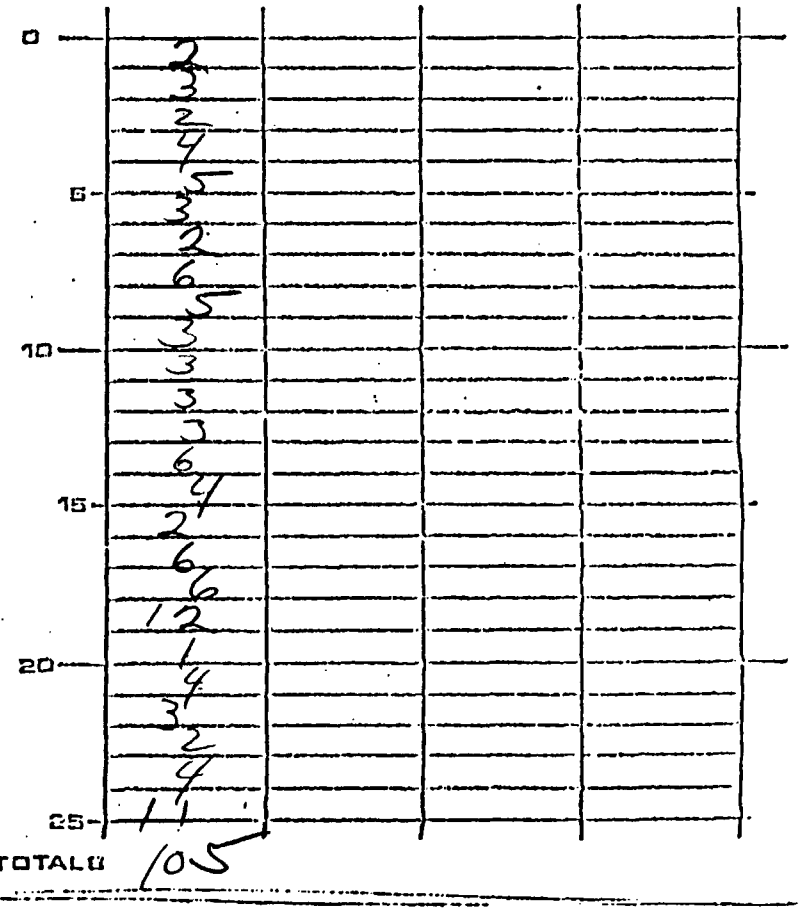
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 4/2 CONCENTRATION 6.3

COMMENTS:



31
SAMPLE

DATE

INST.

2 l
FLOW RATE

BLANK

47
TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: Stocking are Dairy unloading

DESCRIPTION OF CONTROLS:

BESTOS COUNT RECORD SHEET

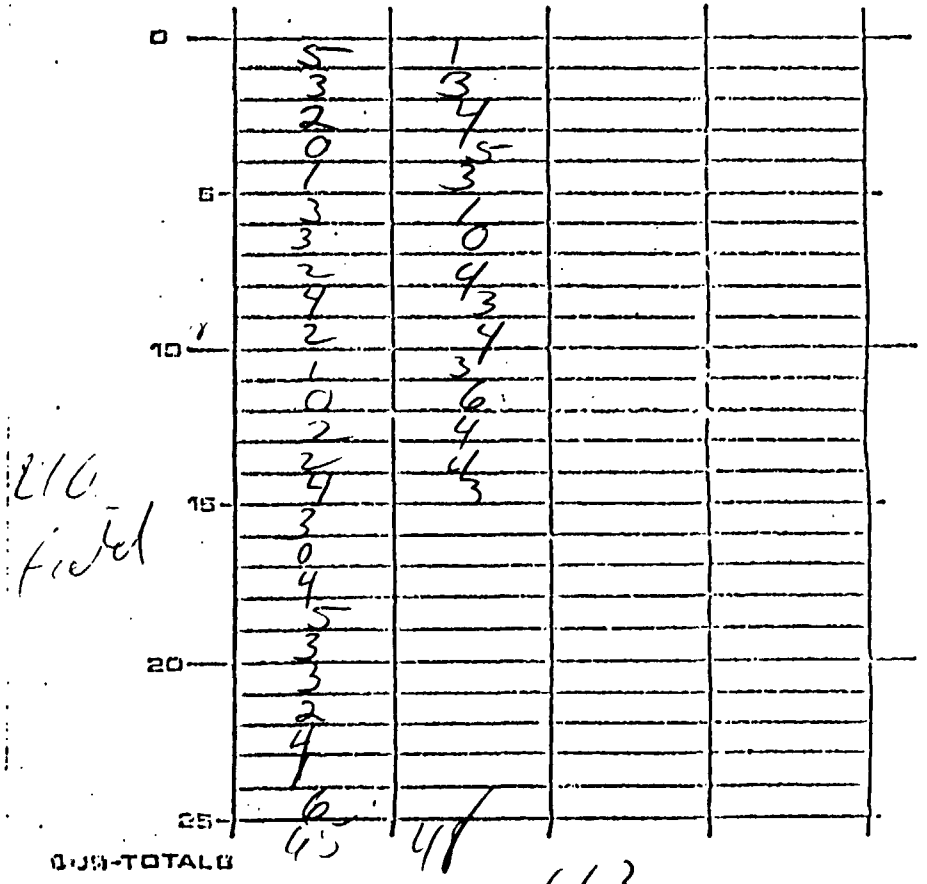
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 2.83 CONCENTRATION 5.6

COMMENTS:



0	5	1		
	3	3		
	2	4		
	0	5		
5	1	3		
	3	1		
	3	0		
	2	4		
	4	3		
10	2	4		
	1	3		
	0	6		
	2	4		
	2	4		
15	4	3		
	3			
	0			
	4			
	5			
20	3			
	3			
	2			
	4			
	1			
25	6			
SUB-TOTALS	45	48		

210 field

113

90
SAMPLE

DATE

INST.

2 1/4
FLOW RATE

BLANK

54.0
TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: Re Stocking and after completion of Storage

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

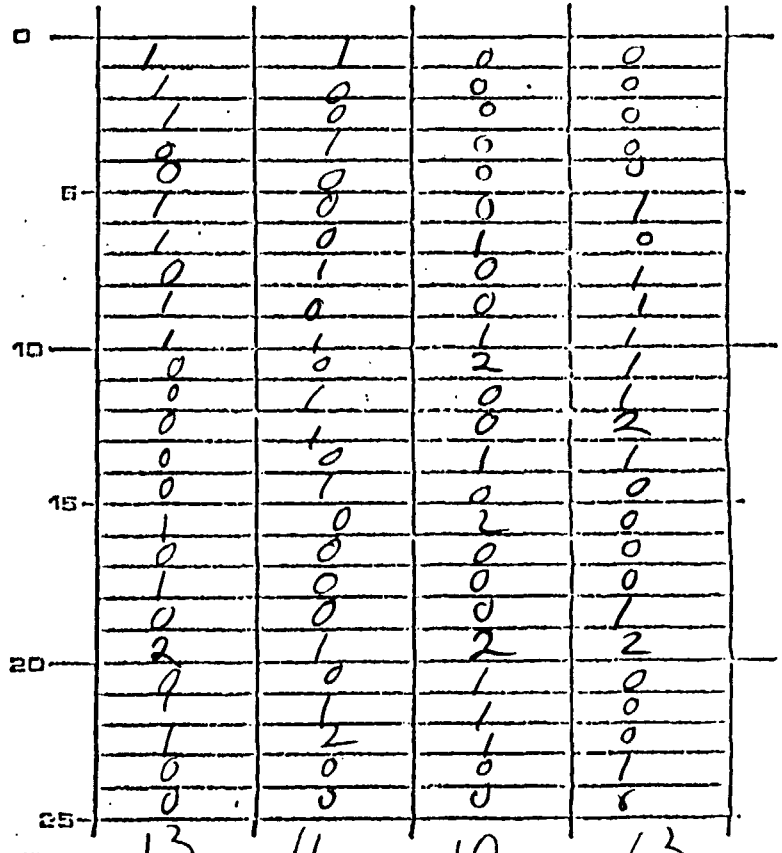
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT .49 CONCENTRATION 0.8

COMMENTS:



56
SAMPLE

DATE

INST.

2
FLOW RATE

BLANK

13.0 min
TOTAL TIME

26.0 l
TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: 100 Can Before unloading

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

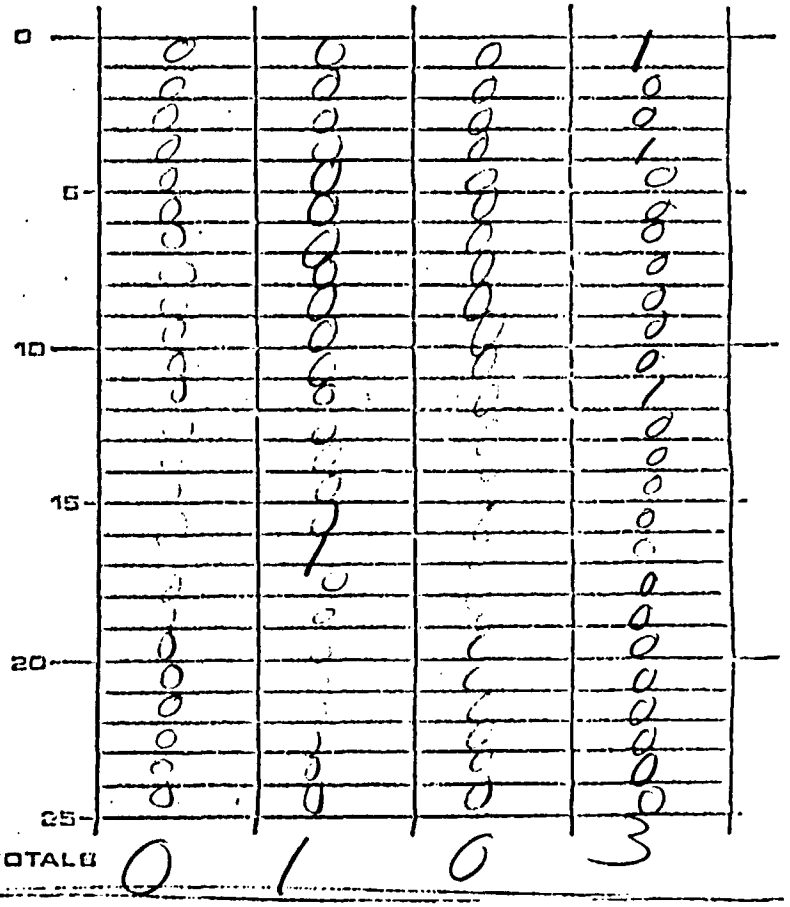
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA .0476 BLK.CNT.AV. _____

AV.COUNT .04 CONCENTRATION 0.3

COMMENTS:



138 F

SAMPLE

DATE

INST.

2 l/m

FLOW RATE

BLANK

45.0

TOTAL TIME

TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION: in car 8 FT Above floor Driving wloody

DESCRIPTION OF CONTROLS:

BESTOS COUNT RECORD SHEET

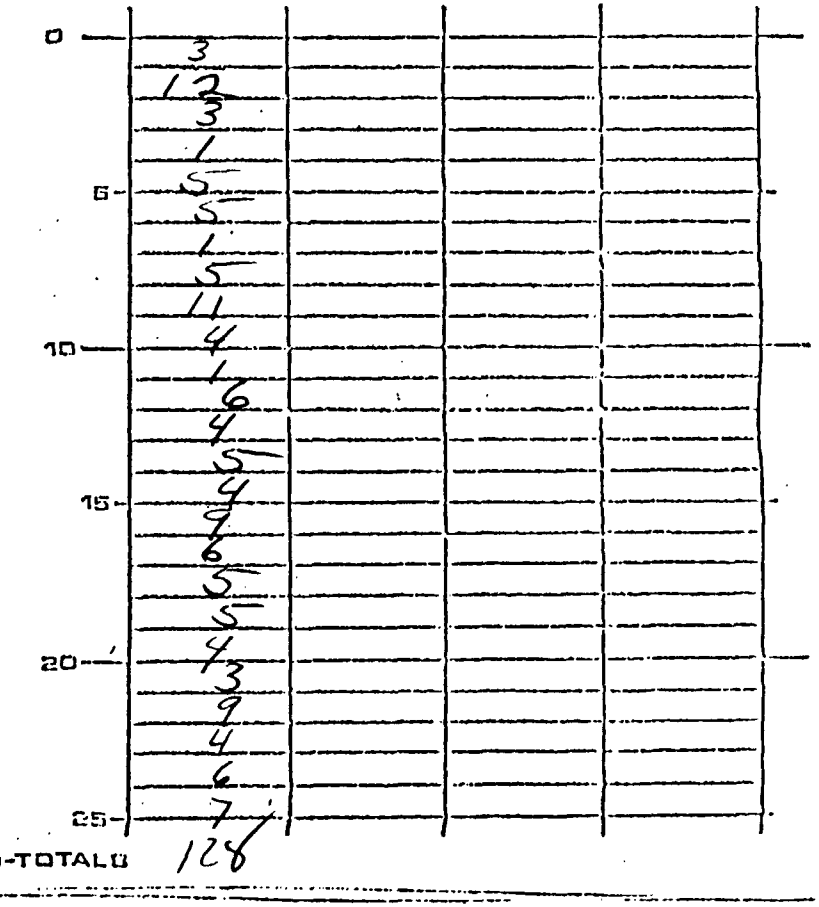
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 5.12 CONCENTRATION 10.6

COMMENTS:



0	3			
	12			
	3			
	1			
5	5			
	5			
	1			
	5			
	11			
10	4			
	1			
	6			
	4			
	5			
15	4			
	9			
	6			
	5			
	5			
20	4			
	3			
	9			
	4			
	6			
25	7			

SUB-TOTALS 128

~~D.E. Furlani~~

D J KLEBER
RFD
BLOC # 94

Niagara Falls, New York, January 25, 1973

REPORT NO. 73-T-7

935-1093

UNION CARBIDE CORPORATION
MINING AND METALS DIVISION
ENGINEERING DEPARTMENT

TRIP TO:	Georgia-Pacific Company Akron, New York
DATE:	January 18, 1973
PURPOSE:	Inspect Rail Shipment of Shrink-Wrapped Asbestos Pallets
BY:	D.E. Furlani
WITNESSED BY:	D.E. Furlani B.L. Ingalls D.J. Kleber

A shipment of palletized asbestos SG-210 was shipped from King City by rail in a boxcar and arrived at the Georgia-Pacific plant in Akron, New York on January 17, 1973. Two of the pallets had been shrink-wrapped to determine the feasibility of using a shrink-wrapped polyethylene film as a method of packing our asbestos. There was some concern regarding the visibility of asbestos leakage from the bags and the physical stability of the pallet. The pallets were prepared at King City using a hand-held heater to effect the shrink wrapping.

A description of the pallets, as received, follows. The pallets are arbitrarily referred to as 1 or 2 for identification purposes. Pictures were taken of the pallets and prints forwarded to John Myers and Larry Larrison.

Pallet No. 1 - All spouts taped, no glue used to hold array,

(a) - Physical stability excellent - no shifting of bags noted.

(b) - Very clean - only asbestos dust visible was from an improperly taped spout.

(c) - No rips or tears in plastic noted.

(d) - No puffing noted from taped spouts or bag airhole perforations when bag was struck.

(e) - Overall this was the cleaner pallet.

Pallet No. 2 - Spouts Untaped, Bags Unglued

(a) - Physical stability excellent.

(b) - Very clean on side where spouts were unexposed, fair amount of leakage evident on opposite side where spouts were adjacent to plastic film.

(c) - No rips or tears in plastic noted.

(d) - Hitting spouts caused asbestos to puff from bags.

The condition of pallets Nos. 1 and 2 as listed above was as noted in the boxcar and also as noted after transfer to the warehouse. In general, both shrink-wrapped pallets were in even better shape overall than equivalently wrapped pallets which had been shipped to Niagara Falls by truck[1]. This is probably because this shipment experienced less handling. Sweepout of the empty boxcar yielded 16 pounds, or about half a bag, of asbestos powder.

Dennis E. Furlani

DEFURLANI:vrs

cc: Messrs. R.E. Byrne
J.F. Emerson/A.C. Sada
*F.H. Larrison/R.O. Marsten
*J.L. Myers
W.G. Piper
H.B. Rhodes
J.A. Riddle
R.J. Klotzbach

*(Pictures attached)

[1]Memo to Mr. R.J. Klotzbach from O.J. Malacarne, January 16, 1973

cc for T. P. Norris
W. C. Thurber
J. E. Walsh
KC-File
NF-File
E. J. Kleber ✓

Caldria ASBESTOS

UNION CARBIDE CORPORATION
P.O. Box 579 Niagara Falls, N.Y. 14302

By B. L. Ingalls

Date 6/11/73

Full Name	Georgia-Pacific Corp. Bestwall Gypsum Div.	Interviewed
Address	Bloomingdale Road Akron, NY	John Rauch, Plant Mgr. (Telecon)
Mfrs. of		

Called subject to determine if they were aware of the April EPA regulations regarding asbestos. Mr. Rauch said that he was not aware of these regulations and was most appreciative of my taking the opportunity of informing him of their existence. I pointed out that our legal department had not as yet clarified the fine points of the regulations; however, it would be to their (G-P) advantage to familiarize themselves with the regulations as soon as possible in order to assure they were in compliance. John said he would attend to this as soon as possible.

I asked John if he had heard anything from OSHA regarding the most recent inspection of their plant and he said he had just heard from them by letter this week. There was no specifics in the letter except to say that the Akron plant had been found to be in violation on 9 accounts regarding asbestos use; 2 serious and 7 nonserious. They are being penalized with fines totaling $3,000. John said that the letter lends no information as to the nature of the violations and they (G-P) had not decided as yet whether to "fight it" until they have some specific information.

RECOMMENDED ACTION

BLI Follow up within a couple of weeks.

Typed 6/11/73
cjb

REPORT OF CALL

cc for O. J. Malacarne/V. D. Holt
T. P. Norris
W. C. Thurber
KC - File
NF - File

UNION CARBIDE CORPORATION
P.O. Box 579 Niagara Falls, N.Y. 14302

By J. L. Myers with
E. J. Kleber
Date July 17, 1973

Full Name Georgia-Pacific Corporation Address Akron, NY Mfrs. of Tel. 542-5431	Interviewed W. Nalbone, Chemist J. D. Rauch, Plant Manager John DiLorenzo, Chief Eng.(Corporate from Portland, OR) Earl Harvey, Consulting Engineer

I visited the plant to discuss their recent OSHA citation and problems with compliance. This was done at the request of Mr. DiLorenzo. Ed Kleber accompanied me and obtained several dust samples at Mr. Rauch's request.

Georgia-Pacific was cited for several asbestos violations and was fined $3000. They have until July 27 to present a plan and timetable to reach compliance. They wanted to review our knowledge of the standards, our dust counting experience, and our plant compliance status.

I left with them our drawing numbers 241-344 and 241-345 depicting our bagging enclosure arrangement. We discussed this operation and I have alerted F. H. Larrison that Mr. DiLorenzo may visit our plant in the near future. I left samples of SG-200X and RG-100 for their lab evaluation and a sample of SG-200X has been sent to E. O'Neill at their Tigard R&D center. We briefly discussed bulk handling and the economics of pellets in bags or bulk but they cannot solve their immediate problem with pellets.

I discussed T-135-0 for spray textures with Nalbone; and, although they are trying to remove asbestos, he seemed interested and a sample will be sent. He said he had not heard of T-135-0 before.

Mr. Harvey is familiar with several of our engineering personnel and may contact O. J. Malacar to discuss our dust control equipment. He has apparently designed a system which Georgia-Pacific is "going with" for OSHA.

Ed obtained samples during ready-mix preparation. They are expecting another OSHA inspection on July 30 and wanted data on this operation. We advised Mr. Rauch that a car containing six test pallets (tuck-in sleeves with shrink-film) of SG-210 would be sent to them later

this month. We observed several different dusty products packaged with tuck-in sleeves, including Carey 7RF9, and all of the sleeves were filled with material and "dribbling." The OSHA dust warning is in small print (same as bag manufacturer's data) on the back of Carey's bags - definitely not prominent.

ACTION

B. L. Ingalls — Follow-up with Nalbone on T-135-0 and pellet samples. Advise Rauch when car with test pallets leaves King City, arrange for inspection and dust sampling during unloading at Akron.

O. J. Malacarne/F. H. Larrison — Be prepared for visits and/or calls.

E. J. Kleber — Report dust sample results.

J. L. Myers — Prepare comments on their citation and distribute as appropriate.

Typed 7/18/73
/ds

INDUSTRIAL HYGIENE DEPARTMENT

PERSONNEL STAFF GENERAL MOTORS CORPORATION

January 24, 1973

Dr. Harry Rhodes
Union Carbide Corporation
Mining and Metal Division
P. O. Box 579
Niagara Falls, New York 14302

Dear Dr. Rhodes:

Enclosed herein are our four asbestos samples that have been used for duplicate analysis. For the purposes of this exercise, assume that each sample was collected at 2.25 liters per minute and that Sample 604 was collected for six minutes; Sample 669, 30 minutes; Sample 710, 90 minutes; and Sample 786, 45 minutes. As soon as you have finished your evaluation, please give us a call and we can compare results.

We look forward to hearing from you.

Sincerely yours,

W. H. Krebs, Ph.D.
Industrial Hygiene Dept.

WHK:cjh

Enc. 4

GENERAL MOTORS TECHNICAL CENTER
12 MILE AND MOUND ROADS WARREN, MICHIGAN 48090

1.4644

Refractive index of "Glop"

5/4/73

Per W. Forgeng

200 l = 1.16

.057

.058
.058
.464
200
1003369

AUTOMATIC DUST COUNTER

COULTER ELECTRONICS

HIALEAH, FL.

710
SAMPLE

DATE

INST.

2.25 l/m
FLOW RATE

BLANK

90.0
TOTAL TIME

202.5 l
TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION:

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

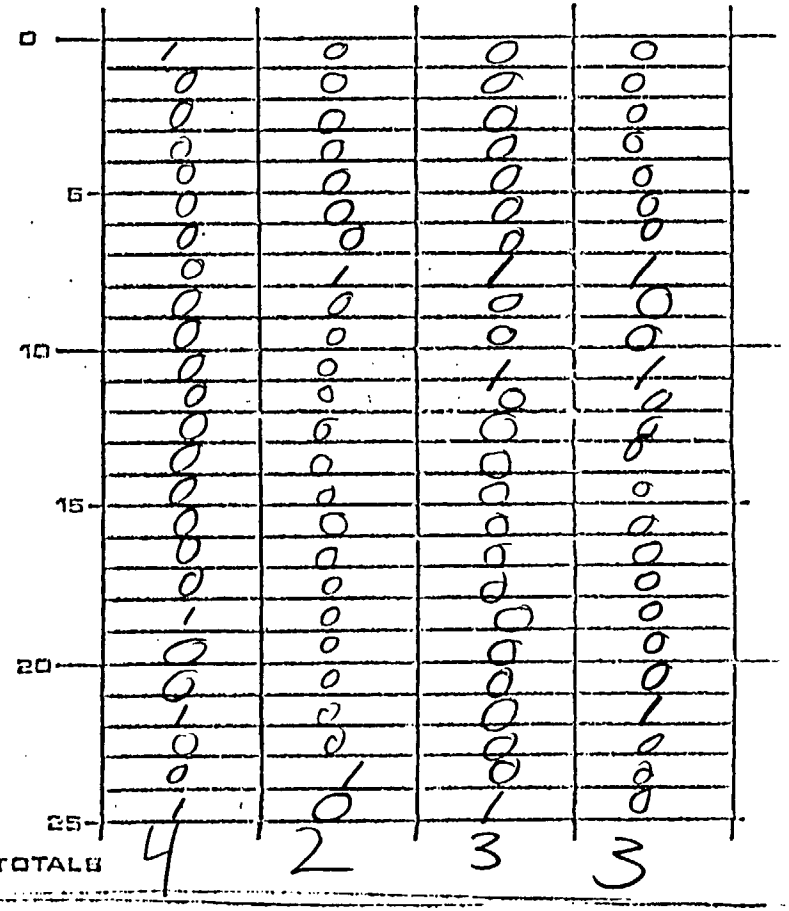
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE _____

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 12 CONCENTRATION 0.1

COMMENTS:



786
SAMPLE

DATE

INST.

2.25 l/m
FLOW RATE

BLANK

45.0 min
TOTAL TIME

101.25
TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION:

DESCRIPTION OF CONTROLS:

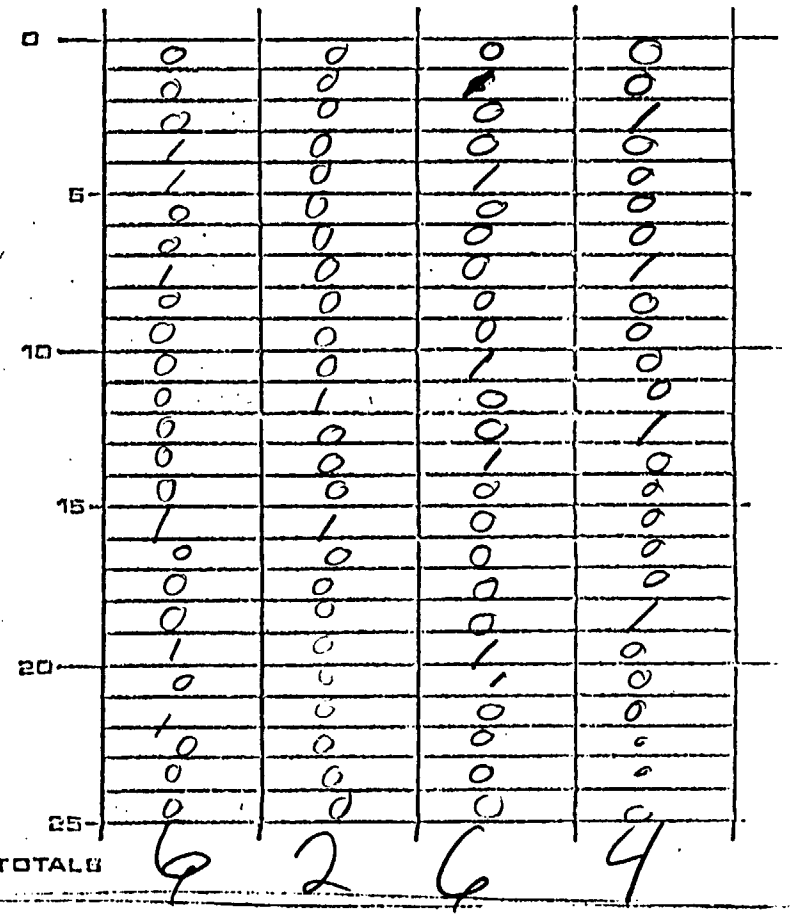
SAMPLE# OPERATION

FLOW TIME VOLUME DATE

INITIALS F. AREA BLK.CNT.AV.

AV.COUNT .18 CONCENTRATION 0.3

COMMENTS:



604
SAMPLE

1/24/73
DATE

INST.

2.25 l/m
FLOW RATE

BLANK

6.0 min
TOTAL TIME

13.5 l
TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION:

DESCRIPTION OF CONTROLS:

ASBESTOS COUNT RECORD SHEET

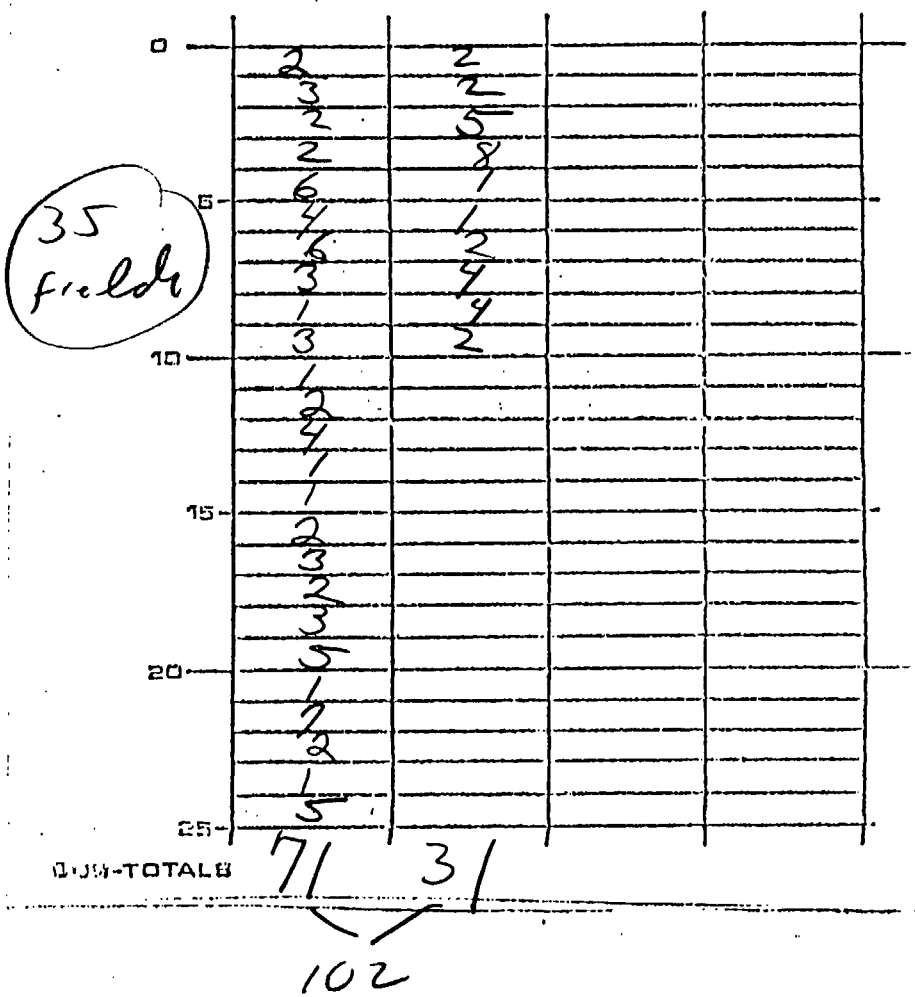
SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 2.91 CONCENTRATION 40.1

COMMENTS:



Sample	Vickers 3/73	Vickers 5/4/73	Leitz 5/4/73
604	40.1	68.3	36.1
669	3.5	5.1	2,38
710	0.1	0.1	0.1
786	0.3	1.45	0.71

469
SAMPLE

DATE

INST.

2.25
FLOW RATE

BLANK

30
TOTAL TIME

67.5 l
TOTAL AIR VOLUME

EMPLOYEES NAME

JOB TITLE

DESCRIPTION OF OPERATION:

DESCRIPTION OF CONTROLS:

BESTOS COUNT RECORD SHEET

SAMPLE# _____ OPERATION _____

FLOW _____ TIME _____ VOLUME _____ DATE

INITIALS _____ F. AREA _____ BLK.CNT.AV. _____

AV.COUNT 1.26 CONCENTRATION 3.5

COMMENTS:

107 fibers

0	1	3	1	0
	2	1	1	4
	2	0	0	2
	1	0	2	1
	0	2	5	0
5	0	1	3	1
	2	2	5	4
	0	0	0	2
	2	1	1	1
	2	1	0	1
10	1	1	1	
	2	2	0	
	2	3	1	
	0	0	5	
	1	0	0	
15	1	0	0	
	1	2	1	
	0	1	0	
	0	1	2	
	0	5	0	
20	1	3	1	
	2	2	1	
	0	0	0	
	3	0	0	
	4	0	0	
25				
SUB-TOTALS	30	31	30	16

85 fields

RETICLE CALIBRATION WORKSHEET

Microscope Leitz

Eyepiece _____ x _____

Objective _____ x _____

Calibrated by _____ Date ____/____/____

1. 200 L (entire length) = .116 mm
2. 100 L = .1058
3. 100 L × 100 L = ~~.0035~~ .0063 = field area
4. Calculate circles

   Circle #1 = L × 1.414 = .082
   Circle #2 = L × 2.000 = 1.16
   Circle #3 = L × 2.828 = 1.64
   Circle #4 = L × 4.000 = 2.32
   Circle #5 = L × 5.657 = 3.28
   Circle #6 = L × 8.000 = 4.64
   Circle #7 = L × 11.314 = 6.56
   Circle #8 = L × 16.000 =
   Circle #9 = L × 22.627 =

9/25/75

Samples for Cross Checking

Note: Should probably count only asbestos for simplicity.

Brooklyn

B-78	.4	60M	0.37 (0.60)*
B-68	.4	78M	0.41
B-27	.2	146M	0.24
B-56	0.2	88M	0.16

Detroit

C-47	1.3	28M	(1.53)* spare	1.28 (1.38)
C-53	1.3	26M	1.27	
C-34	0.8	20M	0.76	
C-65	1.1	26M	1.06	

Minneapolis

C-36	0.4	34M	0.41 (0.37)* spare
C-67	0.1	24M	0.12
C-41	0.3	32M	0.30
~~C-66~~	~~0.4~~	~~20M~~	
C-68	0.4	20M	env. 0.35

CP 153A Rev.
Prtd. U.S.A.

Bl. 10/1/75 Zeiss

	C-53.3					C-65.3			
1									
0									
0				1					
0	1								2
0	1						—	1	
1	2		1			1			1
0				2					
0								1	1
0									
0		1							
0						2			
0				1				1	
0									
0									
1								1	1
0									
1			1						
0 (4)							1		
0		1							
0									1
0				1				—	
0	1	1							
								1	
	1			—			1	1	
	6	3	2	5		3	2	6	6
		16					17		

CP 153A Rev.
Prtd. U.S.A.

W. Kreb Ziess
10-1-75

	B-78 .2				C-36 .2			
	1	0	0	0	0	0	0	0
	0	1	0	1	0	0	0	1
	0	0	0	0	0	0	0	0
	1	0	0	0	0	0	0	0
	0	0	0	0	1	0	0	0
	0	0	0	0	0	1	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	1	0	0	0
	0	0	0	0	2	0	0	0
	0	0	0	0	0	0	0	1
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	1
	0	0	1	0	0	0	1	0
	0	0	0	0	0	0	0	0
	0	2	1	0	0	0	0	0
	0	0	0	0	0	0	1	1
	0	0	0	0	0	0	1	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	1
20	0	0	0	0	0	0	0	0
per 40 - 7	0	0	0	0	0	0	0	0
	1	2	1	0	0	0	0	0
	0	0	0	2	0	0	0	0
	0	0	0	0	0	0	0	0
	1	0	0	0	0	0	0	0
	4	5	3	3	4	1	3	5
	15			0.89	13			1.36

per 40 - 5

Zeiss

CP 153A Rev.
Prtd. U.S.A.

1024 10/1/75 W. Kreb C-47-T-2

	0	0	0	0
	1	1	1	0
	1	1	1	0
	0	2	0	2
	0	0	0	0
	1	0	0	0
	8	0	0	0
	0	0	0	0
	0	0	1	0
	1	0	0	0
	0	0	1	0
	0	0	1	0
	0	0	0	0
	0	0	0	1
	0	0	0	0
	0	0	0	0
	1	0	0	0
	0	1	0	0
	2	2	1	0
20	0	0	0	0
per 40 - (12)	0	0	0	0
	1	0	1	0
	0	1	0	0
	0	2	0	0
	1	0	1	0
	8	10	8	1
	27 -			

27

PAT Taylor per 40 Yields Zeiss 10-1-25

.0004

CP 153A Rev.
Prtd. U.S.A.

B 78 T.1	C36 T.3	C47 T.2	E27	B68.3	C36	B78.3	C67.3	C68.3	C41.3
0 0	0	0 0	0 0	0 0	0	0	0	0	0
0 0	0	0 0	0 0	0 0					
0 0	0	0 0	0 0	0 0					
0 0	0	0 0	0 0	0 0					
0 0	1	0 0	0 0	0 0					
0 0	0	0 0	0 0	0 0					
0 0		1 0	0 0	1 0					
0 0		0 0	0 0	0 0					
0 0		0 0	0 0	0 0					
0 0		0 1	0 0	0 0					
1 0		0 0	0 0	0 0					
0 0		1 0	1 0	0 1					
0 0		0 0	0 0	0 0

Pat Taylor per Yufields Zeiss 10-1-25
(.0024)

CP 153A Rev.
Prid. U.S.A.

B56·3	C34·3	C65·3	C53·3	C47·3				
0	0	0	0	0				
0			0	0				
0			0	0				
1			0	0				
0			1	2				
				0				
				0				
				0				
				0				
				0				
1	1			0				
				0				
				0				
				1				
				0				
				0				
			0	0				
			0	0				
			0	0				
		✓	0	✓ 0				
2	1	0	3	3				
0.20	0.45		1.03	0.95				
88m	20m	—	26m	28m				

CP 153A Rev.
Prtd. U.S.A.

C-36 ~~FR3~~ 2

10/1/75 ZEISS

B78 ~~E1~~ 2

	1	2	3	4		1	2	3	4
								1	
			1				1		
						1			
				1					
		1							1
						1			
				1					
							1		
			1						1
		1							
							1		
	—	—	—	—		—	—	—	—
	0	2	2	2		2	3	1	2
			6	0.63			8		0.48

.0024 BC Zeiss 10-1-25 ✓

CP 153A Rev.
Prtd. U.S.A.

	C·47·3								
		1		1					
		1							
			1						
	1	1							
	1								
			2						
	3			1					
	1								
		1							
	1	1							
	1								
	1								
		1				2			
		1	—						
	—	1		—					
	9	8	3	2					
		22							

Zeiss

CP 153A Rev. Prtd. U.S.A. .0024 BQ 10/1/75 C-47 · T-2

	1								
	1								
	1								
			1						
		1							
	1			1					
			1						
		1							
			1						
	1	1							
			2						
		1							
		1		1		2.41			
	1		1						
	6	5	6	2					