

FILE NAME: Georgia Pacific (GP)

DATE: 1967-1974

DOC#: GP119

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MINUTES OF THE
SAFETY COMMITTEE MEETING
MARRIOTT MOTOR HOTEL
SADDLE BROOK, NEW JERSEY

SEPTEMBER 19, 1967

Mr. F. H. Zimmerman, Chairman of the Gypsum Association Safety Committee, called the meeting to order at the Marriott Motor Hotel, Saddle Brook, New Jersey, at 8:30 a.m. Those in attendance were:

C. J. Saturnia
M. P. Fink

J. Gregg
R. W. Henly
J. Tuffy
T. D. Tolin
F. H. Zimmerman
P. Kipp
A. V. Abnee, Jr.
F. J. Rogers

Celotex Corporation
Georgia-Pacific Corporation
Gypsum Division
Kaiser Gypsum Company, Inc.
The Flintkote Company
The Flintkote Company
National Gypsum Company
National Gypsum Company
United States Gypsum Company
Gypsum Association
Gypsum Association

I. GYPSUM ASSOCIATION SAFETY BULLETIN

A. The chairman requested that the secretary relate the member company response for safety articles to be used in the Bulletin. Following a brief discussion by the committee, it was their recommendation that each member company stimulate employee participation by urging the plant employees to write and submit safety articles to the Association.

B. The committee reviewed the Bulletin format and it was the consensus that it was satisfactory in its present form. One member suggested that a possible change be considered when the next Bulletin mast head is printed. The secretary indicated that present Bulletin stock supply would be depleted at the end of the fiscal year, and at that time, committee suggestions would be solicited.

The committee requested that the secretary construct a chart showing the industry frequency rating over the past four years, as related to the all industry frequency rating reported by the National Safety Council, and print this chart in the Safety Bulletin. The secretary indicated that such a chart was already being considered for the October issue.

The committee directed that this item be carried on the docket.

9/19/67

2. "CERTIFICATE OF MERIT" AWARDED

The secretary submitted a "Certificate of Merit" award plaque for committee investigation. He informed the committee that the award cost the Association \$20.00 to purchase and mail, and requested that they might consider adopting an award that might have greater utility for the winner, such as an ash tray or pen set. The committee, after much discussion, directed the secretary to obtain a less costly certificate and also purchase an ash tray for the award winners.

Following a thorough review of the last three editions of the Safety Bulletin, the committee selected one article by ballot. The article "Did You Bet Your Life?" by Val Robertson, Assistant Production Superintendent, The Flintkote Company, Blue Diamond Gypsum Division, Fremont, California (August 1967) won the award. Mr. Robertson will receive a certificate and inscribed ash tray for his contribution to safety.

3. AIR AND STREAM POLLUTION

The chairman cited a few pollution problems involving plants on a local level. He stressed the importance of all committee members keeping abreast with local, state, and federal pollution programs.

One member noted a recent problem involving the asbestos industry where a number of lung carcinoma cases had been reported by inhabitants of the neighborhood surrounding an asbestos plant. It was further noted that clinical tests and investigations had resulted in legal action against the manufacturer by the claimants.

The chairman indicated that air and water pollution problems would have a dramatic effect on all industries and that the committee should take the initiative to meet any such problems head on if they should occur in the gypsum industry.

Following a discussion of pollution problems in various industries, it was the consensus that the safety committee should have a more active program in this area, outlining the problems that exist and what steps have been taken to solve them.

On a motion seconded and carried, the committee recommended that the chairman advise the directors of the pollution problem, and suggest that they have plant managers join local groups studying pollution problems, so as to give our industry greater control of the problems.

The committee directed that this subject be carried on the docket.



GEORGIA-PACIFIC

440

INTERDEPARTMENTAL COMMUNICATION

TO: Mr. C. W. Lehnert
FROM: G. E. Wilson
SUBJECT: Joint Cement

DATE: May 7, 1970
LOCATION: Tigard Lab
LOCATION: Portland

RECEIVED

MAY 8 1970

RESEARCH AND DEVELOPMENT

The use of asbestos fibers is receiving more attention every day in the construction industry as it relates to both air pollution and potential health hazards. Although in both cases it would appear that the dangers are quite remote, it would appear also that we should examine our joint system formulas to determine if we can use some material other than asbestos if this should become necessary sometime in the future. I would not suggest a crash program, but as time permits this replacement should be examined.

GEW
G. E. W.

GEW:jr

One possibility is wood fiber such as cellulose, or fillers with higher water carrying properties.



GEORGIA-PACIFIC

Δ 44

INTERDEPARTMENTAL COMMUNICATION

TO: All Plant Managers

FROM: M. F. Fink

SUBJECT: OSHA BULLETIN

DATE: February 11, 1972

LOCATION:

LOCATION: Portland

This bulletin will bring you up to date as regards recent changes in the OSHA program, also proposed changes. We will comment on changes outlined in the brochure.

- A. 1. Extending the time limit from two to six days. This is a needed change as two days did not permit the person making the entry to record necessary data. It created considerable confusion especially when an employee was injured on a Friday or Saturday and information could not be obtained from the physician until Monday or Tuesday of the following week. The extended time will eliminate changing the entries.
2. Provide that a log, no older than 45 days, etc.. This clause refers to a system of recording injuries with a computer program. Briefly, an injury that occurs on the first day of the month must be computerized and filed at the plant within 45 days. The corporate Safety Department working with the Programming Department are hopeful of having the trial run by March 31, 1972. It will be necessary to record all chargeable claims beginning January 1, 1972. Attached is K. L. Gipson's letter outlining the program.
3. This refers to Summary Form 102. The writer prepared the report and returned to the plants for posting. Apparently a clause requiring that the form be noted that it is correct and signed by management has been added and we were not informed. Please note this on the summary and sign.

B. Emergency Standard Promulgated. As of this date we are being guided by the temporary standards. Pending adoption of permanent standards employees handling asbestos in the joint system plants will be medically examined including chest X-Rays. All employees must wear an approved type respirator. There shall be no deviation from this rule. (Note in OSHA violation and penalty, Fort Hill Lumber Company. The company had provided the safety equipment but the employee was not using same). Management is held responsible for an unsafe act or employees not using required safety protective gear.

Also included is the latest information we have received with regard to Truck and Car Wheel Chocks. D. Mathers informs us that all G-P Truck drivers will have chocks. The problem that exists in our plants will be with independent truck operators. We recommend that a supply of wheel

chocks be kept available and before the truck is loaded, the leadman or employee in charge of the loading check whether wheels are properly chocked. No truck shall be loaded until he is satisfied that the vehicle conforms with the standards.

M. F. F.

MFF/mv

Attachments

cc: Messrs. G. E. Wilson
E. B. Hollingsworth
T. W. Richards
J. W. Hart
J. DiLorenzo
H. Peele - Delair
J. B. Moss - Tigard Lab
C. W. Lehnert - Tigard Lab



Texas State Department of Health

JAMES E. PEAVY, M.D., M.P.H.
COMMISSIONER OF HEALTH

AUSTIN, TEXAS

J. A. COPELAND, M.D.
DEPUTY COMMISSIONER

BOARD OF HEALTH

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JESS WAYNE WEST, R. PH.
ROYCE E. WILHELMSEN, M. & ENG.

September 21, 1972

Dave has copy
Ed Smith
S. Clark has copy

Mr. K. W. Brown, Plant Manager
Georgia Pacific Corporation
Gypsum Division - Acme Plant
Box 330
Quanah, Texas 79252

Attention: Mr. Bill Howard
Safety Superintendent

Dear Mr. Brown:

An industrial hygiene survey was conducted at your plant on September 8, 1972 by Mr. Jerry F. Lauderdale, Assistant Engineer for our Industrial Hygiene Program, for the purpose of evaluating workers' exposure to asbestos in the Joint Systems Department. A copy of the report covering the observations and recommendations made as a result of the survey is enclosed.

We appreciate the cordial assistance given to Mr. Lauderdale by Mr. Bill Howard and the plant management during the survey.

Please do not hesitate to contact us if we may be of further assistance.

Yours very truly,

Martin C. Wukasch
Martin C. Wukasch, P.E., Director
Division of Occupational Health
and Radiation Control

INDUSTRIAL HYGIENE SURVEY
Georgia Pacific Corporation
Gypsum Division - Acme Plant
Quanah, Texas

On September 8, 1972, an industrial hygiene survey was performed by Jerry F. Lauderdale, Assistant Engineer, Industrial Hygiene Program, Texas State Department of Health, for the purpose of detecting the exposure levels of employees in the Joint System Department to airborne asbestos fibers. The survey was requested by Mr. Bill Howard, Safety Superintendent, through the Texas Health Department, Air Pollution Control Program. Mr. Sterling Clark, Supervisor of the Joint System Department, and other employees gave cordial assistance in conducting the survey.

The Joint System Department mixes and packages a compound, GP Triple Duty Joint Compound, which is used in construction to smooth joints between wall boards. This compound contains about 7% asbestos fibers, which helps give the compound the desired texture. The asbestos is received in sacks; the sacks are opened and poured into a hopper for automatic mixing. The product is put in sacks and stacked on pallets for shipping.

Asbestos has recently been recognized as one of the more dangerous pneumoconiosis producing substances, with undisputable evidence connecting asbestos exposure to increased probability of lung cancers and mesothelioma, especially among workers who smoke cigarettes. The current federal and state standard adopted in the Federal Register, Volume 37, No. 110, pp. 11320-11322, Wednesday, June 7, 1972, a copy of which is included, calls for an average of no more than five fibers, greater than five micrometers, per cubic centimeter of air, with a maximum of no more than ten fibers greater than micrometers, per cubic centimeter of air. This standard calls for a reduction on July 1, 1976, to two fibers, greater than 5 micrometers, per cubic centimeter of air. Further information on asbestos is contained in Occupational Exposure to Asbestos . . . criteria for a recommended standard, National Institute of Occupational Safety and Health, 1014 Broadway, Cincinnati, Ohio.

In order to evaluate workers' exposure to asbestos in this area, personal air samplers were placed on workers. Airborne asbestos fibers were collected in the workers' breathing zone on a 0.8 micrometer pore size membrane filter held in an open-face holder. The samples were then counted, using accepted procedures. Sample results are shown in Table 1.

The first operation sampled was the joint compound mixer. This worker took sacks of asbestos and other materials and dumped the desired amount into a hopper, which had an exhaust hood with three sides closed and a velocity of about 200 ft./min. through the open face. The mixer frequently put his head inside the hopper when dumping in asbestos.

Also, the mixer frequently had to dump half sacks and save the other half for the next batch, or weigh out the desired amount on a nearby scale. These work procedures undoubtedly exposed the worker to higher asbestos levels than would be encountered if all asbestos bag openings were done under the exhaust hood. The mixer and the other two workers in this area wore MSA Dustfore '66 respirators, BM 21B-113. Workers wore gloves and aprons. Table 1 shows samples 1-4 taken from the breathing zone of

the mixer. On the basis of these samples, it appears that the mixer is exposed to an average concentration of 7 fibers, greater than five micrometers, per cubic centimeter of air. Also, the sample #2 indicates an average of 10 fibers per cubic centimeter for a 74-minute time period; therefore, the worker must have been subjected to concentrations greater than the allowable maximum of 10 fibers per cubic centimeter.

Three samples were taken at the sack fillers breathing zone, (Nos. 5, 6, and 7, Table 1). Unfortunately, sample #7 was too loaded to count accurately. This indicates, however, that there is a good probability that the worker is exposed to greater than the allowable concentration of asbestos fibers. There was a local exhaust system over the sack filling spout, but dust was visibly escaping this system, especially when the sack was automatically kicked off the spout when it was full, and when it landed on the conveyor belt. An effective system should be designed to limit or capture this dust.

One sample was taken at the operation of joint compound sack stacking. A level of 13.7 fibers per cubic centimeter was recorded. This high level is probably due to dust escaping from the sacks as they are put on the stack and from dispersion of dust already on the outside of the sacks.

Control of the excessive asbestos concentrations by engineering methods is required by state and federal law, a copy of which is enclosed. Isolation, enclosure, exhaust ventilation and dust collection must be used to meet the exposure limits. Substitution of another substance might be the best solution to the asbestos problem.

In the time required to complete engineering controls, a respiratory protection program or shift rotation is required. It appears that the airborne concentration will not exceed ten times the legal limits; so a reusable or single use air purifying respirator approved for protection from airborne contaminants by the Bureau of Mines or the National Institute for Occupational Safety and Health may be used. A respiratory program shall be established in accordance with the requirements of the American National Standards Practices for Respiratory Protection, ANSI, Z88.2-1969. Provisions of the standard for protective clothing and change rooms shall be complied with.

The general areas of asbestos handling should be cleaned by vacuum sweeping, if possible. This will limit the asbestos dispersed into the air. Every method possible should be used to control asbestos containing dust. Plastic liners may be used to cover incoming shipments of bulk asbestos. All opening and weighing of the asbestos sacks must be done under local exhaust ventilation. Some handling changes or ventilation improvement is needed at the sack filling and stacking areas to limit of control dust. Better housekeeping in these areas is needed to prevent dust from accumulating and being reentrained into the air.

Other products packaged include a paint filter containing no asbestos. Efforts should also be made to control dust from these operations. Since these products do contain a fungicide, Tancide, the operators should wear reusable or single use respirators, approved for protection from toxic dusts by the U. S. Bureau of Mines or the National Institute for Occupational Safety and Health. It may be desirable to allow the worker to choose from several approved respirators. Reputable safety equipment suppliers can provide information on approved respirators.

RECOMMENDATIONS

1. Provide working procedures to best utilize dust control equipment, especial in the mixing operations.
2. Provide adequate dust limiting and control equipment in the bag filling and stacking areas.
3. Keep all work areas free from asbestos dust accumulations.
4. Provide a respirator program until engineering controls lower the concentration to acceptable limits.
5. Cover incoming bulk shipments of asbestos to limit spread of the fibers.

Respectfully submitted,


Jerry F. Lauderdale, Assistant Engineer
Industrial Hygiene Program
Division of Occupational Health
and Radiation Control

TABLE 1

<u>Location</u>	<u>Controls In Use</u>
Mixer - placing bags of asbestos and other materials in mixer	Local exhaust booth, respirator, apron, gloves
Mixer	Local exhaust booth, respirator, apron, gloves
Mixer	Local exhaust booth, respirator, apron, gloves
Mixer	Local exhaust booth, respirator, apron, gloves
Joint compound sacker - putting sacks on automatic filling spout	Same local exhaust above filling spout, respirator, apron, gloves
Sacker	Same local exhaust above filling spout, respirator, apron, gloves
Sacker	Same local exhaust above filling spout, respirator, apron, gloves
Joint compound stacker	Respirator, apron, gloves

Sample Time
(minutes)

Concentration Fiber %.

11

4.8

74

10.0

22

8.2

20

1.0

15

5.3

33

1.5

58

Too much dust to count
sample

21

13.7



GEORGIA-PACIFIC

INTERDEPARTMENTAL COMMUNICATION

TO: Mr. E. B. Hollingsworth
FROM: J. D. Rauch
SUBJECT: STATE NOISE AND DUST SURVEY

DATE: October 27, 1972

LOCATION: Wilmington

LOCATION: Akron

cc: Mr. John DiLorenzo - Portland
Mr. C. W. Lehnert - Tigard R & D

On 8/18, 9/13, and 9/20/72 we had a New York State Inspector here for dust and noise testing in our Joint System and Plaster Packing Departments. This survey was conducted at the request of the New York State Factory Safety Inspector.

I have attached a copy of their results. As you can see we have no problem with the noise level in either department or the dust level in the Plaster Packing Department. However, they have reported excessive asbestos dust in the Joint System area. The State's Recommendations appear on page 4 of the report.

As you know, Mr. DiLorenzo's office is actively engaged in work to correct this problem. However, we must now submit plans to the State for approval prior to installation.

At this time this is only a recommendation and not a citation, so there is no time limit or fine involved.

But, the State of New York is making O.S.H.A. inspections for 1972, so this will no doubt end up in an O.S.H.A. file somewhere. I believe it would be to our best interest to file our plans to correct this matter as soon as possible. This may avoid a future problem should O.S.H.A. decide to check into this matter.


J. D. R.

att.

k

STATE OF NEW YORK
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL SAFETY SERVICE
BUREAU OF FACTORIES AND MERCANTILE ESTABLISHMENTS



Georgia Pacific Corp
Blenningdale Road
Town of Newstead, N.Y. (Alden 14001)

NOTICE OF VIOLATION AND ORDER TO COMPLY

REFER TO	CAPTION: <i>WVW-SPCC-16-7-2</i>
	PREMISES: <i>FED 10-46001-00-20-014</i> <i>Blenningdale Road</i> <i>Town of Newstead, N.Y. (Alden 14001)</i>

DATE *10/27/72*
OCCUPANCY *Factory*
NOTICE TO BUILDING:
TENANT ☐ OWNER ☒ AGENT ☐

You are hereby ordered to comply with the following requirements of the Labor Law and the Industrial Code Rules at the above premises. These requirements must be complied with IMMEDIATELY unless otherwise specified herein.

Item #32 - Sec. 200.1 - Now null & void as result of N.Y. State Dir. of
ST.15 (M) Industrial Hygiene investigation 4/13-20/72 - RSC
REF 129-72. Copy of report attached for Dept of Labor.

As a result of the investigation by the N.Y. State Dept. of Labor
Dir. of Ind. Hyg. Dir. the following order is issued.

Item 7 - CR 12-1.6 (a)(2) Lockout system of local exhaust
system provided to remove or control dangerous
air contaminants generated or released by mixing
operations involving asbestos in the Joint System
Operations.

The plans & specifications in triplicate for approval as
required by Rules 8.5 and do not install, change or
vary machinery or operations for any of the purpose
specified herein until the plans are approved by the
Dept of Labor. Please submit plans in triplicate to
the N.Y. Dept of Labor, Dir. of Ind. Hyg. - 2447 Sholden
Lowlands, N.Y. 14150.

Requirements explained to *Jack Kusch*
Title: *Supervisor*
Cliff Ward
INSPECTOR
FOR THE COMMISSIONER

NOTE: "Sec" refers to section of the Labor Law; "C" refers to the Industrial Code Rules; "R" refers to Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York. An asterisk "*" indicates that the order is based on requirements of the State Building Construction Code or the standards accepted thereunder.

SEE REVERSE FOR THE ADDRESSES OF THE DIVISION

DIVISION OF INDUSTRIAL HYGIENE
REPORT ON FIELD INVESTIGATION

TO: DIVISION OF INDUSTRIAL SAFETY SERVICE, BUREAU OF ☒ F&M ☐ CONSTRUCTION ☐ BOILERS
ATTN: CHIEF, E. T. Beaudott SUPV. INSP. E. P. Elert

DISTRICT 16

1. FIRM NAME C. J. Pacific Corporation	2. DATE OF REPORT 10/11/72	3. DATE OF VISIT 8/10, 9/13 & 9/20/72	4. DATE OF REQUEST 3/22/72
5. ADDRESS 1000 N. Main Road, Town of Newstead 14001	6. I.H. ASSGT. NO. 100-123-72	7. B.S.A. PET. NO.	
8. INVESTIGATED BY Norman Lamotte, Ind. Hygiene Engineer	9. OFFICIAL(S) INTERVIEWED Mr. Edward Foley, Office Manager Mr. William Hammer, Plant Engineer		
10. REPORT			

In accordance with your request, the above firm was visited to investigate possible causes of noise resulting from the Joint Systems operations, possible air contaminants resulting from P & S operations, and possible exposure to excessive asbestos from the Joint Systems operations.

RECEIVED
DEPARTMENT OF LABOR
BUFFALO, N. Y.

OCT 25 1972

DIVISION OF
INDUSTRIAL HYGIENE

I. PURPOSE OF THE JOINT SYSTEM OPERATIONS. BUILDING 230

The workroom, which measures about 120' X 60' X (25' to 10') high, consists of the east end of a large masonry and steel building. The east wall of the workroom contains a large sliding door, a man-door, and 3 operable windows. There are 2 openings in the west wall which lead to the warehouse area. The north and south walls contain no openings. General mechanical ventilation is provided by a 30" diameter exhaust fan located in the east wall at a height of 10'. Additional ventilation is provided by 2 gravity roof ventilators.

II. MATERIAL AND OPERATIONS

The dry mix joint compound for wallboard is prepared in a 40' X 60' area located in the northeast corner of the workroom.

The process involves the preparation of about sixteen 4000 pound dry mixes during the 8 hour day shift. Each mix is comprised of 75% or more limestone with amounts of asbestos ranging from 220 to 320 pounds and mica up to 640 pounds, depending on the product specified. Minor amounts of other materials are also included.

Except for the limestone which is added from enclosed bins, two mixermen load the other ingredients into a waist high 5' X 7' hopper. The crysotile asbestos, contained in 100 lb. bags, and the mica, in 50 lb. bags, are dropped on bag slashers in the hopper, the contents dumped, and the empty paper bags removed from the area. A vibrating screen empties the hopper to an enclosed conveyor. The hopper is provided with a canopy hood at a height of 30" at one end and 40" at the other end, and is partially enclosed.

The subsequent operations, conducted in closed systems, include a ribbon mixer, bucket elevators, and a St. Regis packer. The mixer and elevators are provided with local exhaust systems.

OCT 10 1972

DIVISION OF
INDUSTRIAL HYGIENE

The St. Regis equipment automatically fills multiwall bags with the correct weight of product material. A packer operator slips a pasted-valve tuck-in-sleeve bag over a feed spout, one of three such outlets. The filled bag is dropped on a horizontal conveyor which rises the bags at waist height to a stacker operator. The stacker operator, located also 15' from the loading station, removes the bags from the conveyor and loads them on pallets. The pallets, when filled, are transported to the warehouse by a fork lift truck operator. About 2500 bags are produced during an 8 hour shift.

The aforementioned mixing operations are provided with an alternate duct system which directs the material to the wet mixing area in the southwest corner of the workroom. There a further enclosed mixing with the addition of water yields a paste product. This product is loaded into either 5 gallon or 1 gallon cans, the covers crimped, and the cans palletized for warehousing. Four men are usually assigned to this area.

TESTS AND OBSERVATIONS

It was noted that noise in the workroom was most evident in the mix preparation area (vibrating screen in the hopper) and at the dry mix milling station (St. Regis packer and adjacent auxiliary equipment). Noise level measurements were obtained in these areas and are noted on the attached Sound Pressure Level Survey form.

II. PLASTER OPERATIONS, BUILDING 212

METHODS, EQUIPMENT AND OPERATIONS

The plaster operations are conducted in a three story corrugated steel structure, Building 212. The upper floors of the building are relegated to the storage, mixing, and weighing of materials to produce the plaster mix, which is essentially gypsum. The first floor is used for product bagging and shipping.

The above operations are conducted by a four man crew about 4 hours per day, once or twice a week, producing about 400 tons per month of bagged material. Before the advent of dry wall and wallboard, 12,000 tons per month were produced at this facility.

The mixing and conveying operations on the upper floors are conducted in essentially closed systems. The multi-wall bagging operations take place on the first floor. Bates bag loading machines automatically fill the bags to the desired weight. At the No. 1 Bates Packer, two workers pack 30 pounds of molding plaster into side opening bags. The filled bags are manually placed on hand trucks and removed to a shipping area. At the No. 3 Bates Packer, lightweight plaster is bagged by one worker. The bagged product is conveyed to the adjacent shipping area.

TESTS AND OBSERVATIONS

It was noted that dust was only evolved at the bagging operations.

Air tests were taken in the breathing zone of the workers while conducting bagging operations. The concentration of dust was found to be 35 MPPCF at the No. 1 Bates Packer, 71 MPPCF at the No. 3 Bates Packer. Analysis of ledge dust in both packer areas disclosed a free silica content of less than 5%.

No local exhaust ventilation is provided for the Bates Packers. Workers at the No. 1 wore cartridge type dust respirators; the No. 3 unit operator did not wear any respiratory protective equipment.

III. ASBESTOS EXPOSURE - JOINT SYSTEMS OPERATIONSWORKROOM, EQUIPMENT AND OPERATIONS

The workroom, equipment, and operations are described in Section I. of this report.

TESTS AND OBSERVATIONS

Air tests were taken in the breathing zone of the workers during joint systems dry mix operations. The following results were obtained:

<u>Sample Location, Breathing Zone</u>	<u>Asbestos Concentration</u>
1. Packer	41 fibers/ml (greater than 5 microns in length)
2. Stacker	17 fibers/ml (" " 5 " " ")
3. Mixerman	26 fibers/ml (" " 5 " " ")

In addition, general air samples were taken at two locations in the dry mix area. The concentration of asbestos was found to be 31 fibers/ml (greater than 5 microns in length) at a point about 20' west of the packer and 12' northwest of the stacker. The concentration of asbestos was found to be 26 fibers/ml (greater than 5 microns in length) adjacent to the hopper (mixerman's work station). The latter test was taken when no mix preparation was being done.

It was noted that the mixerman wore respirators during the actual mixing operations. Neither the packer nor the stacker wore respirators. It was stated that the packer and the stacker switch jobs about every 350 bags of production.

The floors, equipment, ledge surfaces, etc. in the 40' X 60' dry mix working area were covered with dust. The dust layer was constantly being built up during the various unit operations, primarily from the heavy concentration of dust generated by the bag filling operation.

CONCLUSIONS

1. Exposure to noise resulting from the Joint Systems operations, as performed at the time of the visit, would not tend to be detrimental to the hearing of the workers.
2. The P & S Building 212 operations, as performed at the time of the visit, would not tend to be hazardous to the health of the workers.
3. Exposure to asbestos from the Joint Systems operations would be hazardous to the health of the workers in the dry mix area.

RECOMMENDATIONS

Re items 1 and 2 above - none.

RECEIVED
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
OCT 20 1972
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
U.S. DEPARTMENT OF LABOR

Item 3 above - That the exhaust system for the mix hopper be redesigned and reconstructed and that sufficient local exhaust ventilation be provided for the bagging operations, both in accordance with 12 NIOSH 12 and 12 NIOSH 13. That plans for the reconstruction be submitted in triplicate to this Division prior to installation.

JACOL

Albert J. Posso, M.D.
Industrial Hygiene Physician II

SOUND PRESSURE LEVEL SURVEY

1. SOUND LEVEL in Decibels re 0.0002 dynes per sq. cm.

LOCATION - OPERATION	WEIGHTING NETWORKS 20-20,000 cps (Hz)		PREFERRED CENTER FREQUENCIES, cycles per second (Hz)							
	dBA	dBC	63	125	250	500	1000	2000	4000	8000
JOINT SYSTEMS - BUILDING 230										
DRY MIX AREA - BAGGING										
1. ST. REGIS PACKER WORK STATION	82	89	83	83	81	80	76	72	73	72
* 2. " " " "	93	94								
3. " " " "	79	87	85	83	79	76	74	70	69	6
- MIXING										
4. MIX HOPPER AREA - VIBRATING										
SCREEN ON HOPPER FULL	89	94	86	85	80	78	82	85	78	70
* 5. AS ABOVE, STARTS AFTER 15 minutes										
OF THE 20 MINUTE BATCH OPERATION.	94	101								

REMARKS:

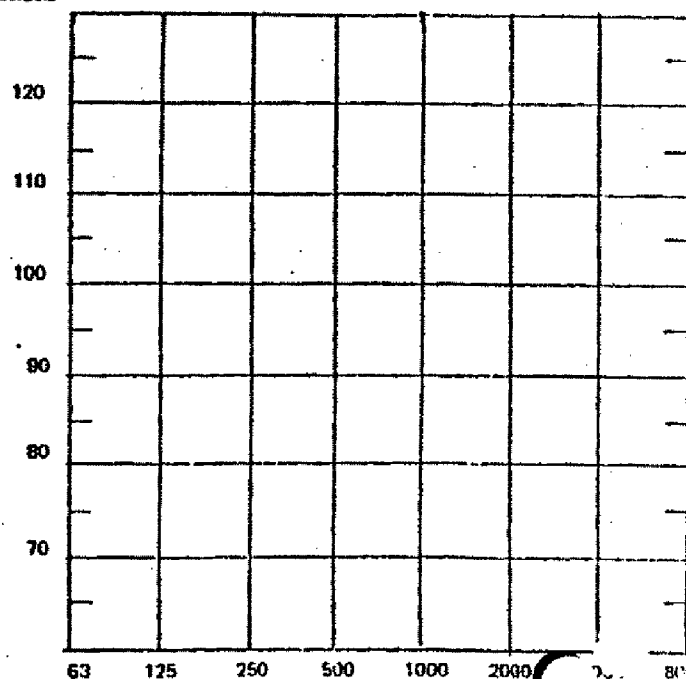
* ONE SECOND DURATION EVERY 30 SECONDS (AVERAGE)
DUE TO AIR RELEASE NOISE - DURING BAG
FILLING

** BACKGROUND

*** INTERMITTENT OPERATION; BATCH OPERATION
OPERATOR REMAINS AWAY FROM AREA AFTER
STARTING VIBRATION

4. ASSIGNMENT NO. BEF-129-72	5. W. C. B. CASE NO.	6. DATE OF VISIT 8/18/72
7. NAME OF ESTABLISHMENT GEORGIA PACIFIC CORPORATION		
8. ADDRESS OF ESTABLISHMENT BIRMINGHAM ROAD TN OF NEWSTEAD 14001		
9. CLAIMANT NAME	10. INSTRUMENTS USED B&K 2203 / 1613	
11. ENGINEER H.H. BRUNOTTE		

Decibels



DIVISION OF INDUSTRIAL HYGIENE

REPORT ON FIELD INVESTIGATION

TO: DIVISION OF INDUSTRIAL SAFETY SERVICE, BUREAU OF ☒ F&M ☐ CONSTRUCTION

ATTN: CHIEF, E. T. Deaudette

SUPV. INSP. E. P. Elliott

RECEIVED
OCT 11 1972

DISTR

1. FIRM NAME

Georgia Pacific Corporation

2. DATE OF REPORT

10/11/72

3. DATE OF VISIT

9/13 & 9/20/72

4. DATE OF

7. D.E.A.

3. ADDRESS

12500 Dunwoody Road, Town of Norcross 30051

6. INVESTIGATED BY

Norman Brunette, Ind. Hygiene Engineer

9. OFFICIAL(S) INTERVIEWED

Mr. Edward Foley, Office Manager
Mr. William Hammer, Plant Engineer

DATE-10-20-72

10. REPORT

In accordance with your request, the above firm was visited to investigate possible excessive noise resulting from the Joint Systems operations, possible air contamination resulting from P & S operations, and possible exposure to excessive asbestos from the Joint Systems operations

1. NOISE IN THE JOINT SYSTEMS OPERATIONS, BUILDING 230

U.S. DEPARTMENT OF LABOR
BUREAU OF OCCUPATIONAL SAFETY AND HEALTH
BUFFALO, N. Y.

WORKING

OCT 25 1972

INDUSTRIAL COMPLAINT
 The workroom, which measures about 120' x 60' x (25' to 40') high, is a one-story east end of a large masonry and steel building. The east wall of the building contains a large sliding door, a man-door, and 3 operable windows. There are 2 openings in the west wall which lead to the warehouse area. The north and south walls contain openings. General mechanical ventilation is provided by a 30" diameter exhaust fan mounted in the east wall at a height of 10'. Additional ventilation is provided by gravity roof ventilators.

MANUFACTURE AND OPERATIONS

The dry mix joint compound for wallboard is prepared in a 40' x 60' area located in the northeast corner of the workroom.

The process involves the preparation of about fifteen 1000 pound dry mixes during the 8 hour day shift. Each mix is comprised of 75% or more limestone with various amounts ranging from 220 to 320 pounds and silica up to 640 pounds, depending on the product specified. Minor amounts of other materials are also included.

Except for the limestone which is added from enclosed bins, two mixers load other ingredients into a vertical high 5' x 7' hopper. The crystalline asbestos, contained in 100 lb. bags, and the silica, in 50 lb. bags, are dropped on bag mixers in two locations. The contents dumped, and the empty paper bags removed from the area. A vibrating screen separates the hopper to an enclosed conveyor. The hopper is provided with a capacity located at a height of 30" at one end and 40" at the other end, and is partially enclosed.

The subsequent operations, conducted in closed systems, include a ribbon mixer, bucket elevators, and a St. Regis packer. The mixer and elevators are provided with local exhaust systems.

0012 01312

The St. Regis equipment automatically fills multiwall bags with the correct wet product material. A packer operator slips a pasted-valve tuck-in-sleeve bag over a spout, one of three such outlets. The filled bag is dropped on a horizontal conveyor carries the bags at waist height to a stacker operator. The stacker operator, located 15' from the loading station, removes the bags from the conveyor and loads them on pallets. The pallets, when filled, are transported to the warehouse by a fork lift truck operator. About 2500 bags are produced during an 8 hour shift.

The aforementioned mixing operations are provided with an alternate dust system directs the material to the wet mixing area in the southwest corner of the workroom. a further enclosed mixing with the addition of water yields a paste product. This product is loaded into either 5 gallon or 1 gallon cans, the covers crimped, and the cans pall for warehousing. Four men are usually assigned to this area.

TESTS AND OBSERVATIONS

It was noted that noise in the workroom was most evident in the mix preparation (vibrating screen in the hopper) and at the dry mix filling station (St. Regis packer and adjacent auxiliary equipment). Noise level measurements were obtained in these areas and are noted on the attached Sound Pressure Level Survey form.

II. P & S OPERATIONS, BUILDING 212

WORKROOMS, EQUIPMENT AND OPERATIONS

The plaster operations are conducted in a three story corrugated steel structure, Building 212. The upper floors of the building are relegated to the storage, mixing, and conveying of materials to produce the plaster mix, which is essentially gypsum. The first floor is used for product bagging and shipping.

The above operations are conducted by a four man crew about 4 hours per day, once twice a week, producing about 400 tons per month of bagged material. Before the advent of dry wall and wallboard, 12,000 tons per month were produced at this facility.

The mixing and conveying operations on the upper floors are conducted in essential closed systems. The multi-wall bagging operations take place on the first floor. Bates bag loading machines automatically fill the bags to the desired weight. At the No. 1 Bates Packer, two workers pack 80 pounds of molding plaster into side opening bags. The filled bags are manually placed on hand trucks and removed to a shipping area. At the No. 3 Bates Packer, lightweight plaster is bagged by one worker. The bagged product is conveyed to the adjacent shipping area.

TESTS AND OBSERVATIONS

It was noted that dust was only evolved at the bagging operations.

Air tests were taken in the breathing zone of the workers while conducting bagging operations. The concentration of dust was found to be 55 MPPCF at the No. 1 Bates Packer, 7 MPPCF at the No. 3 Bates Packer. Analysis of lodge dust in both packer areas disclosed a free silica content of less than 5%.

No local exhaust ventilation is provided for the Bates Packers. Workers at the No. 1 unit wore cartridge type dust respirators; the No. 2 unit workers wore...

III. ASBESTOS EXPOSURE - JOINT SYSTEM'S OPERATIONS

WORKROOM, EQUIPMENT AND OPERATIONS

The workroom, equipment, and operations are described in Section I. of this report.

TESTS AND OBSERVATIONS

Air tests were taken in the breathing zone of the workers during joint systems mix operations. The following results were obtained:

<u>Sample Location, Breathing Zone</u>	<u>Asbestos Concentration</u>
1. Packer	41 fibers/ml (greater than 5 microns in length)
2. Stacker	17 fibers/ml (" " 5 " " ")
3. Mixerman	28 fibers/ml (" " 5 " " ")

In addition, general air samples were taken at two locations in the dry mix area. A concentration of asbestos was found to be 31 fibers/ml (greater than 5 microns in length) at a point about 20' west of the packer and 12' northwest of the stacker. The concentration of asbestos was found to be 26 fibers/ml (greater than 5 microns in length) adjacent to the hopper (mixerman's work station). The latter test was taken when no mix preparation was being done.

It was noted that the mixermen wore respirators during the actual mixing operation. Neither the packer nor the stacker wore respirators. It was stated that the packer and stacker switch jobs about every 350 bags of production.

The floors, equipment, ledge surfaces, etc. in the 40' X 60' dry mix working area covered with dust. The dust layer was constantly being built up during the various unit operations, primarily from the heavy concentration of dust generated by the bag filling operation.

CONCLUSIONS

1. Exposure to noise resulting from the Joint Systems operations, as performed at the time of the visit, would not tend to be detrimental to the hearing of the workers.
2. The P & S Building 212 operations, as performed at the time of the visit, would not be hazardous to the health of the workers.
3. Exposure to asbestos from the Joint Systems operations would be hazardous to the health of the workers in the dry mix area.

RECOMMENDATIONS

Re items 1 and 2 above - none.

RECEIVED
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
WASHINGTON, D.C.

OCT 20 1972

100-147-74

- 4 -

Georgia Pacific Corp.

Re Item 3 above - That the exhaust system for the mix hopper be redesigned and reconstructed and that sufficient local exhaust ventilation be provided for the bagging operations, both in accordance with 12 NYCRR 12 and 12 NYCRR 18. That plans for the aforementioned be submitted in triplicate to this Division prior to installation.

AJR:SCC
HB

Albert J. Roszo, M.D.
Industrial Hygiene Physician II

LOCATION - OPERATION	WEIGHTING NETWORKS 20-20,000 cps (Hz)		PREFERRED CENTER FREQUENCIES cycles per second							
	dBA	dBC	63	125	250	500	1000	2000		
JOINT SYSTEMS - BUILDING 230										
DRY MIX AREA - BAGGING										
1. ST. RICHARDS PACKER WORK STATION	82	89	83	83	81	80	76	72		
* 2. " " " "	93	94								
* 3. " " " "	79	87	85	83	79	76	74	70		
- MIXING										
4. MIX HOPPER AREA - VIBRATING										
SCREEN ON HOPPER FULL	89	94	86	85	80	78	82	85		
5. AS ABOVE, STARTS AFTER 15 MINUTE										
OF THE 2 MINUTE BATCH OPERATION	94	101								

REMARKS:

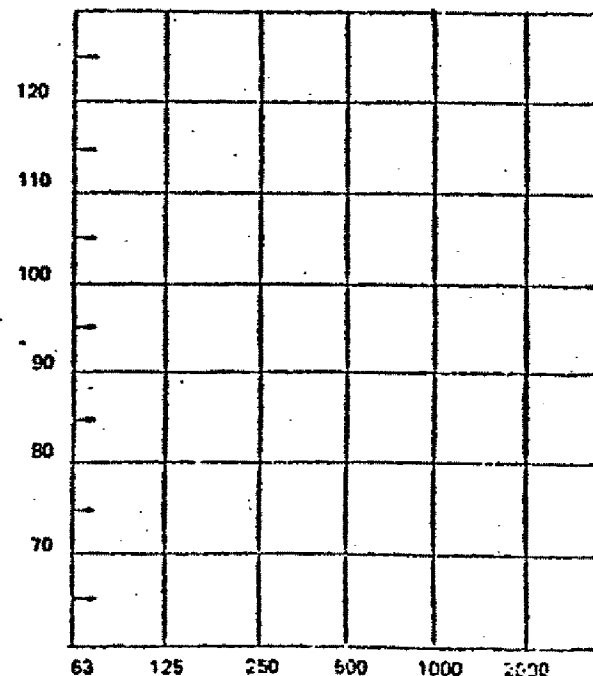
* ONE SECOND DURATION EVERY 30 SECONDS (AVERAGE)
DUE TO AIR RELEASE NOISE - DURING BAG
FILLING

* BACKGROUND

* INTERMITTENT OPERATION, BATCH OPERATION
OPERATOR REMAINS AWAY FROM AREA AFTER
STARTING PROCESS

ASSIGNMENT NO. REF-129-72	I. W. C. B. CASE NO.	DATE OF VISIT 8/18/72
NAME OF ESTABLISHMENT GEORGIA PACIFIC CORPORATION		
ADDRESS OF ESTABLISHMENT BLOOMINGDALE ROAD TN OF NEWSTEAD 14001		
CLAIMANT NAME	11. INSTRUMENTS USED B&K 2203/1613	
ENGINEER J. J. BRUNOTTE		

Decibels



2. FREQUENCY, cycles per second (Hz)

 GEORGIA-PACIFIC

INTERDEPARTMENTAL COMMUNICATION

DATE: November 1, 1972

TO: Mr. T. W. Richards
Mr. E. B. Hollingsworth

LOCATION: Tigard
Wilmington

FROM: E. D. O'Neill

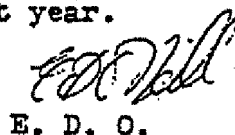
LOCATION: Tigard

SUBJECT: Asbestos Replacement - Joint Systems - Status Report

Considerable concern has recently been expressed by various interests on the use of asbestos in joint systems. It is therefore proper that you should be aware of what is being done to eliminate this raw material from our joint system product line.

After considerable work, what appears to be a suitable replacement for asbestos has now been found. However, it will take some time to remove all the problems associated with any new raw material. Our present plans call for a replacement of asbestos from Ready-Mix which would eliminate asbestos from approximately 50% of our production - thereafter the bagged products will be changed. (In case of Acme the reverse approach will probably be taken.)

To this end it is hoped to manufacture one trial batch of Ready-Mix at Marietta and one batch of bagged joint compound at Acme before the end of this year. If this proves successful it is further hoped that some asbestos-free joint compound (both Ready-Mix and bagged goods) will be available, on a very limited basis, within the first half of next year.


E. D. O.

EDO/ct

cc: Mr. C. W. Lehnert - Tigard
Mr. D. C. Corkill - Tigard
Mr. M. F. Fink - Tigard
Mr. O. E. Burch - Portland
Mr. R. D. Meyer - Portland
Mr. K. W. Brown - Acme
Mr. L. E. Winter - Acme
Mr. W. A. Nalbone - Akron
Mr. J. D. Rauch - Akron ← THIS COPY FOR
Mr. J. G. Hannas - Chicago
Mr. M. A. Palmowski - Chicago
Mr. H. W. Scharf - Marietta
Mr. I. D. Jones - Marietta
Mr. J. B. Moss - Wilmington
Mr. H. W. Pesle - Wilmington
Mr. A. J. Petraline - Wilmington

GP-10



GEORGIA-PACIFIC

INTERDEPARTMENTAL COMMUNICATION

DATE: November 20, 1970

TO: Mr. C. W. Lehnert

LOCATION: Tigard

FROM: W. E. Gettel

LOCATION: Tigard

SUBJECT: APM FOR REPLACEMENT - ACME
JULI SYSTEM PRODUCTS

cc: Mr. L. W. Richards - Tigard
Mr. H. E. Burch - Portland
Mr. F. W. Brown - Acme
Mr. J. D. Meyer - Portland
Mr. W. D. Brooks - Carrollton
Mr. L. E. Winter - Acme
Mr. W. R. Clark - Acme

During the week of November 13, I visited the Acme plant in order to make up a field trial batch of All Purpose formulated with a substitute for the asbestos fiber. For the benefit of those receiving copies, the use of asbestos is considered a health hazard and rigid controls are being enacted.

A 2000 lb. batch of this new formula was made up with no difficulty. Subsequent lab tests indicated that the joint cement was of good quality.

On November 15 Lloyd Winter and I took 10 bags of this new product to Oklahoma City for a field test. The field test was conducted by Leon Warner who was described to me as being of the top three or four applicators in the Oklahoma City area and also as being very honest.

Leon's comments on the working properties follow:

1. Mixed good.
2. Pinholes not bad.
3. The mud does not drop from Ames tools.
4. Goes good through Ames tools.
5. Body seemed to be real good.
6. Peck marking not bad.
7. Good in corners with hand tools.
8. Feathered out good along edges.
9. Works good around windows (deep fill on corner heads).
10. Crossed over wet joints real good - does not pull existing mud out.
11. Works as good as U.S.C. All Purpose Ready Mix.
12. Flamed out better on bricks than spraying mud.
13. The mud is better than the present U.S.C. All Purpose.

BATE PRODUCTION
MAY 1994

November 20, 1972

It was the applicator's only negative comment. However, he did not think this property was very bad. I will be talking to the applicator in a few days in order to determine if any problems developed in subsequent use of the product.

We will be testing this new formula as a topping in the northwest in the near future. If these trials are successful, we will consider taking the product into the Memphis area for additional trials.

During my stay at the Acme plant, I made spot checks for quality and grit on eight random batches of four-gallon box Ready Mix. The batches were made on various dates from 10/2/72 to 11/11/72. The Ready Mix was of excellent quality and no evidence of grit was found.

W. H. G.
W. H. G.

WNG:els

FOR MESSRS. LEHNERT, RICHARDS, BROWN, WINTER, AND CLARK ONLY:

Raw Materials cost of this new formula is approximately \$1.363/bag compared to \$1.33/bag for the present All Purpose formula. Attagel Clay is confidential information and should not be related to anyone outside our own manufacturing organization.

DATE PRODUCTION
MAY 1994

ASBESTOS FIBER COUNTS

for

Georgia Pacific Corporation
Chicago, Illinois

December 29, 1972

Personnel Present: Mr. M. Palmowski
Georgia Pacific Corporation

Mr. E. J. Kleber
Union Carbide Corporation

Mr. T. P. Norris
Union Carbide Corporation



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

SGP 0006578

Plaintiff's Exhibit
S-GP-45

DESCRIPTION OF PLANT AND TESTS

Tests were conducted November 27, 1972 at Georgia Pacific Corporation, Chicago, Illinois, manufacturers of tape joint compounds.

Dry ingredients are added at a loading hopper the load is then conveyed to a bagging machine. Both operations were monitored.

APPARATUS AND PROCEDURE

Sampling and dust counting were carried out in accordance with OSHA Regulation 1910.93a, using the Bayer, Zummaide and Brown method for counting asbestos fibers by phase contrast microscopy (Bureau of Occupational Safety and Health, Feb. 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 Leitz microscope utilizing phase contrast illumination at 400X and a Patterson Globe and Circle reticle.

Total dust was determined by light field microscopy at 100X.

TEST RESULTS

Three figures have been reported for each sample. They are:

- 1) Total Fiber - Any material 5 microns or longer having an aspect ratio of 3 or greater. Reported as fibers per milliliter.

Note: This figure is considerably higher than the "possible" asbestos fiber count. The presence of Mica in the test accounts for the large figure. Mica, a mineral with a platelet-type appearance fits the strict rule of greater than 5 microns in length and having an aspect ratio larger than 3. However, it is obvious that these platelet structures are not asbestos, nor even fibrous in nature.

- 2) Asbestos Fiber - Any material, 5 microns or longer, having an aspect ratio of 3 or greater, which in the judgment of the operator could possibly be asbestos. Reported as fibers per milliliter.

- 3) Total Dust - Any fiber or particle present. Reported as million particles per cubic foot.

INTERPRETATION

SGP 0006579

The regulations have been established with the 5 fiber limit on a time-weighted average. This essentially means the figures must be arranged to show an employee's average intake of fibers per milliliter on an 8-hour day. For example, the highest reading in the test was 3.6 fibers/ml. If this was the only contact with asbestos that day, the 2-minute sample would be extrapolated to 8 hours, giving a time-weighted average of less than 0.02 fibers/ml.

SUMMARY OF DUST COUNTS

N.B. No.	Description	"Possible" Asbestos Count Fibers/ml > 5 μ	Total Fiber Count Fibers/ml > 5 μ	Total Dust mgpc
1929-64-1	Environmental - Bagging area, 3 ft. from operator (8 min.) at fill and dump area.	0.9	2.6	8.6
1929-64-2	Environmental - At loading hopper during shaking (2 min.) of a load of dry mix.	3.4	6.8	0.6
1929-64-3	Personal - Operator dumping Mica into loading (2 min.) hopper.	0	82.5	51.1
1929-64-4	Personal - Operator dumping 2 bags 7RF9. (2 min.)	3.6	16.0	18.7
1929-64-5	Environmental - In office on top of file cabinets.	0.4	0.8	2.0

SGP 0006580

**OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
REGION X**

~~1906~~

January 22, 1973



TO: EMPLOYERS USING ASBESTOS

SUBJECT: Asbestos Hazard Control

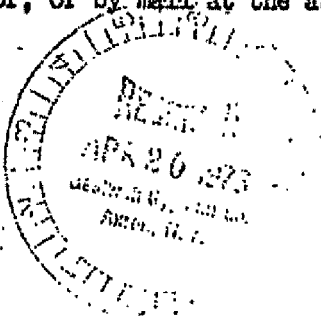
GENTLEMEN:

The enclosed package of selected materials is oriented toward the employers' role in developing an asbestos control program.

If you have specific comments, suggestions or questions regarding the asbestos standard, please write them on this sheet and return to the course instructor, or by mail at the above address.

Sincerely,

R. L. Beeston



39 02

LOCATION Chen. N.Y.
 ATTN: J. Paruch
For your information
The return to be taken
will be taken
 1

PLEASE HANDLE TO CONCLUSION ☐ FOR YOUR FILES
 PLEASE SIGN ME YOUR COMMENTS ☐ FOR YOUR APPROVAL
 PLEASE READ AND REPLY ☐ PER YOUR RESULTS

PAGE 1

3

EMPLOYER'S ASBESTOS CONTROL PROGRAM CHECK-LIST

The broad requirements of any asbestos control program should include :

- First: Initiate a respirator program immediately to reduce exposures until other control measures can be developed.
- Second: Identify obvious dusty operations, or potential sources of asbestos dust.
- Third: Develop capabilities for both personnel and environmental monitoring. Otherwise the exact exposures or dust level ranges are unknown.
- Fourth: Examine work practices to identify those causing dust production and eliminate, modify, or explore alternate ways.
- Fifth: Initiate engineering controls that will have a sustained effect, such as, substitution of materials, new methods, ventilation control, isolation, enclosure and dust collection.
- Sixth: An educational program is necessary to explain program directives, changes of work practices, techniques, and medical requirements.
- Seventh: Medical programs are now required. Each asbestos worker must be medically and environmentally monitored. Record keeping and availability of the records to both the worker, his physician and to OSHA or NIOSH are embodied in the requirement.
-

ASBESTOS HAZARD CONTROL - GENERAL

CHANGING WORK PRACTICES IS A SIMPLE, ECONOMICAL, AND PRACTICAL APPROACH TO CONTROL OF ASBESTOS DUST PRODUCTION

Some recommended practices are :

1. Use plastic waste bags for collection, transportation, and waste disposal of asbestos refuse.
2. Use a portable industrial vacuum cleaner for pick-up of asbestos waste and dust at the work site.
3. Use plastic impregnated paper coveralls and dust respirators for dusty operations of an incidental nature. The coveralls are throw-away and eliminate processing and cleaning.
4. Use down-draft ventilated portable work tables for precutting and assembly at asbestos materials at remote locations, mobile situations or inside ships.
5. Precut all block insulation in shops under ventilated condition and then deliver it to location.
6. Package pre-cut block insulation in plastic and add water to contain dust, maintain integrity of gores, identification, and ease of handling.
7. Reduce airborne asbestos dust 50 to 60 % by prewetting the materials before handling.
8. Mix asbestos cement (15%) at remote locations under ventilated conditions. Mix small batches in plastic bags.
9. Spread plastic or canvas drop cloths at work site to contain and facilitate clean-up.
10. Conduct modular assembly of asbestos materials on piping prior to installation

11. Consider disposable forms of respiratory protection for onetime or intermittent use situations.
(U.S. Bureau of mines Approved.)
12. Substitute non-asbestos products whenever suitable, acceptable and feasible.
13. Use enclosures to limit the spread of dust from unit operations.
14. Separate clean-up areas for workmen.
15. Limit exposure of other trades in the vicinity of asbestos work.
16. Develop asbestos work stations, either portable or stationary, to control dust production.
17. Develop suitable storage and storing areas.

Some practices that produce high asbestos dust levels :
and SHOULD be prohibited

1. Do not clean up fallen asbestos debris with brooms or brushes.
2. Do not allow debris to be thrown from staging or from one deck to another.
3. Do not shake coveralls or drop cloths.
4. Do not remove respirators before asbestos dust laden clothing.
5. Do not clean dusty clothes with an air gun.
6. Do not vent asbestos dust picked up by ventilation into adjoining work areas, or ships compartments.
7. Do not wear respirators covered with asbestos dust.
8. Do not wear street clothes to handle asbestos materials or under known dusty conditions.
9. Do not use asbestos for welders pads.
10. Do not allow uncontrolled cutting, ripping, sawing, or bracking of asbestos in small enclosed spaces.

TYPICAL OSHA SAMPLING DATA SHEET

Substance:

Asbestos.

Standard: 29 CFR 1910.93a(b), (1) and (3) of June 7, 1972

8-hour time-weighted average: 5 fibers, longer than 5 micrometers, per cubic centimeter of air.

Ceiling concentration: 10 fibers, longer than 5 micrometers, per cubic centimeter of air.

Analytical Method:

Fibers counted at 400-450 Magnification, using phase contrast illumination, with sample mounted in high-viscosity solution of membrane filter material.

Sampling Equipment:

Personal sampling pump plus Millipore type AA Filter (37mm, 0.8u pore size). Face cap is removed and filter used open face during sampling.
Sample rate: 2 liters per minute.

Sample Size:

Minimum period of 15 minutes for evaluation of ceiling limit. Several samples of up to 4 hours for evaluation of 8-hour average. Samples with a visible deposit may be too heavy to count. Compare with a clean filter. Heavy concentrations of visible dust in the air (100-500 fibers/cc) may require short sampling periods of only 5 minutes, or less.

Blanks:

With each batch of samples submit two filters which are subjected to exactly the same handling as for the samples except that no air is drawn through them. Label these as blanks.

Shipping:

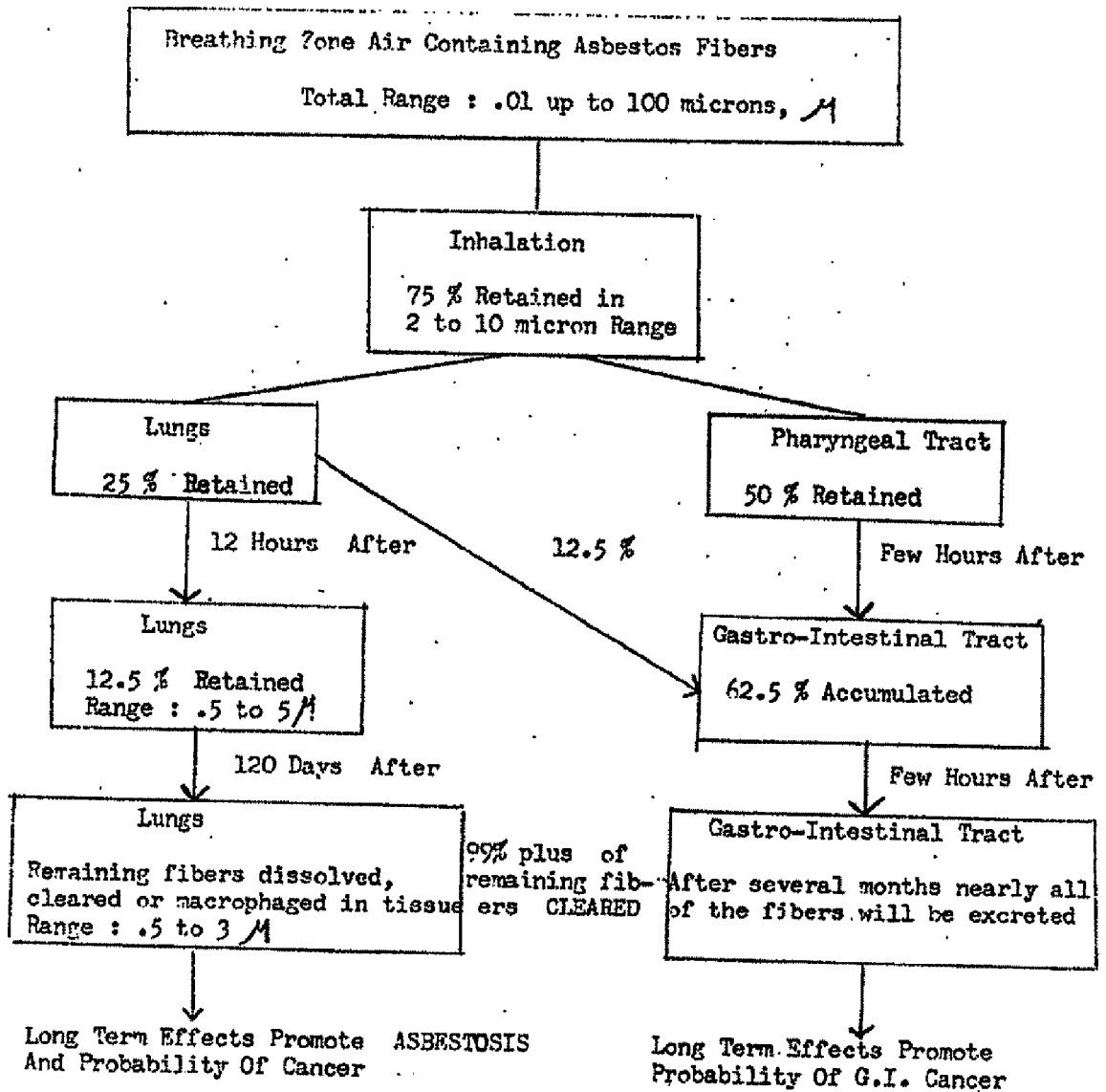
The cassettes in which the samples are collected should be shipped in a suitable container, designated to prevent damage in transit.

Formula used for Limits:

$$E = \frac{C_1 T_1 + C_2 T_2 + \dots + C_n T_n}{8}$$

E=equivalent exposure for the 8-hour workshift.
C₁=fiber concentration for the period T₁
T₁=time in hours at concentration C₁
n=a series of numbered samples and exposure times.

FATE OF INHALED ASBESTOS FIBER



PREDICTED ASBESTOS DUST CONCENTRATIONS

(Taken From Actual Measurements Of Industrial Operations)

<u>Type of Work</u>	<u>Present</u> fibers/ml	<u>Improved</u>	<u>Change of Work Practice</u> <u>& Approved Respirator</u>
1. Mixing & Applying Cement and Cloth to Insulation Material			
<u>Good</u> Ventilation	2.5	.5	.05
<u>Poor</u> Ventilation	4.6	1.0	.10
2. Cutting & Applying Insulation Block or Sections to Piping			
<u>Good</u> Ventilation	5.2	2.5	.30
<u>Poor</u> Ventilation	11.5	5.0	.50
Cutting & Materials 2a. For Later Use in Cutting Sheds	7.6	1.5	.20
3. Spraying Turbines or like Machinery in partially enclosed Spaces			
Spray Operator	47	.7	3.0
Hopper Fender	10	.1	1.0
4. Asbestos Cloth ; Cutting Fitting, gluing & Installing	25-30	10	.5
5. Magnesia Block Cutting			
Ventilated	10	5	1
Unventilated	100	20	5
6. Amosite Cloth Cutting	5-15	5	1
7. Asbestos Cloth Cutting			
Ripping	50	2	1
Cutting	10	2	1

<u>Type of Work</u>	<u>Present</u>	<u>Improved</u>	<u>Change of Work Practice & Approved Respirator</u>
8. Amosite Installation or Ships(enclosed Spaces)	10-45	10	1
9. Magnesia Block Cutting & Installation			
Ventilated	5	2	1
Unventilated	25	5	1
10. Asbestos Cement Mixing			
Open	100-200	25	10
Enclosed Bag	3	1	1
11. Spraying Asbestos Materials(5%) on New Building	68-100	50	10
12. Mixing & Charging at Hopper	10-40	10	5
13. Incidental Exposure from Spraying Nozzle 75 Feet away	40-60 75-100	30	5
14. Letting Down of nip-out materials	50-70	20	5
15. Rip out of Materials-dry	200+	100+	50
16. Brake Shoe Repair Shop	25	10	2
17. Coveralls Covered with Asbestos Dust	5 (Intermittent)	1	> 1

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
REGION X

— 94 —

January 22, 1973

TO: EMPLOYERS USING ASBESTOS

SUBJECT: Asbestos Hazard Control

GENTLEMEN:

The enclosed package of selected materials is oriented toward the employers' role in developing an asbestos control program.

If you have specific comments, suggestions or questions regarding the asbestos standard, please write them on this sheet and return to the course instructor, or by mail at the above address.

Sincerely,

R. L. Beeston



GP 01

[illegible]

SGP 0006582

Plaintiff's Exhibit
S-GP-47

10

EMPLOYER'S ASBESTOS CONTROL PROGRAM CHECK-LIST

The broad requirements of any asbestos control program should include :

First: Initiate a respirator program immediately to reduce exposures until other control measures can be developed.

Second: Identify obvious dusty operations, or potential sources of asbestos dust.

Third: Develop capabilities for both personnel and environmental monitoring. Otherwise the exact exposures or dust level ranges are unknown.

Fourth: Examine work practices to identify those causing dust production and eliminate, modify, or explore alternate ways.

Fifth: Initiate engineering controls that will have a sustained effect; such as, substitution of materials, new methods, ventilation control, isolation, enclosure and dust collection.

Sixth: An educational program is necessary to explain program directives, changes of work practices, techniques, and medical requirements.

Seventh: Medical programs are now required. Each asbestos worker must be medically and environmentally monitored. Record keeping and availability of the records to both the worker, his physician and to OSHA or NIOSH are embodied in the requirement.

4

ASBESTOS HAZARD CONTROL - GENERAL

CHANGING WORK PRACTICES IS A SIMPLE, ECONOMICAL, AND PRACTICAL
APPROACH TO CONTROL OF ASBESTOS DUST PRODUCTION

Some recommended practices are :

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4. Use down-draft ventilated portable work tables for precutting and assembly at asbestos materials at remote locations, mobile situations or inside ships.
5. Precut all block insulation in shops under ventilated condition and then deliver it to location.
6. Package pre-cut block insulation in plastic and add water to contain dust, maintain integrity of cores, identification, and ease of handling.
7. Reduce airborne asbestos dust 50 to 60 % by prewetting the materials before handling.
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(U.S. Bureau of mines Approved.)
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and SHOULD be prohibited

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2. Do not allow debris to be thrown from staging or from one deck to another.
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4. Do not remove respirators before asbestos dust laden clothing.
5. Do not clean dusty clothes with an air gun.
6. Do not vent asbestos dust picked up by ventilation into adjoining work areas, or ships compartments.
7. Do not wear respirators covered with asbestos dust.
8. Do not wear street clothes to handle asbestos materials or under known dusty conditions.
9. Do not use asbestos for welders pads.
10. Do not allow uncontrolled cutting, ripping, sawing, or bracking of asbestos in small enclosed spaces.

5

TYPICAL OSHA SAMPLING DATA SHEET

Substance:

Asbestos.

Standard: 29 CFR 1910.103a(h), (1) and (3) of June 7, 1972

8-hour time-weighted average: 5 fibers, longer than 5 micrometers, per cubic centimeter of air.

Ceiling concentration: 10 fibers, longer than 5 micrometers, per cubic centimeter of air.

Analytical Method:

Fibers counted at 400-450 Magnification, using phase contrast illumination, with sample mounted in high-viscosity solution of membrane filter material.

Sampling Equipment:

Personal sampling pump plus Millipore type AA Filter (37mm, 0.8u pore size).
Face cap is removed and filter used open face during sampling.
Sample rate: 2 liters per minute.

Sample Size:

Minimum period of 15 minutes for evaluation of ceiling limit. Several samples of up to 4 hours for evaluation of 8-hour average. Samples with a visible deposit may be too heavy to count. Compare with a clean filter. Heavy concentrations of visible dust in the air (100-500 fibers/cc) may require short sampling periods of only 5 minutes, or less.

Blanks:

With each batch of samples submit two filters which are subjected to exactly the same handling as for the samples except that no air is drawn through them. Label these as blanks.

Shipping:

The cassettes in which the samples are collected should be shipped in a suitable container, designated to prevent damage in transit.

Formula used for Limits:

$$E = \frac{C_1 T_1 + C_2 T_2 + \dots + C_n T_n}{8}$$

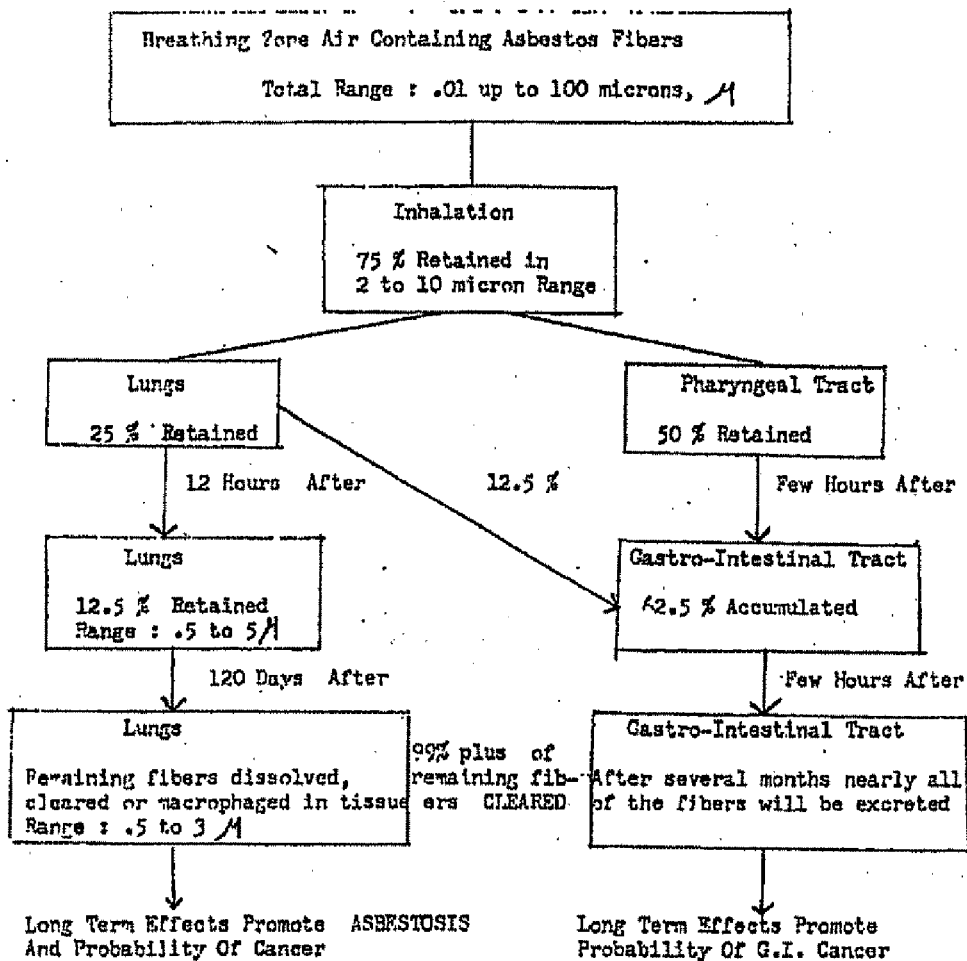
E=equivalent exposure for the 8-hour workshift.

C₁=fiber concentration for the period T₁

T₁=time in hours at concentration C₁

n¹=a series of numbered samples and exposure times.

FATE OF INHALED ASBESTOS FIBER



PREDICTED ASBESTOS DUST CONCENTRATIONS

(Taken From Actual Measurements Of Industrial Operations)

<u>Type of Work</u>	<u>Present</u> fibers/ml	<u>Improved</u>	<u>Change of Work Practice</u> <u>& Approved Respirator</u>
1. Mixing & Applying Cement and Cloth to Insulation Material <u>Good</u> Ventilation	2.5	.5	.05
<u>Poor</u> Ventilation	4.6	1.0	.10
2. Cutting & Applying Insulation Block or Sections to Piping <u>Good</u> Ventilation	5.2	2.5	.30
<u>Poor</u> Ventilation	11.5	5.0	.50
Cutting & Materials for Later Use in Cutting Sheds	7.6	1.5	.20
3. Spraying Turbines or Like Machinery in partially enclosed Spaces Spray Operator Kneep Bender	47 10	.7 .1	3.0 1.0
4. Asbestos Cloth ; Cutting Fitting,glueing &Installing	25-30	10	.5
5. Magnesia Block Cutting Ventilated	10	5	1
Unventilated	100	20	5
6. Amosite Cloth Cutting	5-15	5	1
7. Asbestos Cloth Cutting Ripping	50	2	1
Cutting	10	2	1

<u>Type of Work</u>	<u>Present</u>	<u>Improved</u>	<u>Change of Work Practice & Approved Respirator</u>
8. Amosite Installation on Ships(enclosed Spaces)	10-45	10	1
9. Magnesite Block Cutting & Installation			
Ventilated	5	2	1
Unventilated	25	5	1
10. Asbestos Cement Mixing			
Open	100-200	25	10
Enclosed Bag	3	1	1
11. Drawing Asbestos Materials(5%) on West Building	68-100	50	10
12. Mixing & Charging at Hopper	10-40	10	5
13. Incidental Exposure from Spraying Nozzle 75 Feet away	40-60 75-100	30	5
14. Letting Down of nip-out materials	50-70	20	5
15. Pip out of Materials-dry	200+	100+	50
16. Brake Shoe Repair Shop	25	10	2
17. Coveralls Covered with Asbestos Dust	5 (Intermittent)	1	> 1

GEORGIA-PACIFIC

INTERDEPARTMENTAL COMMUNICATION

DATE: February 9, 1973

TO: Mr. E. B. Hollingsworth

LOCATION: Wilmington

FROM: J. D. Rauch

LOCATION: Akron

SUBJECT: OSHA INSPECTION - Akron, N.Y. Plant

cc: Mr. C. E. Wilson - Portland
Mr. K. L. Gipson - Portland
Mr. H. W. Peale - Wilmington
Mr. C. W. Lohnert - Tigard R&D

At about 9:00 A.M. on Feb. 7, 1973, Mr. Harold Pauly and Mr. Robert Boyd arrived at our office and presented their credentials as inspectors from the U.S. Department of Labor Division of OSHA. They had a file from the Bureau of Mines that indicated we had an asbestos employee exposure problem in our Joint System operation. The Bureau of Mines had referred this problem to the Department of Labor because a recent ruling does not allow the Bureau of Mines to make inspection beyond our calcining process.

Mr. Boyd made an OSHA Administrative check. He noted that we had all of the required OSHA posters in proper position, recorded data regarding number of employees, our OSHA accident log, first aid equipment, etc. Mr. Boyd left the plant shortly after 2:00 P.M. and did not return. He was assisted in his collection of information by E. G. Foley and R. G. Schifferle. Mr. Pauly was conducted to the Joint System Department by W. J. Hammer and was later joined by Mr. Schifferle. Several air monitoring devices were either attached to workers in the area or located in general work areas to establish an eight hour exposure time. Mr. Pauly concluded his testing at about 7:30 P.M. and departed from the plant at about 8:00 P.M.

I had an opportunity to discuss the whole testing program with Mr. Pauly before he left the plant. He wanted to make one point clear, that his function was not to harass, write citations, or impose fines. He had been advised that we had an asbestos problem and was running air sample tests only. He did take the time to point out potential problem areas where we can expect problems with OSHA at a later date if his air sample tests indicate excessive concentrations of asbestos particles greater than 5 microns in length. These areas of potential problems were discussed in detail using his copy of the Federal Register, Vol. 37, No. 110 dated June 7, 1972. The major portion of our discussion centered around the items listed on page 11321.

1. "Establishment of a respirator program. (a) The employer shall establish a respirator program in accordance with the requirements of the American National Standards

It was conceded that we had established a proper respirator program in the Department. It was pointed out that the workers on the first shift were not wearing approved respirators even though they had been supplied and were readily available. The second shift was not wearing properly approved respirators when they reported for work. Mr. Pauly interviewed several of the employees on both shifts and found that the first shift did not wear the approved respirators for various personal reasons. He also noted that the second shift employees were wearing approved respirators and was advised that they used them as a matter of course since the time of issue. Mr. Pauly further advised that he had a discussion with the Department Union Steward, Mr. J. Dean, and advise him that according to OSHA regulations all of the Department Employees had to wear approved respirators as a condition of

1. Caution Labels - "(1) Labeling. Caution labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers"

This area seemed to be of major concern to Mr. Pauly. He noted that our inbound bags of asbestos meet the required label requirements. He also noted that none of our finished products, bags or pails, have this asbestos caution label. We discussed this to some length but I was unable to sway his thinking that these labels were required.

We touched on many other items listed in the Federal Register that should be mentioned.

Asbestos work areas should not be cleaned with a broom. This tends to stir up dust and increase the concentration of asbestos fibers in the air. We should use a power sweeper with an approved filter system.

The paper bags that our asbestos is shipped in must be disposed of by collecting them in a plastic bag that has the required caution label.

The employer shall provide special clothing such as whole body coveralls, head coverings, gloves, and foot coverings for any employee exposed to air borne concentrations of asbestos fibers which exceed the ceiling level prescribed. In connection with this clothing provision requirement we must provide a separate change room for these employees, two separate cloth lockers, to isolate contaminated clothing from the employees street clothing. Further we shall provide laundering of the asbestos contaminated clothing in the prescribed manner.

This about covers our conversation except for the area caution signs we must post and the record keeping requirements for anyone working in the area.

Mr. Pauly again stated that they were not giving an OSHA Plant inspection. He was not going to check any area but the Joint System Department and only for air borne asbestos fibers. Since he is an OSHA Safety Inspector; he did comment on several items that he observed but will not report. Such items as our employee lunchroom not meeting OSHA standards, water on the floor of the warehouse, etc. I was led to understand that due to his observations we could expect a regular OSHA Plant inspection in the near future.

J. D. R.

#29

MINUTES OF THE
NINETIETH MEETING OF THE
TECHNICAL COMMITTEE
February 14, 15, 16

PLACE

The ninetieth meeting of the Technical Committee of the Gypsum Association was called to order at 9:00 a.m. in the Sheraton Palace Hotel, San Francisco, California on Wednesday, February 14, 1973 by Mr. J. D. Shull, Chairman, presiding.

Those in attendance were:

J. J. Gafford	The Celotex Corporation
C. E. Abbey	The Flintkote Company
P. Pestel	The Flintkote Company
T. R. Godfrey	Georgia-Pacific Corporation Gypsum Division
C. W. Lehnert	Georgia-Pacific Corporation Gypsum Division
J. D. Shull	Gold Bond Building Products Division of National Gypsum Company
G. B. Kirk	Kaiser Cement & Gypsum Corporation
W. J. Marshall	Kaiser Cement & Gypsum Corporation
H. L. Weightman	Kaiser Cement & Gypsum Corporation
J. H. Crumbaugh	United States Gypsum Company
A. V. Abnee, Jr.	Gypsum Association
D. E. Brackett	Gypsum Association
H. B. Carlsen	Gypsum Association
J. L. Houser	Gypsum Association
M. C. Smith	Gypsum Association
Forest Price	Guest

On Thursday, February 15, the Committee was privileged to hear a presentation from Professor Brady Williamson, University of California, on the topic "A rational basis of fire design for safety in buildings". His remarks covered structural integrity, degree of combustion, surface burning characteristics, smoke potential and control, containment and experiments with plastics and smoke. His remarks were supported by a movie of the Sao Paulo, Brazil high-rise fire.

The Committee expressed a desire to support the programs that Professor Williamson indicated, which are generally in agreement with the work areas being pursued by our Research Associate.

Tech Comm Mtg Feb 14-1
1977

- 12 -

COMMITTEE ACTION: A motion was made, seconded and carried to remove the item from the agenda.

ITEM 11-61-73 OBSOLETE PUBLICATIONS

Mr. Brackett reported that some Association publications were outdated and should be revised or dropped. It was agreed, when possible to include the data in other popular current publications. It was requested that the Promotional Committee, who has ultimate responsibility for the publications, allow the Technical Committee to review them for technical accuracy, as they are individually considered for revision.

COMMITTEE ACTION: A motion was made, second and carried to remove the item from the agenda.

ITEM 11-62-73 STANDARD FOR DAMAGE RESISTANT WALLS

The sense of this item was considered under Item 11-37 - Standards for Durability.

COMMITTEE ACTION: A motion was made, seconded and carried to remove this item from the agenda.

ITEM 11-63-73 ASBESTOS FIBER IN JOINT COMPOUND

It had been recommended that the Association begin an investigative program to determine the extend of hazards to health and safety of use of asbestos in joint compounds, as a result of sanding and dry mixing operations. OSHA regulations are strict concerning asbestos and there could be problems within the gypsum industry as a result of inhalation of asbestos fibers present in dust environments.

The committee proposed the following initial considerations:

1. The member companies should pool information they have on the subject.
2. It is necessary to determine ranges of hazards.
3. The staff is to develop a list of testing agencies qualified to conduct tests of dust environments containing asbestos, determine estimated costs of test programs, and report on methods used.
4. The Chairman is to include this subject in his report to the membership and request funds from the Board of Directors for a standard industry test program.

5. Request that the Safety Committee recommend what is needed to protect the applicator working in these conditions.

It was reported that contractor organizations had requested guidance from the Association on the problem. The possibility of drafting an ASTM standard on joint treatment compound was discussed but no recommendation was made. An opinion was expressed that asbestos may not be an ingredient in joint compound within the next three years. It was further speculated that contractor groups such as GDCI and IAWCC may wish to participate financially in the development of an industry safety program for hazardous dust protection.

ITEM 11 - NEW BUSINESS

- a) Product endorsement. The Technical Committee took a position against the endorsement of any product or tool by any manufacturer outside the Association in any Association literature. Questions relating to this subject rightfully belong to the Board of Directors and legal counsel.

COMMITTEE ACTION: A motion was made, seconded and carried to remove this item from the agenda.

- b) Record Vaults. A request was attached to the agenda from Planning/Design Consultants for data regarding vault construction for record storage. UL has such data and the committee recommended the inquiry be directed to UL for answer.
- c) Specification for application of finish materials outside of 55 to 70F. A question was brought that ANSI A97.1 should clearly state temperature application limitations for materials such as joint treatment. The committee suggested that 55F minimum should be shown in bold type for such application in future revisions to A97.1.

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. Kieber
Union Carbide Corporation



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, Zummaide 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.

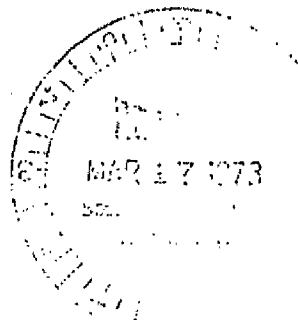
Fiber counting was performed on a Vickers Phase Contrast Microscope at 400X utilizing a Porton Reticle for sizing and field definition.

TEST RESULTS

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

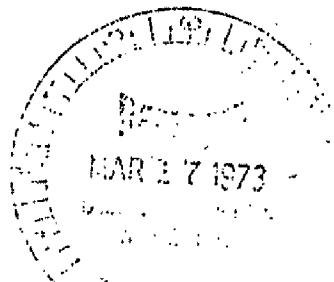
INTERPRETATION

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 $\frac{C_1 T_1 + C_2 T_2 + C_3 T_3}{\sum T}$ 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.S. No.	Field No.	Description	Fibers/cc
		1) CAR UNLOADING	
1929-86-1	116	Environmental - Stocking bay storage area for SG-210. (27 min.) 5-1/2 feet above floor - before car unloading	0.2
1929-86-2	56	Environmental - 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 - Fork lift operator unloading car. Takes pallets from car and places in storage area, about 50 feet from car (62 min.)	6.3
1929-86-4	31	Environmental - Same as 1929-86-1 during placement of pallets (47 min.)	5.6
1929-86-5	138	Environmental - In center of car 8 feet above floor during unloading (45 min.)	10.6
1929-86-6	90	Environmental - Same as 1929-86-4 after completion of pallet placement (56 min.)	0.8
1929-86-7	52	Personal - Packer on bagging machine, bagging topping compound (85 min.)	4.0
1929-86-8	145	Personal - Operator dumping 2 bags Canadian 7RF9 into raw materials mixer for topping compound (2 min.)	5.6
1929-86-9	95	Personal - Operator after dump cleaning, preparing other mixes, etc. (63 min.)	1.3



GEORGIA-PACIFIC

INTERDEPARTMENTAL COMMUNICATION

DATE: June 3, 1970

Mr. H. F. Fink

LOCATION: Portland

E. F. Fatz

LOCATION: Portland

SUBJECT:

MT. SINAI HOSPITAL MEDICAL SCHOOL
New York, N.Y.

Re: Lung Research

Matt, the above subject hospital is the New York group doing considerable research in lung diseases especially among asbestos workers.

I found out that they had a 5-man crew on a drywall job in New York of which MCR Drywall was the contractor. They ran tests on a group of drywall joint finishers and found a spot on the lung of one man who primarily did the joint sanding on the job. What it is, or what it was caused by, is undetermined at this time. It is possible that the drywall industry might be one of the next targets for their lung research. This information might be of interest to the Gypsum Association Safety Committee. If I find out anything more on the subject I'll be sure to let you know.

EFF/mf

E.F.F.

CC: Mr. G. E. Wilson - Portland
Mr. O. E. Burch - Portland

April 11, 1973

Re: Below

C. W. Lehnert

Tigard

SUBJECT: LABEL FOR JOINT COMPOUNDS CONTAINING ASBESTOS

Re: R. R. Hollingsworth - Wilmington D/O
T. R. Richards - Tigard

- Re: C. W. Wilson - Portland
B. Aben - Portland
D. Meyer - Portland
P. Pink - Tigard
J. Brown - Home
J. R. Rauch - Akron
W. Favero - Marietta
H. T. Schaff - Milford
A. A. Palmowski - Chicago

In view of OSHA regulations we believe it is in our best interest to begin marking our bags of joint compound which contain asbestos fiber. It is my understanding that our competitors will begin marking their bags shortly. The OSHA regulation reads as follows:

"(2) Caution labels--(i) Labeling. Caution labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers, except that no label is required where asbestos fibers have been modified by a bonding agent, coating, binder, or other material so that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section will be released.

(ii) Label specifications. The caution labels required by subdivision (i) of this subparagraph shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

CAUTION
Contains Asbestos Fibers
Avoid Creating Dust
Breathing Asbestos Dust May Cause

April 11, 1973

→ Note that there is no necessity to label ready mix. This exempts Milford. Also, we are far enough along with asbestos-free products at Acme that we should at least delay labeling there. We are probably a year or more away from eliminating asbestos at Akron, Marietta, and Chicago and should begin labeling all bag goods containing asbestos at these locations. We prefer not to purchase bags with this label that will confuse our orders (three plants getting labeled bags, one not). Also, we might eventually get stuck with a large inventory of bags with the label. Instead, we are suggesting a hand stamp or pressure sensitive label, whichever is most economical. We recommend that your plants begin labeling as soon as possible. If there are any questions, let us know.

C. W. L.

CWL:je

DP 02



GEORGIA-PACIFIC

INTERDEPARTMENTAL COMMUNICATION

DATE: February 23, 1973

TO: Mr. L. E. Winter

LOCATION: Acme

FROM: C. W. Lehnert

LOCATION: Tigard

SUBJECT: ALL PURPOSE TRIAL - MEMPHIS

cc: Mr. T. W. Richards - Tigard
Mr. O. E. Burch - Portland
Mr. K. W. Brown - Acme
Mr. R. D. Mayer - Portland
Mr. W. D. Brooks - Carrollton
Mr. D. C. Corkill - Tigard
Mr. J. E. Hopkins - Memphis
Mr. W. N. Gettel - Tigard

THIS COPY FOR

Thanks for your field test report. We certainly agree to furnishing the non-asbestos formula to Memphis if 80 bags receive good acceptance. The asbestos safety hazard is becoming so critical it is a major item being considered by the Gypsum Association. There will be no let-up from OSHA restrictions and may result in prohibitive costs unless we eliminate asbestos entirely as a raw material.

We would appreciate knowing how the 80 bags work out.

CWL:elz

W. L.



SGP 0006605

Plaintiff's Exhibit
S. C. 57



INTERDEPARTMENTAL COMMUNICATION

DATE: May 10, 1973

TO: Mr. C. W. Lehnert

LOCATION: Tigard

FROM: J. D. Rauch

LOCATION: Akron

SUBJECT: WARNING LABELS FOR ASBESTOS

cc: Mr. E. B. Hollingsworth - Wilmington

Regarding Mr. Wilson's memo of 5-7-73, this subject. Attached you will find an imprint of a rubber stamp that was delivered today.

Do you think this will comply with OSHA regulations until our factory imprint bags are delivered? All of the communications regarding this matter use the wording, "Warning Labels". This has lead some of us to question the use of this rubber stamp, thinking perhaps we should have a preprinted label that can be stuck onto each bag. We would like to use this rubber stamp due to the speed of printing. We will run between 2,000 and 3,000 bags per day. We would hope to put a yard man to work stamping bags until all are labeled. An adhesive label would slow this down considerably.

If you approve this stamp please advise the most desirable location on the bag to meet OSHA regulations.

JDR
J. D. R.

k
att.

GP 0-0



INTERDEPARTMENTAL COMMUNICATION

DATE: May 14, 1973

TO: Mr. J. D. Rauch

LOCATION: Akron

FROM: C. W. Lehnert

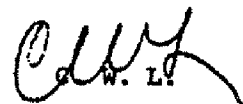
LOCATION: Tigard

SUBJECT: WARNING LABELS FOR ASBESTOS

cc: Mr. E. B. Hollingsworth - Wilmington

We should have said "asbestos/precautionary identification" instead of "warning labels". In any event your rubber stamp identification is certainly satisfactory.

CWL:elz


C. W. L.

MINUTES
MANUFACTURING AND MINING COMMITTEE
SHERATON-BLACKSTONE HOTEL
CHICAGO, ILLINOIS

April 3, 1973

Mr. W. W. Holloway, Chairman of the Manufacturing and Mining Committee, called the meeting to order at the Sheraton-Blackstone Hotel, Chicago, Illinois at 9:00 a.m. Those in attendance were:

M. M. Hambrick
E. R. Kiehl
C. E. Abbey
H. E. Beard
J. D. Friedlein

L. B. Crowell

F. H. Zimmerman

T. E. Armstrong, Jr.
H. D. Gobrecht
W. W. Holloway
R. B. Cartwright
P. McCarthy
A. V. Abnee, Jr.
D. E. Brackett
H. B. Carlsen
F. J. Rogers

The Celotex Corporation
The Celotex Corporation
The Flintkote Company
The Flintkote Company
Georgia-Pacific Corporation
Gypsum Division
Gold Bond Building Products
Division of National Gypsum Company
Gold Bond Building Products
Division of National Gypsum Company
Texas Gypsum Company
United States Gypsum Company
United States Gypsum Company
Legal Counsel
Legal Counsel
Gypsum Association
Gypsum Association
Gypsum Association
Gypsum Association

The minutes of the April 4, 1972 Manufacturing and Mining Committee meeting were approved as published.

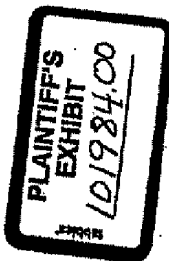
1. AIR AND WATER POLLUTION

Chairman Holloway briefly reviewed the current Environmental Protection Agency (E.P.A.) Gypsum Industry Air Emission Study being conducted by Process Research, Inc., of Cincinnati, Ohio. Secretary Rogers noted that E.P.A. and Process Research representatives toured the two Shoals, Indiana plants in addition to operating facilities at Stony Point, New York and Buchanan, New York as part of their study.

Mr. Rogers stated that on March 2, he had visited with Mr. Richard Atherton, Environmental Protection Agency, and that Mr. Atherton indicated the report covering air emission in our industry was in the final stages of preparation and should be ready for release sometime later this month. Mr. Rogers indicated that a copy of this final report would be forwarded upon completion to the Gypsum Association and that he in turn would forward copies to the committee membership. Mr. Rogers noted, based on Mr. Atherton's comments, that he thinks the report will contain a generally favorable analysis of our industry's

SGP 0006777

Plaintiff's Exhibit
S-GP-59



Mr. M. H. May Apr 3, 1973

2. Asbestos Dust - Joint Compound

The committee reviewed the Technical Committee and Safety Committee recommendations that the Gypsum Association initiate studies of asbestos to determine the hazards that result from mixing and finishing operations with joint compound treatments. Secretary Rogers noted that \$3,000 had been placed in the Technical Committee budget to conduct tests in this area. Mr. Zimmerman briefly commented on the asbestos standards, noting that new revised E.P.A. standards are presently under consideration and that recommendations for the Association to initiate study in this area should be passed immediately and that such evaluative studies should be conducted in three or four locations throughout the country to subject the product to different environmental conditions. Following much discussion, on motion made, seconded and unanimously carried, the Manufacturing and Mining Committee recommended to the Board of Directors that a study be initiated immediately to determine the asbestos content in mixing and application operations only after the objectives of this study are clearly defined. This subject was carried on the agenda.

Prior to adjournment, Mr. H. B. Carlsen, Secretary of the Technical Committee, briefly reported that the Technical Committee recommended that fire barrier gypsum board should be labeled as complying with ASTM Standard C-707-72T. This subject is not to remain on the agenda, but is noted only as a point of information.

11. ADJOURNMENT

There being no additional business to come before the Manufacturing and Mining Committee, on motion made, seconded and unanimously carried, the meeting was adjourned at 4:50 p.m.

Respectfully submitted,

F. J. Rogers

F. J. Rogers, Secretary
Manufacturing and Mining
Committee

FJR:nc

MINUTES OF THE
ANNUAL MEETING
GYPSUM ASSOCIATION
SHERATON BLACKSTONE HOTEL
CHICAGO, ILLINOIS

April 4, 1973

The meeting was called to order at 9:00 a.m. by Mr. W. D. Herbert, President. Those in attendance were:

H. M. Hambrick	The Celotex Corporation
W. D. Herbert	The Celotex Corporation
E. R. Klehl	The Celotex Corporation
W. G. Lees	The Celotex Corporation
D. W. Miller	The Celotex Corporation
C. E. Abbey	The Flintkote Company
H. E. Beard	The Flintkote Company
M. C. Carpenter	The Flintkote Company
D. E. Burch	Georgia-Pacific Corporation Gypsum Division
J. D. Friedlein	Georgia-Pacific Corporation Gypsum Division
G. E. Wilson	Georgia-Pacific Corporation Gypsum Division
J. P. Hayes	Gold Bond Building Products Division of National Gypsum Company
E. J. Killian	Gold Bond Building Products Division of National Gypsum Company
J. O. Shull	Gold Bond Building Products Division of National Gypsum Company
J. Voisinot	Gold Bond Building Products Division of National Gypsum Company
F. H. Zimmerman	Gold Bond Building Products Division of National Gypsum Company
J. H. Walton	Kaiser Cement & Gypsum Corporation
T. E. Armstrong, Sr.	Texas Gypsum Company, Inc.
T. E. Armstrong, Jr.	Texas Gypsum Company, Inc.
J. S. Bush	United States Gypsum Company
C. Gramer	United States Gypsum Company
W. W. Holloway	United States Gypsum Company
J. D. May	United States Gypsum Company
J. J. McLaughlin	United States Gypsum Company
A. J. Watt	United States Gypsum Company
A. V. Abnee, Jr.	Gypsum Association
D. E. Brackett	Gypsum Association
H. M. Brenner	Gypsum Association
H. B. Carlsen	Gypsum Association
T. D. MacQueen	Gypsum Association
F. J. Rogers	Gypsum Association
R. B. Cartwright	Legal Counsel
F. D. Morrissey	Legal Counsel
R. Shepherd	Guest



SGP 0006770

Plaintiff's Exhibit
S-GP-60

Minib Meeting Apr 4, 1973

-2-

OPENING REMARKS

President Herbert opened the meeting by inviting all present to introduce themselves.

MINUTES OF THE LAST MEETING

Upon motion made, seconded and carried, the minutes of the last meeting of the membership were approved as distributed by the Secretary.

REPORT OF THE SAFETY COMMITTEE

Chairman J. H. Walton reported on the activities of the Safety Committee. Mr. Walton reviewed the last three successful Association Safety seminar programs on accident prevention. These workshop sessions were held at Cherry Hill, New Jersey, San Francisco, California and Jacksonville, Florida. The next seminar is scheduled for Cleveland, Ohio on September 20, 1973. During the Jacksonville meeting, OSHA representative W. W. Gordon addressed the conference and provided useful information on OSHA regulations and procedures.

Mr. Walton reported that the "Industrial Safety Manual" has been recently revised and is strongly recommended to the management personnel of every plant as an excellent plant safety guide.

Chairman Walton stated that fleet safety activities are being given greater attention and that the committee has proposed a statistical program to collect accident per mile data in order to establish an industry accident frequency rate.

A matter of concern is the increase in the plant accident frequency rate for the industry. The membership was asked to give their attention to programs designed to reduce the rate. A further complication is that there are currently two reporting systems to determine frequency, the OSHA and the ANSI Z16 incident report. Mr. Walton noted that 1973 will be an interim year during which the membership can report safety statistics to the Association under either reporting system, but that it is anticipated that the industry safety contest program will be entirely under OSHA reporting methods in 1974.

It was reported that a list of 17,000 items had been compiled by NIOSH containing chemicals and other ingredients which could affect the environment. Asbestos fibers continue to receive attention throughout industry. Other hazards considered to be of prime importance to the workers' environment are noise, heat stress and carbon monoxide. The chairman urged the membership to become aware of the standards being developed in OSHA and NIOSH. Mr. Walton reported that the Safety Committee recommends that the Association undertake a program to study all airborne dust emissions from the mixing and finishing of joint compounds.

SGP 0006771

Mem. Mtg. April 4 1975

Mr. Holloway reported on a meeting in Fort Dodge, Iowa on March 27, 1973 at which four member company works managers from the area met with committee representatives to review a new county zoning ordinance affecting mining operations and to discuss future land reclamation plans. He noted that, as a result of the meeting, the plant managers are currently planning to meet with the Webster County Zoning Board in an attempt to modify an ordinance which requires a 150 foot setback from property lines for quarrying operations. Mr. Holloway also noted that the Fort Dodge managers would file master plans with the Zoning Board individually, but the plans would be entered on one color coded map covering quarry operations in ten year increments.

Severance tax activities continue to be monitored in Ohio and Indiana by the Association staff and progress reports are issued.

The committee has maintained close liaison with the Materials Handling and Safety Committees on mutual areas of interest. The chairman emphasized the need for more education and training to assure proper loading of our bulkhead flatcars, which has been criticized by the AAR. The committee added their support for the safety film on fork lift trucks as proposed by the Safety Committee.

The Manufacturing and Mining Committee discussed an Association test program for determining the asbestos content of joint compound dust at its meeting on the previous day. It was their recommendation that such an undertaking must be carefully assessed and defined before any testing is initiated.

The chairman of the Building Code Committee had recommended to the committee that it consider a uniform method of marking the face side of interior gypsum board in order that building inspectors could ascertain the type of board installed prior to joint treatment. The Manufacturing and Mining Committee's immediate reaction was that any marking to the face side of board products should be avoided. This matter was referred to the Board of Directors for guidance.

Underwriters' Laboratories has proposed a plan using the quality control functions of the member companies rather than inspection of board machine production. This would reduce U.L.'s inspection function. The committee thought this to be a decision for each company to make rather than an Association matter and therefore did not offer a recommendation on the plan.

The committee decided to continue to meet annually with the task groups, meeting at the call of the chairman as frequently as required during the year.

A comment from the floor was made to clarify the purpose of the U.L. quality control inspection plan. This plan was developed in answer to complaints about the variations in U.L. inspection methods at different plants. The program offered by U.L. apparently is intended to apply to the entire industry and, if offered by U.L., the present inspection procedure will be discontinued.

Memorandum April 4, 1977

approve such an ongoing and continuing testing program. In order to establish parameters of a program for the consideration of the Directors, the following guidelines are proposed:

1. The Test Committee is to be a standing subcommittee of the Technical Committee.
2. There shall be three members, each from a different company, having expert knowledge of fire, sound and structural testing appointed by the Chairman of the Technical Committee. In addition, a secretary shall be appointed.
3. Members do not need to be members of the Technical and Building Code Committees, but may be selected from each member company on the basis of their expert knowledge. At least one member shall have knowledge of building codes.
4. There shall be unanimous agreement within the subcommittee about the need for running a specific test. Any difference of opinion will be resolved by the Technical Committee.
5. The laboratory location, time, arrangements and other details of test shall be the responsibility of the subcommittee.
6. The subcommittee invites, and will review, any test desired by any member under this program.
7. The subcommittee will meet as often as necessary to determine a priority list and prepare a cost estimate for approval by the Board of Directors at least annually.
8. Where test data exists within a company, a request will be made for release of the test, before attempting any duplicate testing.

A Testing Subcommittee was appointed at the last Technical Committee meeting, and they proposed an initial program of ten tests (six fire and four sound) after consideration of 28 tests submitted by the membership. The cost estimate for the series was \$38,500. Initially, approval was requested for \$22,000 while the program is in its beginning stage. It is anticipated that this amount is needed for the tests that could be conducted in one year.

The program is not to be involved in testing any proprietary products, as defined by the Board of Directors and distributed to the membership in 1968.

The chairman next reviewed the need for a program to evaluate the hazards which may be present in dust resulting from joint sanding or dry mixing of joint compound. OSHA is especially strict where dust

may contain asbestos fibers. A task group has been appointed in the Technical Committee to recommend a program to determine the hazard levels from dusty operations. The Board of Directors was asked to approve a budget request for this activity.

The chairman recommended that the Board of Directors appoint an Association task group to consider all phases of OSHA. This would include exchange of information and consideration of in-plant dust problems, as well as field hazards and the need for warning labels on products.

The chairman recommended that an industry task group on Consumer Products Liability be appointed rather than a task group within any one committee. This would be a demonstration of activity on an industry, rather than a fragmented committee basis.

In connection with the use of gypsum products in the mobile home industry, it was suggested that insurance companies and the Mobile Home Association should be asked to provide information about mobile home fire problems. The Board was asked to provide guidance on this proposal.

It has been suggested that there is a need for a remodeling specification for the rehabilitation of substandard housing. This is a very complex problem and would require a great deal of work. The Technical Committee did not wish to pursue this problem at this time unless the Board of Directors desired that action be taken to develop a rehabilitation specification.

Mr. Shull spoke in behalf of a scholarship program to be established in honor of the late John A. Robertson. A Technical Committee task group had proposed that a John A. Robertson scholarship be established at a university to assist a needy student in construction technology or architecture. The Board was asked to consider such a program.

The report of the Technical Committee, except for items relating to budget, was received with thanks. Chairman Abbey, of the Building Code Committee, rose in behalf of his committee to support the Association Test Program and the John A. Robertson scholarship program.

REPORT OF THE PROMOTIONAL COMMITTEE

Chairman D. W. Miller reported on the activities of the Promotional Committee.

Mr. Miller first reported that the Lead-Based Paint program was continuing with news releases and follow-ups to inquiries. This has been a successful promotional activity.

MINUTES
BOARD OF DIRECTORS MEETING
SHERATON-BLACKSTONE HOTEL
CHICAGO, ILLINOIS

April 5, 1973

H. G. Gypsum Assoc.

The meeting was called to order at 9:00 a.m. by Mr. W. D. Herbert, Chairman of the Board of Directors. Those in attendance were:

W. D. Herbert
C. E. Abbey
G. E. Wilson

E. J. Killian

T. E. Armstrong, Sr.
A. J. Watt
R. B. Cartwright
A. V. Abner, Jr.

The Celotex Corporation
The Flintkote Company
Georgia-Pacific Corporation
Gypsum Division
Gold Bond Building Products
Division of National Gypsum Company
Texas Gypsum Company, Inc.
United States Gypsum Company
Legal Counsel
Gypsum Association

Mr. Herbert announced that Mr. H. C. Carpenter had requested Mr. C. E. Abbey to represent his company at the meeting.

MINUTES OF THE LAST MEETING

On motion duly seconded and carried, the minutes of the last meeting as submitted to the Board of Directors, were approved as recorded and distributed by the secretary.

EXECUTIVE COMMITTEE REPORT

Mr. Herbert, Chairman of the Executive Committee, reported that no action had been taken by the Executive Committee since the last meeting of the Board of Directors.

ELECTION OF EXECUTIVE COMMITTEE

Mr. Herbert announced the following directors had been nominated to serve on the Executive Committee for the ensuing year by Mr. H. C. Carpenter, Chairman of the Nominating Committee:

T. E. Armstrong, Sr., Chairman
R. A. Costa
W. D. Herbert
A. J. Watt
G. E. Wilson

There being no further nominations and on motion duly seconded and unanimously carried, the above directors were elected to the Executive Committee.

PLAINTIFF'S
EXHIBIT

101986.00

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Plaintiff's Exhibit
S-GP-61

REVIEW OF COMMITTEE RECOMMENDATIONS

While the reports and activities of the various standing committees had been accepted during the membership meeting on the previous day, the Board of Directors reviewed and acted upon such matters that pertain to budget and policy decisions.

The Safety Committee's request for funds to produce a fork lift truck training movie was reduced to script preparation funds of \$2500. The committee was asked to make a strong request of OSHA and to associations and manufacturers in the fork lift truck industry to participate in the production of the film. The request for funds to conduct a field test program to determine the level of asbestos fibers in the mixing and sanding operations of joint compound was approved. The Safety Committee was also asked to coordinate with the Association staff a letter-writing campaign indicating to the proper Federal authorities that jurisdiction under the Federal Metal and Non-metallic Mine Safety Act remain in the Bureau of Mines, Department of the Interior, rather than be transferred to OSHA.

The Manufacturing and Mining Committee's report on the subject of marking of gypsum wallboard was discussed and it was the consensus that this subject be tabled pending the investigation by each director within his company.

The Building Code Committee's report on the reaction of building officials throughout the country on third party certification of building products and their request for clarification of type X type wallboards were discussed in detail. The directors will review these subjects within their companies and be prepared at the next meeting for a discussion with particular emphasis to ascertain if there might be possible Association activity in a self-certification program.

The request for a permanent Gypsum Association staff man to headquarter in Washington, D.C. was approved and the secretary was directed to carry out this request with the best possible coordination with the conclusion of our participation in the National Bureau of Standards Research Associate program.

The request for funds to initiate a fire and sound testing program from the Technical Committee was approved as submitted in the proposed budget. As the test program progresses, the need for additional funds should be made to the Executive Committee or at the Semi-annual Meeting. The Technical Committee was requested to re-examine the individual proposed fire and sound tests and asked to submit the priority of tests to all member companies prior to the initiation of the program.

Georgia-Pacific



INTERDEPARTMENTAL COMMUNICATION

TO: Mr. J. B. Moss
 FROM: Ed Aaron
 SUBJECT: Asbestos Caution Label

DATE: May 2, 1973
 LOCATION: Wilmington
 LOCATION: Portland

Because of the high usage rate of joint system bags at Akron, we are incorporating the appropriate warning for asbestos into the bag manufacturer's printing plates. As we approach the time when asbestos will be eliminated, we should be alerted far enough in advance to have this warning removed from the plates so that future bags will be correct.

I understand from Matt Fink that Chicago is presently applying the asbestos caution using the same type size and style as used by HSC, and this probably is the best way for them to handle it.

I suggest that Marietta do the same as Chicago, and this can best be handled by Bob Favaro obtaining the necessary information or a sample from Monty Palomowski.

R. L. A.

ELIAR

cc: Messrs. R. B. Hallingworth - Wilmington
 T. W. Richards - Tigard
 C. W. Lehnert - Tigard
 J. B. Beach - Akron
 R. V. Favaro - Marietta

C
O
P
Y



SGP 0006809

Plaintiff's Exhibit
 S-GP-66

no highlight



GEORGIA-PACIFIC CORPORATION

100 S.W. 5TH AVENUE • PORTLAND, OREGON 97204 • 503-223-2661

May 8, 1973

Mr. Hal Barven
Casein Company, Inc.
1701 East 26th Street
Burien, Washington 98660

Dear Hal:

This is to confirm my conversation with you today cancelling the item of 16,000 GX-226 Johns-Manville Topping bags ordered on purchase order G-95782 for our Akron plant. As explained we have a number of these bags on hand at Chicago which we will transfer.

Also, you have picked up the new artwork for our Casein Topping; Bedding and All-Purpose bag along with color swatches for each.

Please include the asbestos warning notice when cutting new plates for the P-1070 Triple Duty bags. This will be the same printing layout as on the casein bags and is to be printed on the back of the bag in the same position.

Thank you.

Very truly yours,

Edward L. Aasen
Purchasing Manager
Gypsum Division

ELA:ar

cc: Messrs. C. Martin - Portland
J. D. Rauch - Akron
C. Swain - Akron

**PLAINTIFF'S
EXHIBIT**

10/994.00

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Plaintiff's Exhibit
S-GP-69

GEORGIA-PACIFIC

INTERDEPARTMENTAL COMMUNICATION

TO: Mr. K. W. Brown

FROM: W. N. Gettel

SUBJECT: ASBESTOS CAUTION LABELS

cc: Mr. T. W. Richards - Tigard
Mr. S. R. Clark - Acme
Mr. L. E. Winter - Acme
Mr. R. D. Mayer - Portland
Mr. M. F. Fink - Tigard

DATE: May 25, 1973

LOCATION: Acme

LOCATION: Tigard

Sterling will order stamp 

Our other joint cement plants have recently begun a program of placing an asbestos caution label on their joint cement bags. In view of this, and the hang-up that developed in Memphis in our transition to asbestos free All Purpose, Mr. Lehnert has directed me to request your plant to also begin labeling the bags.

Each bag should be stamped on the front with the warning that I have enclosed. Since this is only a temporary measure, a rubber stamp the size of the enclosed warning will be sufficient.

We feel that the problem which occurred in Memphis is minor. However, it has slowed our progress. We are presently making minor improvements on the formula. When we have finalized the formula revision, we would like to have you extend the shipment of the asbestos free All Purpose into additional markets.

WNG:elz

W. N. G.
W. N. G.

RECEIVED

MAY 28 1973

GEORGIA-PACIFIC CORPORATION
ATLANTA, GEORGIA



SGP 0006664

Plaintiff's Exhibit
S-GP-74

CAUTION

CONTAINS ASBESTOS FIBRES
AVOID CREATING DUST
BREATHING ASBESTOS DUST MAY CAUSE
SERIOUS BODILY HARM.



GEORGIA-PACIFIC CORPORATION

COMMONWEALTH BUILDING - PORTLAND, OREGON 97204
TELEPHONE: 522-4621 - TELETYPE: 510-462-4700
AREA CODE: 503 - WESTERN UNION TELE: 522-4621

June 9, 1970

Mr. F. J. Rogers, Secretary
Gypsum Association Safety Committee
201 North Wells Street
Chicago, Illinois 60606

Dear Fred:

We believe the attached is of great importance to the Association and member companies.

You are aware that joint systems contain approximately 5% asbestos, some mica and the balance is limestone.

Based on threshold limits adapted by A.C.G.R., mica (when exceeding 5% free silica) can be classed as a respiratory irritant. Asbestos is very harmful, however we question whether the percentage used in a formula and after it is mixed in a batch could be considered harmful.

We realize that someone will be the whipping boy, also product liability will be stressed. It is our opinion that the entire blame can be placed on the contractor, for not insisting on respirators and dust masks when sanding. We understand that dust samples will be obtained during a sanding operation and analysis made of the samples. We question this approach, the problem would be the large amount of dust, 10 microns or smaller that is generated by the sanding operation and breathed by the individual.

We will keep you posted of any other problems that may develop. In all probability, U. S. Gypsum and National Gypsum have been alerted and we will be interested in their approach to minimizing the problem. Please send 500 "Watchful Wally" stickers and bill this office. Thank you.

Sincerely,

M. P. Frank
Safety Supervisor

MEF/ah

Attachment

Georgia-Pacific



INTERDEPARTMENTAL COMMUNICATION

DATE: June 19, 1973

to: Mr. J. D. Rauch

LOCATION: Akron Plant

FROM: G. E. Wilson

LOCATION: Portland 8

SUBJECT: OSHA INSPECTION

I've had a chance to review the copy of the Citation that you have received from the U. S. Department of Labor on our handling of asbestos, and would of course advise you to proceed as rapidly as possible on an emergency basis to correct our deficiencies.

We are working towards the elimination of asbestos in joint cement, but I am confident that we cannot await this development as we will be using asbestos for some time in the future.

I would also ask that you send a copy of the Citation to the other joint cement operations for their information, and also so that they can proceed with corrective measures prior to OSHA inspection for the same violations.

GEW/mf

GEW
G.E.W.

CC: Mr. E. B. Hollingsworth - Wilm Del Gyp
Mr. T. W. Richards - Tigard Lab
Mr. C. W. Lehnert - Tigard Lab
Mr. John DiLorenzo - Portland

June 21, 1973

Mr. H. B. Carlson, Secretary
Technical Committee
Gypsum Association
201 North Wells Street
Chicago, Illinois 60606

Dear Mr. Carlson:

Please be advised that we at Georgia-Pacific are in agreement with your approach and dealings with OSHA representative concerning asbestos and joint treatment compound.

The use of asbestos in joint treatment materials is a very serious problem with all manufacturers, and any help that we can get with OSHA will be most welcome by all members of the Association.

Yours very truly,

Giam B. Wilson
Vice President

GEN/mf

CC: Mr. C. W. Lehnert - Tigard Lab

Gypsum Association

201 North Wells Street, Chicago, Illinois 60608 (312) 720-56

July 6, 1973

TO ALL MEMBERS OF THE
TECHNICAL COMMITTEE

Re: Asbestos In Joint Treatment Compound

Gentlemen:

The Board of Directors of the Association approved an investigation of the problem of hazards resulting from asbestos released in sanding and mixing joint compound. As a result, a meeting was held in Washington, D. C. with representatives of OSHA, in which they encouraged the Association to pursue a testing and monitoring program to determine the extent of hazards occurring in the use of joint compound as well as other effects of gypsum dust.

To date, Directors have responded to my report of the OSHA meeting dated July 11, 1973, with support and concurrence that the Association undertake a program to assess asbestos hazards in the use of joint compound.

Therefore, it is requested that available data be sent to me, for collection and consolidation, of investigations of the asbestos problem undertaken within the member companies. Also, it is requested that each company nominate a candidate to serve on an Association subcommittee to appraise the data, analyze the problem, and develop a monitoring program for presentation to OSHA that would reflect the consensus position of the Association's membership. The candidate proposed should have good knowledge of appropriate testing, screening, field application procedures, and possibly OSHA and NIOSH requirements. A four man subcommittee would seem practical. It is recommended that this subcommittee meet in August to begin the work.

Please give this your early consideration.

Yours very truly,

GYPSUM ASSOCIATION

H. B. Carlsen

H. B. Carlsen, Secretary
Technical Committee

HBC:mj

cc: Board of Directors
Chairman of all Committees

EVALUATION OF EXPOSURE TO ASBESTOS DURING
MIXING AND SANDING OF JOINT COMPOUNDS

GYPSUM ASSOCIATION
Denver, Colorado

November 19, 1973

EVALUATION OF EXPOSURE TO ASBESTOS DURING MIXING AND SANDING OF JOINT COMPOUNDS

GYPSUM ASSOCIATION
Denver, Colorado

INTRODUCTION

The Gypsum Association retained George D. Clayton and Associates to conduct an industrial hygiene survey at a test site located in Denver, Colorado. The purpose of the survey was to determine the concentrations of airborne asbestos to which workers were exposed during mixing and sanding of joint cement compounds and to interpret results in terms of potential health hazards with particular reference to regulations promulgated under authority of the Occupational Safety and Health Act of 1970. This study was conducted on November 19, 1973 by Mr. Robert D. Soule of Clayton and Associates. Results of that study are reported herein.

BACKGROUND

The Gypsum Association, located at 1503 Orrington Avenue in Evanston, Illinois is a trade association which represents ten to fifteen industrial companies which are engaged in the manufacture of products incorporating gypsum or gypsum-like materials. As with most industrial concerns, the activities of the Gypsum Association have become more broad with the passage and implementation of federal regulations such as the Metal and Non-Metallic Mine Safety Act and the Occupational Safety and Health Act. Technical committees composed of personnel from companies comprising the Gypsum Association have been established with particular interest in the occupational safety and health field. Of particular concern in this respect was the potential hazard associated with exposure of workers to airborne asbestos during mixing and sanding of compounds used to seal cracks and joints formed during installation of wallboard material. Although the specific formulations used by the various companies manufacturing and supplying the joint compound vary, it is understood that essentially all of them incorporate asbestos in the product whether as a dry pound or a ready-mix product.

In order to evaluate the exposure of workers to asbestos during mixing and use of the joint compound products, the Gypsum Association decided to undertake a test program during which several products would be mixed and sanded. George D. Clayton and Associates was retained to collect and analyze samples which would represent the exposure of workers engaged in the study. The tests were performed on November 19, 1973 in a development of townhouses known as King's Townhouses, which were under construction in a suburban area north of Denver, Colorado.

POTENTIAL HEALTH HAZARD ASSOCIATED WITH EXPOSURE TO ASBESTOS

Asbestos is a generic term referring to various mineral silicate compounds. The types used most widely in industrial applications include chrysotile, or "white asbestos" (a hydrated magnesium silicate), amosite,

or "gray asbestos" (an iron magnesium silicate), crocidolite, or "blue asbestos" (a sodium iron silicate), tremolite (a calcium magnesium silicate), and anthophyllite (another iron magnesium silicate). Of these, chrysotile accounts for over 90 percent of the total usage of asbestos in this country, with amosite and crocidolite being the only other types used to any significant extent.

Asbestos exists naturally in bundles of extremely fine fibers which can be subdivided easily into many smaller fibers. The potential health hazard associated with exposure to asbestos is that of inhalation of airborne fibers resulting in a type of pneumoconiosis referred to as "asbestosis." Small asbestos fibers can pass readily through the upper respiratory tract and be deposited in the terminal bronchioles of the lung. There, they produce a local irritation which the body attempts to overcome by initiating a tissue response resulting in the encapsulation of the fibers and consequent formation of "asbestos bodies." If sufficient quantities of fibers are inhaled over an extended period of time, a generalized diffuse peribronchiolar fibrosis can develop. This pulmonary fibrosis can impair the transfer of oxygen across the alveolar membranes and result in respiratory insufficiencies, or even cardiac failure. It has been determined through toxicological and epidemiological studies, that long fibers 20 to 50 micrometers in length, are most active in the production of the fibrosis. Fibers shorter than about two micrometers in length are practically without an irritating effect. There is some evidence that other minerals having fibrous characteristics can produce similar reactions.

Many recent studies have indicated an association between exposure to asbestos in both industrial and urban atmospheres and an increase in a relatively rare type of lung cancer known as mesothelioma. Although it has not been possible to establish a connection with asbestos in all cases of this disease, there is a strong correlation between exposure to crocidolite and occurrence of mesotheliomas. Other types of asbestos have been implicated to a much lesser extent. However, this "new hazard" has received much public attention because it has been suggested that very minimal, non-occupational exposure can be sufficient to produce the disease in some individuals.

For many years the American Conference of Governmental Industrial Hygienists has recommended a threshold limit value (TLV) of five million particles per cubic foot of air (mppcf) for all types of asbestos-bearing dusts containing less than one percent crystalline asbestos. The threshold limit value is defined as the concentration of an airborne contaminant to which it is believed that nearly all workers can be exposed for continuous and repeated work days without experiencing adverse effects. The TLV of five mppcf was based on the impinger sampling technique which was selected as the standard method in the epidemiological studies of occupational exposure to asbestos. Using this method, air is drawn through an impinger containing water and the total particles (both grains and fibers) in an aliquot of the sample, are counted using light-field microscopic techniques.

Within recent years, because of the increasing concern about asbestos in the environment and the resulting need for a more relevant sampling method, the American Conference of Governmental Industrial

Hygienists has proposed a TLV of five fiber (greater than five micrometers in length) per cubic centimeter of air. This standard is based on the membrane filter technique with actual microscopic fiber counting at 400-450X magnification using phase contrast illumination.

The Occupational Safety and Health Administration (OSHA) has established the above concentration (five fibers, greater than five micrometers in length, per cubic centimeter of air) as an emergency standard and have announced that, effective July 1, 1976, the acceptable limit for an eight-hour, time-weighted average exposure will be reduced to two fibers/cc. In addition, OSHA has established the concentration of ten fibers (greater than five micrometers in length) per cubic centimeter of air as an acceptable ceiling concentration. Workers shall not be exposed to concentrations of asbestos in excess of this value, regardless of duration of exposure.

SAMPLING AND ANALYTICAL METHODS

The air sampling conducted to evaluate exposures of workers to asbestos was all of the "breathing zone" type. These samples were collected by drawing air through 37-mm diameter membrane filters (Millipore Type AA) at a rate of about two liters per minute using small battery-operated pumps (Mine Safety Appliances Company, Model G). Sampling units were worn by the workers engaged in either mixing or sanding the joint compound; the pump was attached to the belt and the sampler head fastened on the outside of the worker's shirt at approximate breathing zone height. Thus, these samples were representative of the time-weighted average conditions to which the men were exposed during the sampling period. The sampling head consisted of a three piece cassette (Millipore); during sampling the face cap was removed and the filter was used in an "open face" mode with the filter positioned slightly downward so as to minimize dust falling directly onto the filter.

Sampling was conducted for the entire duration of the mixing operations but because of the higher anticipated concentrations associated with sanding of the joint compounds it was decided to change filters approximately every ten minutes. Sampling during the sanding on the various joint compounds was conducted over a total period of sixty minutes. Therefore six consecutive ten-minute samples were obtained for each sanding test. In addition to the ten-minute test samples were collected over thirty-minute periods as well, i.e., consecutive 30-minute samples for each sanding test. After collection of each sample the filter cap was replaced and the cassette, sampler head, was sealed immediately and prepared for transfer to analytical laboratory.

The method of counting asbestos fibers was essentially the same as that used by the U.S. Public Health Service for the enumeration of asbestos dust on membrane filters. The description of this method first appeared in an article written by G.H. Edwards and J.R. Lyon and appeared in the Annals of Occupational Hygiene, Volume 2, pages 1-6 (1968).

In summary, the method consisted of the following steps.

A pie-shaped section of each sample was mounted on a standard microscope slide using a high viscosity solution of membrane filter in a 1:1 mixture of diethyl oxalate and dimethyl phthalate to render the filter transparent. The asbestos fibers which were on the surface of the filter were then counted using a 10X eyepiece and a 40X objective with phase contrast illumination.

A number of fields, selected at random across the sample, sufficient to reveal a minimum of 100 fibers were examined and fibers greater than five micrometers in length were counted. Any particle having an aspect ratio of three or greater was considered to be a fiber. Although it was conceivable that there would be fibers of paper or other materials present on the filters which would have been dislodged from the wallboard during the sanding operation it did not appear that these were of any adverse consequence during the analysis of the samples. Although it is realized that the counting technique is not specific in terms of being able to identify the chemical nature of the fibers present in the sample, all of the fibers observed in these samples appeared to have physical features characteristic of asbestos fibers.

For those samples collected over a thirty-minute period, and which were too heavily loaded to evaluate directly under the microscope, the collected material on the filters was dislodged in a highly purified distilled water bath using an ultrasonic unit (Dynasonic Corporation, Model G6 generator and Model T6 tank) and diluted to one liter. An aliquot of the resulting suspension was drawn, passed through a membrane filter (Millipore Type HA) and was then analyzed according to the procedure described above.

PRESENTATION OF RESULTS

A total of four joint compound products were used during this study. These products (two dry mix and two "ready mix") were supplied by two manufacturers whose identities were not known to the investigator. The products were identified by code (2D, 2R, 4D and 4R), a number referring to the supplier and the letter indicating whether the product was a "dry" or "ready-mix" compound.

The results of the sampling program conducted during the mixing of the two dry mix products and sanding tests on all four joint compounds are presented in Tables I through IV. Examination of these data reveals the following:

1. During mixing of Joint Compound 2D, the worker was exposed to a concentration of 31.4 fibers, greater than five micrometers in length, per cubic centimeter of air.
2. The amount of total particulate generated during the sanding operation on Joint Compound 2D was so great that direct

analysis of the ten-minute samples was not possible. Analysis of the thirty-minute samples, which were redeposited, indicated an average concentration of 39.4 fibers, greater than five micrometers in length, per cubic centimeter of air.

3. The results of analyzing four of the six ten-minute samples collected during sanding on Joint Compound 2R indicated an average concentration of 4.2 fibers per cubic centimeter; two of the samples were too heavily loaded to analyze directly. Results of analysis of the two thirty-minute samples collected during the sanding on Joint Compound 2R indicated an average concentration of 11.1 fibers per cubic centimeter, a factor of over 2.5 times as high as the average obtained from analysis of the ten-minute samples.
4. The sample obtained during the mixing of Joint Compound 4D indicated a concentration of 7.6 fibers, greater than five micrometers in length, per cubic centimeter of air.
5. Results of analyzing four of the six ten-minute samples collected during the sanding on Joint Compound 4D indicated an average concentration of 4.4 fibers per cubic centimeter. Analysis of the two thirty-minute samples, which were subjected to the redepositing procedure, indicated an average concentration of 14.8 fibers per cubic centimeter, a factor of 3.4 times as high as results obtained from the ten-minute samples.
6. The results of analysis of five of the six samples obtained during the sanding on Joint Compound 4R indicated an average concentration of 10.8 fibers per cubic centimeter. Results of analysis of the two thirty-minute samples indicated an average concentration of 9.7 fibers per cubic centimeter, a value essentially the same as that obtained from analysis of the ten-minute samples.
7. Six of the thirteen ten-minute samples obtained during sanding on the four joint compounds indicated concentrations in excess of five fibers per cubic centimeter. Both mixing operations generated asbestos concentrations in excess of five fibers per cubic centimeter.
8. Two of the thirteen ten-minute samples collected during the sanding tests indicated concentrations in excess of ten fibers per cubic centimeter, the acceptable ceiling concentration. One of the two mixing operations generated an asbestos-in-air concentration in excess of ten fibers per cubic centimeter.
9. Of the four products tested, sanding on 2R and 4D resulted in concentrations less than, but approaching, the current acceptable limit for continuous exposure of workers, five fibers per cubic centimeter. Product 4R consistently produced very high concentrations of total dust which obscured the asbestos fibers on the samples.

CONCLUSIONS

The following conclusions are presented on the basis of observation and measurements made during the study reported herein.

1. Based on the results of the ten-minute samples, it is apparent that the exposures of workers engaged in mixing and sanding of the various joint compounds used during this test were to concentrations approaching or exceeding five fibers per cubic centimeter greater than five micrometers in length, per cubic centimeter of air.
2. It is clear that persons engaged in the mixing and sanding of joint compounds similar to those used during this test would be exposed to concentrations of airborne asbestos in excess of two fibers per cubic centimeter during the entire course of their work. This value is the proposed acceptable limit for an eight-hour time-weighted average exposure to asbestos which is scheduled to become effective July 1, 1976.
3. With the exception of the tests conducted during sanding of joint compound 4R the results of analysis of the thirty-minute samples, using the redeposition technique, were consistently higher than those obtained by direct analysis of the ten-minute samples by a factor of 2-1/2 to 3-1/2. Therefore it appears that use of the redeposition technique would result in the apparent concentrations of asbestos in air being higher than actually present and would therefore err on the "conservative" side.
4. Discounting the results obtained by analysis of the thirty-minute samples, for which the redeposition technique was used, three of the samples collected (mixing of 2D and sanding on 4R) indicated concentrations in excess of ten fibers per cubic centimeter and are therefore a concern as peak exposures. With those exceptions, the problem is one of controlling the time-weighted average exposures of workers to asbestos. In that respect, it must be pointed out that the sampling results reported herein are indicative of the exposures of workers during the mixing or sanding operations not their time-weighted average exposure for a full workday.

RECOMMENDATIONS

1. The results of sampling reported herein should be analyzed in conjunction with a study of the work practices and routine of persons engaged in mixing, sanding or otherwise being exposed to joint compounds similar to those used in this study. In this way a true evaluation of the time-weighted average exposure of such workers to asbestos can be made. If it is true that, as reported by workers used during this test, it would be unlikely for an individual to mix or sand on the joint compounds for greater than two hours per workday, then the time-weighted average exposure of such workers to asbestos likely would be within acceptable limits. Of course, the problem of controlling an

11. Although the results of the air sampling reported here indicate concentrations of asbestos fibers in excess acceptable limits, either those currently enforced or those proposed to be made effective in July, 1976, it was obvious during the study that the sanding process in general has associated with it exposure of the worker to extremely high concentrations of total dust. Therefore, if means were implemented to maintain the exposure of the workers to total particulate to within acceptable limits there would be an inherent control of the asbestos problem as well. Although more extensive in nature, engineering control of the total dust generated by the sanding operations is feasible. Such control techniques include, but not be limited to, the use of a wet sanding technique and/or use of a portable local exhaust ventilation system incorporating, as the air moving device, units similar to common industrial vacuum cleaners and collectors.

3. The next phase of the testing program to control workers' exposures to asbestos during use of the joint cement compounds locally would be evaluations of the various potential engineer control concepts indicated or inferred above.

This report prepared by:

Robert D. Soule

Robert D. Soule, P.E.
Vice-President, Industrial Hygiene Service

exposures to below ten fibers per cubic centimeter would still have to be contended with.

2. From the standpoint of being able to eliminate or minimize the problem of excessive concentrations of asbestos being generated by handling and use of the joint compounds, consideration should be given to the following aspects.

1. The most effective means of eliminating the asbestos problem obviously would be to eliminate asbestos from the joint compound formulations if this is feasible. Although the chief role that asbestos plays in the joint compound formulations is not clear it is understood that manufacturers of joint compounds consider it necessary that asbestos be in formulations.

- b. From an engineering standpoint, it may be necessary to implement the following measures in conjunction with mixing and sanding of the joint compounds containing asbestos.

1. Mixing of the joint compounds could be done in such a way that the material is more effectively wetted as it is removed from the containers or could be done within an enclosure, with or without mechanical ventilation, so as to minimize the amount of asbestos fibers released into the breathing zone of the workers.

TABLE 1

GEORGE D. CLAYTON & ASSOCIATES
INDUSTRIAL HYGIENE SAMPLING SUMMARY

Client Gypsum AssociationMaterial Asbestos

1973 Date	Sample No.	JOINT COMPOUND 2D Description (a)	Sampling Period		Sample Weight	Sample Volume Liters	Concentration		
			Start	Stop			Fibers >5µm/cc		
11/19	2D-M	Mixing of compound (b)	09:28	09:34		13	31.4		
11/19	2D-S-1	Sanding on compound (c)	11:57	12:27	-	60	35.2**		
11/19	2D-S-2	Sanding on compound (c)	11:57	12:07		-	*		
11/19	2D-S-3	Sanding on compound (c)	12:07	12:17		-	*		
11/19	2D-S-4	Sanding on compound (c)	12:17	12:27		-	*		
11/19	2D-S-5	Sanding on compound (c)	12:27	12:57		60	43.6**		
11/19	2D-S-6	Sanding on compound (c)	12:27	12:37		-	*		
11/19	2D-S-7	Sanding on compound (c)	12:37	12:47		-	*		
11/19	2D-S-8	Sanding on compound (c)	12:47	12:57		-	*		

(a) All samples were obtained in the breathing zone of the workers.

(b) Mixing of Compound 2D was done by Mr. Harold McDowell in King's Hill Townhouse Unit U-81.

(c) Sanding of Compound 2D was done by Mr. James Pasquariello in King's Hill Townhouse Unit U-77. Psychrometric conditions in U-77 at 11:45 were 56°F dry bulb, 41°F wet bulb (22% relative humidity).

TABLE II

GEORGE D. CLAYTON & ASSOCIATES
INDUSTRIAL HYGIENE SAMPLING SUMMARY

Client Gypsum Association

Material

Asbestos

1973 Date	Sample No.	JOINT COMPOUND 2R Description (a)	Sampling Period		Sample Weight	Sample Volume Liters	Concentration		
			Start	Stop			Fibers >5µm/cc		
11/19	2R-S-1	Sanding compound (b)	15:48	16:18		60	12.3*		
11/19	2R-S-2	Sanding compound (b)	15:48	15:58		20	4.5		
11/19	2R-S-3	Sanding compound (b)	15:58	16:08		20	4.2		
11/19	2R-S-4	Sanding compound (b)	16:08	16:18		20	4.1		
11/19	2R-S-5	Sanding compound (b)	16:18	16:48		60	9.9**		
11/19	2R-S-6	Sanding compound (b)	16:18	16:28		20	*		
11/19	2R-S-7	Sanding compound (b)	16:28	16:38		20	3.8		
11/19	2R-S-8	Sanding compound (b)	16:38	16:48		20	*		

(a) All samples were obtained in the breathing zone of the workers.

(b) Sanding of Compound 2R was done by Mr. David Potter in King's Hill Townhouse Unit U-79. Psychrometric conditions in U-79 at 15:45 were 39°F dry bulb, 35°F wet bulb (66% relative humidity).

* too heavily loaded for direct analysis

** material on filter was taken into suspension and an aliquot

TABLE III
 GEORGE D. CLAYTON & ASSOCIATES
 INDUSTRIAL HYGIENE SAMPLING SUMMARY

Client Gypsum Association

Material

Asbestos

1973 Date	Sample No.	JOINT COMPOUND 4D Description (a)	Sampling Period		Sample Weight	Sample Volume Liters	Concentration		
			Start	Stop			Fibers >5µm/cc		
11/19	4D-M	Mixing compound(b)	09:09	09:17		14.4	7.6		
11/19	4D-S-1	Sanding compound(c)	10:20	10:50		60.0	15.5**		
11/19	4D-S-2	Sanding compound(c)	10:20	10:29		18.0	5.2		
11/19	4D-S-3	Sanding compound(c)	10:29	10:40		22.0	*		
11/19	4D-S-4	Sanding compound(c)	10:40	10:50		20.0	3.7		
11/19	4D-S-5	Sanding compound(c)	10:50	11:00		20.0	4.1		
11/19	4D-S-6	Sanding compound(c)	10:50	11:20		60.0	14.1**		
11/19	4D-S-7	Sanding compound(c)	11:00	11:10		20.0	*		
11/19	4D-S-8	Sanding compound(c)	11:10	11:20		20.0	4.7		

- (a) All samples were obtained in the breathing zone of the workers.
 (b) Mixing of Compound 4D was done by Mr. Harold McDowell in King's Hill Townhouse Unit U-80.
 (c) Sanding of Compound 4D was done by Mr. James Pasquariello in King's Hill Townhouse Unit U-76. Psychrometric conditions (dry and wet bulb temperatures) were not recorded.

TABLE IV

GEORGE D. CLAYTON & ASSOCIATES
INDUSTRIAL HYGIENE SAMPLING SUMMARY

Client Gypsum Association

Material

Asbestos

1973 Date	Sample No.	JOINT COMPOUND 4R Description (a)	Sampling Period		Sample Weight	Sample Volume Liters	Concentration		
			Start	Stop			Fibers >5µm/cc		
11/19	4R-S-1	Sanding compound (b)	14:31	15:01		60.0	11.7**		
11/19	4R-S-2	Sanding compound (b)	14:31	14:41		20.0	6.3		
11/19	4R-S-3	Sanding compound (b)	14:41	14:51		20.0	7.5		
11/19	4R-S-4	Sanding compound (b)	14:51	15:01		20.0	19.9		
11/19	4R-S-5	Sanding compound (b)	15:01	15:31		60.0	8.1**		
11/19	4R-S-6	Sanding compound (b)	15:01	15:11		20.0	5.3		
11/19	4R-S-7	Sanding compound (b)	15:11	VOID		-	-		
11/19	4R-S-8	Sanding compound (b)	15:18	15:31		26.0	15.0		

(a) All samples were obtained in the breathing zone of the workers.

(b) Sanding of Compound 4R was done by Mr. David Potter in King's Hill Townhouse Unit U-78. Psychrometric conditions in U-78 at 14:45 were 44°F dry bulb, 38°F wet bulb (68% relative humidity).

** material on filter was taken into suspension

Georgia-Pacific



ck w/
LANCE

INTERDEPARTMENTAL COMMUNICATION

DATE: February 8, 1974

TO: Mr. E. B. Hollingsworth

LOCATION: Wilmington

FROM: J. D. Rauch

LOCATION: Akron

SUBJECT: O. S. H. A. ASBESTOS REINSPECTION

On February 1, 1974, we sent the O.S.H.A. area director a required 30 day progress report on asbestos fiber control. In this report I indicated that we would have our permanent engineering controls completed and in full use by 2/11/74.

I have now been advised by O.S.H.A. that we can expect an O.S.H.A. reinspection on 2/11/74 or shortly thereafter. In this regard we plan to curtail Joint System production on 2/9/73 and clean up the entire work area.

My main concern is regarding their requirement that we, "Establish a personal monitoring program to determine, at 6 month intervals, the concentration of asbestos dust." Our last series of tests cost us nearly \$1,000 and were unacceptable by O.S.H.A. I have requested O.S.H.A. to supply me with the names of consultants to run the required tests that would be acceptable. A list of consultants has been supplied, see attached. But to quote the area director, "the results would not be acceptable to determine O.S.H.A. compliance." So it would appear that we should take steps to have the tests conducted in as inexpensive a manner as possible. We need to know for our own purposes how our controls are working, but we do not need to have a high priced consultant and laboratory to lend credit to the tests if tests other than by O.S.H.A. will be unacceptable.

I believe we will pass this inspection with no real problem. However, I was in hope that we could have a 6 month self inspection program and not look forward to regular visits from O.S.H.A. Inspectors. Now it would appear that we can expect regular testing by O.S.H.A. until we remove asbestos from all of our products.

The attached list of consultants may be of some value to our other operations, but they should realize that tests other than by O.S.H.A. are not acceptable to the Department of Labor.

We will keep you advised regarding the outcome of the 2/11/74 inspection.

J. D. R.

cc: Mr. H. W. Peele - Wilm.
Mr. R. G. Tuttle - Portland
Mr. John DiLorenzo - Portland

FEB 11 1974

U. S. DEPARTMENT OF LABOR
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
700 MIDTOWN PLAZA, ROOM 203
SYRACUSE, N. Y. 13210



February 6, 1974

Mr. J. D. Rauch
Plant Manager
Georgia-Pacific Corporation
Bloomingdale Road
Akron, New York 14001

Dear Mr. Rauch:

Your letter dated February 1, 1974 has been received and reviewed at this office. Please be advised that we are aware that your administrative controls and permanent engineering controls will be in full use by February 11, 1974 and that these controls are within the dry mixing and packout areas to prevent employee exposure to asbestos dust.

Your request for consultants to run tests acceptable to OSHA was also reviewed and to this end we are submitting a list of individuals and companies capable of performing asbestos dust sampling. However, the results would not be acceptable to determine OSHA compliance.

To determine if the permanent engineering controls are effective, one of our OSHA Industrial Hygienists will resample the workplace. It is anticipated that this sampling will be conducted on February 11, 1974 or within seven working days after this date. Based on the OSHA sampling results, you will be informed if the permanent engineering controls are adequate.

Meanwhile, temporary administrative controls (PPE) are to be conducted pending the outcome of our sampling.

Sincerely,

A handwritten signature in dark ink, appearing to read "Chester C. Whitside". The signature is fluid and cursive, with the first name "Chester" being more prominent.

Chester C. Whitside
Area Director

Enclosure

CONSULTANTS

Expertise

<u>IH</u>	Industrial Hygiene	<u>OM</u>	Occupational Medicine
<u>IHL</u>	Industrial Hygiene Laboratory	<u>HP</u>	Health Physics
<u>TOX</u>	Toxicology	<u>ERG</u>	Ergonomics
<u>VE</u>	Ventilation Engineering	<u>AP</u>	Air Pollution
<u>NC</u>	Noise Control	<u>WP</u>	Water Pollution
<u>CH</u>	Conservation of Hearing (Medical Responsibility)	<u>WD</u>	Waste Disposal
<u>AE</u>	Audiometric Examination	<u>SAF</u>	Safety
<u>VC</u>	Vibration Control	<u>PS</u>	Product Safety
		<u>TRA</u>	Training

<u>Name and Address</u>	<u>Areas of Expertise As Shown Above</u>	<u>Other</u>
Frank E. Adley, Manager Division of Environmental Health Northwest Health Services 805 Goethals Richland, Washington 99352 509/945-4100	IH, IHL, VE NC, CH, AE OM, AP, WP	Respirator testing; quantitative mask fitting laboratory
Walter H. Poppe Eco Engineering 7127 South Sunnycrest Road Seattle, Washington 98178 206/772-2855	IH, IHL, VE NC, HP, AP WP, WD, SAF PS, TRA	
Ted Hikel Safety Engineering Consultants, Inc. 941 White Henry Stuart Building Seattle, Washington 98101 206/582-3952	IH, TOX, VE NC, AE, VC HP, ERG, AP WP, WD, SAF PS, TRA	Develop and manage safety programs; plan and conduct safety seminars and conferences
David R. Showalter, President Human Resources Conservancy Post Office Box 11007 Tacoma, Washington 98411 206/752-4888	CH, AE, SAF TRA	Specialize in development and packaging of curricula - training and education for occupational health and safety personnel

1. Format for listing consultants and names of consultants from the Illinois area were prepared by the Chicago Section, American Industrial Hygiene Association (AIHA). However, the AIHA does not endorse, evaluate, or certify the advice or service of these consultants.

2. This list is merely for information purposes and is not endorsed by any official agency of the U.S. Government; neither does it imply a total listing of consultants, as new names will be added as they are identified.

3. Edited by Stanley J. Reno, National Institute for Occupational Safety and Health, U.S. Department of Health, Education, and Welfare, Region VIII, 9017 Federal Building, Denver 80202.

August 10, 1972

Name and Address

Areas of Expertise

Other

Dr. Irving R. Tabershaw or
Dr. W. Clark Cooper
Tabershaw-Cooper Associates
2180 Milvia Street
Berkeley, California 94704
415/845-3355

IH, TOX, CH
OM, SAF, PS
TRA

Epidemiologic studies,
medical records

Howard B. Spielman or
Eugene A. Port
Health Science Associates
10710 East Felson Circle
Cerritos, California 90701
213/867-4100

IH, IHL, TOX*
VE, NC, CH
AE, OM, HP
AP, WD, SAF
TRA

*Research of literature
only

Jerry Cohen or Joe Tinney
Health and Safety Technology, Inc.
Post Office Box 861
Livermore, California 94550
415/443-9234

IH, IHL, VE
NC, HP, AP
WD, SAF, TRA

Werner Schwarz or David Claridge
Trapelo/West Division of
LFE Corporation
2030 Wright Avenue
Richmond, California 94804
415/235-2633

IH, IHL, VE
HP, AP, WP
WD, TRA

Industrial hygiene
services, environmental
quality, total capa-
bilities, particle
analysis, radiochemistry

Richard F. Krug
Industrial Noise Control Associates
2765 Julliard Street
Boulder, Colorado 80303
303/494-0766

NC, CH, AE

Donald J. Northey
Audiological Consultants, Inc.
222 Milwaukee Street, Suite 109
Denver, Colorado 80206
303/322-6930

NC, CH, AE

Sound level surveys and
octave band analysis

J. D. Garber
Johns-Manville Corporation
Post Office Box 5108
Denver, Colorado 80217
303/770-1000 (Ext. 2270)

IH, IHL, TOX
VE, NC, CH
VC, ERG, AP
WP, WD, TRA

Robert Jurovich
Juro's Hearing Conservation
for Industry
521 - 24th Street, West
Billings, Montana 59102
401/656-7850

NC, CH, AE
VC

<u>Name and Address</u>	<u>Areas of Expertise</u>	<u>Other</u>
K. M. Barthelmess, Gen. Mgr. Northwest Environmental Services Post Office Box 1243 Missoula, Montana 59801 406/549-9471	IH, IHL, VE NC, CH, AE AP, WP	
William S. Johnson, Sr. Vice President Eberline Instrument Corporation Post Office Box 2108 Santa Fe, New Mexico 87501 505/982-1881	IH, IHL, NC OM, HP, AP WP, WD, TRA	Environmental impact statements and implementing programs
John Melton Safety Consultant Services 1542 North Fourth Street Fargo, North Dakota 58102 701/232-6806	SAF, TRA	General walk-thru inspec., internal safety program guidance, recordkeeping program assistance
J. W. Bruns Hazard Specialists, Inc. 3209 South Prairie Avenue Sioux Falls, South Dakota 57105 605/339-2698	SAF, TRA	
Eddie Anderson Hearing Conservation Noise Control 1365 Peachtree Street, N.E. Atlanta, Georgia 30309 404/892-1140	NC, CH, AE	Office also located at 1716 Panama Street, Philadelphia 19103 215/735-7487
Dr. Richard D. Strunk Manager of Engineering Acoustics Bolt Beranek and Newman, Inc. 1740 Ogden, Downers Grove, Ill. 60515 312/969-6150	NC, VC	
Lyle A. Westrom, Vice President Bureau of Safety, Inc. 69 West Washington Chicago, Illinois 60602	WD, SAF	
Herman Comber, Ph.D., Professor Civil Engineering Department Northwestern University Evanston, Illinois 60201	HP	
George Harper, Professor Mechanical Engineering Department University of Illinois Urbana, Illinois 61801	SAF, PS, TRA	

<u>Name and Address</u>	<u>Areas of Expertise</u>	<u>Other</u>
Edward R. Hermann, Ph.D. Associate Professor, Environmental Health Engineering Northwestern University 627 Dartmouth Place Evanston, Illinois 60201	IH, NC, CH* AE, WP, WD TRA	*Consulting to medical practitioner or medical depts.
Bruce A. Hertig, Sc.D., Assoc. Prof. University of Illinois 119 M.E. Laboratory Urbana, Illinois 61801	VE, ERG	
Joseph C. Calandra, M.D., Pres. Industrial Bio-Test Labs, Inc. 1810 Frontage Road Northbrook, Illinois 60062	IH, IHL, TOX OM, AP, WP SAF	
Leon Kirschner, Director Industrial Hazard Analysts, Inc. 7650 Lavergho Avenue Skokie, Illinois 60076	IH, IHL, AP WP, PS	
Paul D. Halley, Vice President Lifestream Corporation 624 South Michigan Avenue Chicago, Illinois 60680	IH, TOX, VE NC, AP, WP	
Murrell G. Seldon, Jr., Manager Walter C. McCrone Associates, Inc. Environmental Systems Program 493 East 31st Street Chicago, Illinois 60616	IH, IHL, AP	
Robert W. Satterfield, Manager National Loss Control Service Corp. Environmental Sciences Div. 4750 Sheridan Road Chicago, Illinois 60640	IH, IHL, VE NC, AP, WD SAF	
Arthur A. Krawetz, Ph.D., Research Dir. Phoenix Chemical Lab, Inc. 3953 West Shakespeare Avenue Chicago, Illinois 60647	IH, AP, SAF	
Dennis M. Michaelson, Assoc. Chemist Polytechnic, Inc. 2600 South Michigan Avenue Chicago, Illinois 60616	TOX, NC, AP WP, SAF	

<u>Name and Address</u>	<u>Areas of Expertise</u>	<u>Other</u>
J. E. Quon, Ph.D., Professor Civil Engineering Department Northwestern University Evanston, Illinois 60201	AP	
William M. Ihde, Consult. Engineer S. V. Engineering 120 South Waiola Avenue LaGrange, Illinois 60525	NC, VC	
Charles W. Wyman Industrial Hygienist/Safety Engineer 4909 Middaugh Avenue Downers Grove, Illinois 60515	IH, SAF	
Joe Zuithoff, Director Personalized Industrial Training Svc. Post Office Box 36 Crete, Illinois 60417	SAF, TRA	
Dr. R. E. Kary Swanson Environmental Consultants, Inc. 7 South Dearborn, Suite 1631 Chicago, Illinois 60603 (312) 372-5493	IH, TOX, NC OM, HP, AP WP, TRA	Environmental Impact
Joseph B. Olivieri or George Hama JCH Associates, Inc. 29111 Harper Avenue St. Clair Shores, Michigan 48081 313/771-5320	IH, IHL, VE NC, VC, AP WP	
F. I. Grunder, Chief-Inorganic Anal. George D. Clayton & Associates 25711 Southfield Road (313/352-3120) Southfield, Michigan 48075	IH, IHL, VE NC, VC, HP AP, WP, WD SAF, PS, TRA	
Theodore D. Striggles P/E Development Company 16 Atkinson Square Cincinnati, Ohio 45246 513/771-4330	VE, NC, AP WP, WD, SAF	
Arnold W. Doyle, Vice President Malden Research Corporation 359 Allston Street Cambridge, Massachusetts 02139 617/868-3940	IHL, NC, AP WP, WD	
William R. Bradley William R. Bradley & Associates 2 County Road Manafly, New Jersey 07670 201/567-7929	IH, IHL, TOX VE, NC, CH AE, HP, ERG AP, WP, WD SAF, PS, TRA	

Name and Address

Areas of Expertise

Other

Mrs. R. S. Stewart
Environmental Analysts, Inc.
224 Seventh Street
Garden City, New York 11530
516/741-3061

IH, IHL, VE
NC, HP, AP
WP, WD

Dr. L. V. Bristol or M. L. Roberts
Trudeau Institute (Silicosis
Control Unit)
Post Office Box 59
Saranac Lake, New York 12983
518/891-3080

IH-Dust
VE-Mine

Radiology

Daniel C. Braun, M.D., President
Industrial Health Foundation, Inc.
5231 Centre Avenue
Pittsburgh, Pennsylvania 15232
412/687-2100

IH, TOX, CH
OM, SAF, TRA

Information source,
literature searches

Hearing Conservation Noise Control
1716 Panama Street
Philadelphia, Pennsylvania 19103
215/735-7487

NC, CH, AE

Office also located in
Atlanta, Georgia

Charles Stevens
Spotts, Stevens & McCoy, Inc.
345 North Wyomissing Boulevard
Wyomissing, Pennsylvania 19610
215/376-6581

IH, VE, AP
WP

Arley J. Mead
Hazleton Laboratories, Inc.
9200 Leesburg Turnpike
Vienna, Virginia 22180
703/893-5400

IH, IHL, TOX
AP, WP, WD
PS

Georgia-Pacific



APR 29 1974

Intracompany memo

Lance Ryder

LOCATION Stamford, CONN

Robert L. McCallister

LOCATION Portland, OR

RE: Akron NY - Chest X-Rays
& Ventilation Study

DATE April 26, 1974

I've attached a copy of a letter and evaluation report directed to Mr. Schifferle by Dr. Amdur relating his findings on examination of Akron employees who have some exposure to asbestos.

Would you be kind enough to arrange to meet with Mr. Schifferle after having discussed these findings with Dr. Amdur on your next scheduled visit to the Akron area.

Our particular interest would be Dr. Amdur's opinion regarding the difference between the studies completed in 1973 and those studies completed most recently.

As you can see, there are several employees that demonstrate findings which should give us reason for concern and we would appreciate your discussing these cases specifically with Dr. Amdur. In your discussion with Dr. Amdur, we are concerned as to what steps should be taken to prevent further deterioration.

Kindly advise, after you have reviewed Dr. Amdur's findings with the doctor and Mr. Schifferle, with copy of your evaluation of this problem to Jim Mord and Ken Cipeon.

R.M.
R.L.M.

RLM/hr

Attachment

cc: Jim Mord
Ken Cipeon
Schifferle

BATE PRODUCTION
MAY 1994

NAVIN L. ANDER, M.D.
ROBERT A. CAPUTO, M.D.
MARLON L. GALT, M.D.
JOHN N. STRACHAN, M.D.

BUFFALO INDUSTRIAL HYGIENE
LABORATORY 2

BUFFALO INDUSTRIAL MEDICAL CENTER
735 TONAWANDA STREET
BUFFALO, N. Y. 14227

Telephone: 675-1211

to - Georgia Pacific

Patrick Krantz (age 19) (for the year 1973 only)

Robert Kenwood (age 36) (For the year 1973 only)

Arnold Mandrich (age 41)

J. David (age 20) (for the year 1974)

D. David (age 31)

J. Dermstetter (age 43)

The following will be commented upon individually.

Kenneth Snyder (age 44) There is a variation in his chest X-rays from 1973 to 1974. The former is reported as normal, the latter has evidence of old inflammatory disease. Ventilation studies are probably satisfactory, although there is again substantial difference between the years of 1973 and 1974.

Newell Reubun - Chest X-rays are satisfactory for both years. There is a minimal defect in Ventilation, but in the over-all this is probably satisfactory.

Leslie Quakenbush (age 37) X-rays are satisfactory for both years. He has a mild Ventilation defect which is persistent for both years.

Raymond Fisher - He has normal X-rays for both years. The values on Ventilation are inconsistent. He has evidence of mild airway obstructive disease, but it is probably not disabling.

J. Paul - His X-rays demonstrate old healed disease. Ventilation studies demonstrate mild restrictive and airway obstructive disease, probably mildly disabling.

Walter Bowers (age 51) - His X-rays are satisfactory. There is a great differential between the Ventilation studies for both years, and I suspect that no real difficulty exists.

Georgia-Pacific

company memo

Mr. D. C. Corkill

location Portland

O. E. Burch

location Portland

WARNING LABELS

Joint Cement Products

date June 4, 1974

After discussing with our attorneys our warning label program for Joint System Products, they make the following recommendations:

READY-MIX

1. The labels previously proposed are O.K. except that the Caution should be double the size previously proposed, and the word Caution should be underlined.
2. We presently print directions on two sides of the 5 gallon can. We should have the caution label under the number 5 step, on both sides, or eliminate one set of the directions.

BAG GOODS

The next time we print bags we should add the following to the caution label:

"When mixing or sanding use approved respirator".

OEB/mf

O.E.B.

CC Messrs: J. Hurd, Portland
Matt Fink, Tigard Lab
C. W. Lehnert, Tigard Lab
Ed Assen, Portland
T. Withycombe, Portland
A. T. Niebergall, Portland
C. S. Nelson, Portland

THIS COPY FOR

PLAINTIFF

EXHIBIT

GP-30

Georgia-Pacific

intracompany memo

to Mr. W. A. Nalbana
 from J. R. Burd
 subject Asbestos Caution Labels

location Akron, N. Y.
 location Portland
 date June 7, 1974

This memo is in response to your letter dated June 3, 1974 concerning the above subject.

I appreciate your concern over the changes in the asbestos caution labels; however, our attorneys are also deeply concerned over recent findings of asbestosis in workers in the construction industry which is a result of working with joint system products. The new wording for the caution labels is in compliance with OSHA regulations. The fact that the wording, "Respirator Protection Required When Sanding" was added will only give us additional protection if any liability threats are made against our products. Our sales effort should not be affected, as the implication of the OSHA wording is to wear a respirator while working with these products anyway.

You asked if we as Georgia-Pacific representatives are in a position to recommend the type of approved respirators to be used to our customers. I feel we should be prepared to answer and discuss any questions dealing with our products. If we can give assistance to our customers as to what types of respirators are approved by OSHA, I see nothing wrong in doing so.

I am enclosing a copy of the Occupational Safety and Health Standards which deals with the subject for your reference if you do not already have a copy.

If I can be of further assistance in clarifying this matter for you, please contact me.

J. R. Burd
 J. R. B.

JRH:jb

Enclosure

cc: Messrs. J. D. Rauch - Akron, N. Y.
 E. B. Hollingsworth - Wilmington
 O. E. Burch
 C. W. Lehnert - Tigard Lab
 H. W. Peala - Wilmington

OCCUPATIONAL
SAFETY AND HEALTH STANDARDS
COMPLIANCE PROCEDURES

25 JUN 74

HOUSEKEEPING INSPECTION PROCEDURE

The purpose of the housekeeping inspection procedure is to provide our joint systems operations a systematic method of control of housekeeping and to establish a record of this control to satisfy the Environmental Protection Agency and OSHA of our efforts to provide our employees with a work atmosphere which is in compliance with the Occupational Safety and Health Standards.

I. Plant Housekeeping Report

The form is simple and self-explanatory. The inspection areas may need some modification from one location to another. The second column is for indicating if a given area was inspected or not, and we have also provided some room for comments.

II. Rating Evaluation Sheet

The rating evaluation sheet is provided to assist inspectors in achieving uniform ratings for conditions observed during inspections. The evaluation sheet does not include all of the conditions to be inspected, but it is designed to give you a feel for classifying specific conditions into a rating category.

III. Inspection Frequency

The frequency of inspection is left to the discussion of the local manager dependent on need.

IV. Recordkeeping

The completed Plant Housekeeping Report forms should be filed and kept for a minimum of three years.

RATING EVALUATION

- Poor -** Conditions which would constitute a poor rating would include: Excessive accumulations of dust on floors, machines, building supports, stored materials, etc. Clothing, refuse, bottles, rags, etc., not properly stored or disposed of. Any unsanitary or unclean conditions existing in toilets, washrooms, showers or drinking fountains. Stored material upset, damaged stored materials not repaired, unnecessary accumulations of scrap, paper, bags, etc. Water, oil or grease spills or leaks, severe disorderly arrangement of materials, broken equipment such as pallets, bags, etc., and other dirty, unsightly or disorderly conditions not otherwise specified.
- Fair -** Conditions which would constitute a fair rating would include: Moderate accumulations of dust on floors, machines, building supports, stored materials, etc. Conditions existing in washrooms, showers, toilets or drinking fountains which would indicate that cleaning had been done; however, better cleaning is necessary. Stored materials improperly piled or arranged. Materials protruding into aiseways. Scrap, paper, bags, etc., left lying on floor, on loads or found on the ground, and other conditions which need improvement not otherwise specified.
- Good -** Conditions which would constitute a good rating would include: Light accumulations of dust on floors, machines, building supports, stored materials, etc. Conditions of the washrooms, showers, toilets and drinking fountains indicate that adequate cleaning is achieved; however, there is still room for improvement. Stored materials properly piled and arranged; however, straighter stacking and a more orderly arrangement of materials can be achieved. An occasional piece of scrap, paper or bag lying on the floor, on loads or found on the ground. These and other conditions not otherwise specified are satisfactory; however, improvement can still be achieved.
- Excellent -** Conditions which would constitute an excellent rating would include: Virtually no accumulations of dust on floors, machines, building supports, stored materials, etc. The washrooms, showers, toilets and drinking fountains indicate a superior job of cleaning. Stored materials properly piled and arranged in a complete orderly fashion. No scrap, paper or bags on floors, loads or ground. These and other conditions not otherwise specified are outstanding.

PLANT HOUSEKEEPING REPORT

JOINT SYSTEMS PLANT

PLANT LOCATION _____ DATE OF INSPECTION _____

INSPECTION AREA	INSPECTED - YES/NO COMMENTS	RATING			
		POOR	FAIR	GOOD	EXCEL- LENT
<u>OUTSIDE PLANT</u>					
<u>Front of Plant</u>					
<u>Limestone Unloading</u>					
<u>Dust Collection</u>					
<u>INSIDE PLANT</u>					
<u>Dock</u>					
<u>Blender</u>					
<u>Hammer Mill</u>					
<u>Storage Bin</u>					
<u>Packer</u>					
<u>Ready-Mix Mixer</u>					
<u>Railroad Unloading</u>					
<u>Main Aisle of Plant</u>					
<u>Finished Goods Warehouse</u>					
<u>Raw Material Storage</u>					
<u>Lunch Room</u>					
<u>Rest Room</u>					
<u>Laboratory & Maintenance</u>					
<u>Office</u>					
<u>GENERAL PLANT EVALUATION</u>					

Housekeeping
Inspection
Procedure

RESPIRATOR RESPONSIBILITY

1. I _____ have received on this date
_____ a respirator and have been instructed on
its use. It is my responsibility to keep clean and in good operating
condition this respirator.

I agree to pay the cost of the respirator should I fail to turn
it in to my foreman on being assigned to another department or leaving
the employ of the company for any reason.

2. I _____ have received on this date
_____ a disposable respirator and have been
instructed on its use and replacement.

Employee Signature

Date

Foreman Signature

Department

RESPIRATOR PROCEDURE

SUBJECT: Respirator Maintenance, Care and Cleaning

I. Purpose

The purpose of this procedure is to train employees required to wear respirators in proper respirator maintenance, care and cleaning.

II. Respirator Issue

A. The respirators currently being issued at our Chicago joint systems operation is the Style 560 - Wilson respirator, and

B. 3M Brand Disposable Respirator No. 8710.

III. Maintenance and Inspection

A. The wearer of the respirator will inspect it daily to insure proper function and worn parts replacement.

B. The department supervisor and the safety supervisor will periodically spot check respirators for fit, usage and condition.

IV. Care and Cleaning

A. The Wilson 560 respirator is designed with a changeable filter feature. It requires two (2) R-60 disposable filters which are to be replaced daily.

B. A thorough cleaning and sterilizing of this respirator is required daily. Cleaning is accomplished with warm water and a disinfectant. (For exact cleaning procedure, see your supervisor.)

V. Respirator Replacement

When your respirator becomes worn or does not function properly, contact your supervisor immediately. He will make the necessary repairs and/or replacement of worn parts or replace your old respirator with a new one if replacement is so indicated.

VI. Respirator Storage

Respirators which are individually assigned shall be either marked or stored in such a manner so as to assure that they are worn only by the individual to whom they are assigned.

INFORMATION SHEET

RESPIRATOR RESPONSIBILITY FORM

I. PURPOSE

To eliminate and control the excessive cost of replacing respirators that have not been properly maintained or turned in when employees transfer or leave the employ of the company.

II. REQUIREMENT

Each employee receiving a respirator shall sign the Respirator Responsibility Form.

III. TYPE OF PROTECTIVE EQUIPMENT

The foremen issuing the protective equipment will indicate on the form what has been issued by completing the appropriate portion of the Respirator Responsibility Form.

IV. ROUTING

Send the form to the Personnel Office to be placed in the employee's file.

Respirator
Responsibility
Form

**Employee
Handouts**



June 25, 1974

SAFETY PROCEDURE

SUBJECT: Respiratory Protection Program

I. Purpose

The purpose of this program is to protect the health of all employees by preventing their exposure to harmful levels of air contaminants. Exposure to air contaminants of harmful levels will be eliminated by the application of engineering controls. In situations where engineering controls require capital expenditures and/or time for development and procurement, then interim protection will be accomplished by the use of personal respiratory protective equipment.

II. Responsibilities

- A. Management will determine which areas require the mandatory use of respiratory equipment. Management will then be responsible for providing respiratory equipment which is compatible with the specific needs of each area.
- B. The employees are responsible for maintaining an awareness of the respiratory protection requirements for their work area. In addition, the employees are responsible for wearing the appropriate respiratory equipment as required and for maintaining the equipment in a clean and operable condition.

III. Administration

- A. The overall program administration is the responsibility of the Plant Superintendent.
- B. The Supervisor of each area is responsible for ensuring that all personnel under his control are completely knowledgeable of the respiratory protection requirements for the areas in which they work. Also, each Supervisor is responsible for ensuring that his subordinates comply with all applicable facets of the respiratory program.
- C. Technical support, including air sampling and laboratory analysis, is the responsibility of the Plant Superintendent.
 1. A copy of technical reports and supporting data resulting from air sampling and laboratory analysis will be sent to the division Personnel Manager, accompanied by a schedule for future testing.

III. Administration (Cont.)

- D. Monitoring the health of company employees via a comprehensive medical and health program is the responsibility of the Plant Superintendent.
- E. The Chief Division Engineer is responsible for directing and coordinating engineering projects which are related to respiratory protection in conjunction with the Operations Manager.
- F. The Safety Supervisor will, in addition to the line organization, maintain surveillance via spot checks of employees who are working in areas where respiratory protective equipment is required.

IV. Basic Program

- A. Respirator Selection and Use - Respirator selection shall be on the basis of need according to the air contaminants to which the employee is exposed.
- B. Respirator Availability - The supervision of each department will make a respirator available immediately to each employee who is placed as a new hire or as a transferee in any job which requires respiratory protection. Replacement respirator will be made available as needed. Each man receiving a respirator will sign the Respirator Responsibility Form. This form states that the employee receiving the respirator is responsible for its care and condition. Should it be lost, or should the employee fail to turn it in when assigned to another department or when he or she leaves the employ of the Company for any reason, he or she shall be charged for the cost of the respirator.
- C. Employee Training - Each employee, upon assignment to a respirator area, will be briefed by his supervisor relative to the respirator program. He will review the Respirator Information Sheet for his job. Also, he will be fully instructed in the use and care of his respirator.
- D. Respirator Inspection and Maintenance
 - 1. The wearer of a respirator will inspect it daily whenever it is in use.
 - 2. Supervision in each area and the Safety Supervisor will periodically spot check respirators for fit, usage and condition.

IV. Basic Program (Cont.)

D. Respirator Inspection and Maintenance (Cont.)

3. Respirators which are in daily use will be cleaned on a daily basis by the employees to whom they are assigned.
4. Respirators which are individually assigned shall be either marked or stored in such a manner so as to assure that they are worn only by the individual to whom they are assigned.

E. Monitoring

In order to assure the adequacy of the respiratory program and to provide for a continuing healthful environment for the employees, monitoring operations will be conducted on a periodic basis.

1. Environmental - Personal samplers and ambient air samples will be used in accordance with accepted industrial hygiene standards in order to periodically sample plant work areas. The results of this sampling will point out the areas where respiratory protection is required. It will also document the type of equipment which should be worn.
2. Medical - Two types of monitoring comprise the medical aspects of the program.
 - a. Pre-employment physical examinations are conducted in order to assure that they are in a healthy condition.
 - b. Periodic physical examinations will be given to regular employees in order to assist them in maintaining their health.

**Respiratory
Protection**

June 25, 1974

SAFETY PROCEDURE

SUBJECT: Asbestos

I. OSHA Regulation

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 centimeter of air.

II. Testing Method

Only the following method will be used in measuring the amount of airborne asbestos fibers: All determination of airborne fibers shall be made by the membrane filter method at 400 - 450 x (magnification) (4 millimeter objective) with phase contrast illumination.

III. Safe Exposure Limit

1. At the present time, the maximum safe exposure limit is an 8-hour average airborne concentration of 5 asbestos fibers per cubic centimeter of air. Only fibers longer than 5 microns are counted. (It takes 5,080 fibers 5 microns long to make one inch). Below this concentration, no personal protective equipment is required.
2. Air containing asbestos concentration greater than 5 fibers per cubic centimeter may be worked in for shorter periods of time without personal protective equipment provided the 8-hour average is not greater than 5 fibers. The maximum exposure at any one time, without personal protective equipment, is 10 fibers.
3. Beginning July 1, 1976, the maximum safe exposure limit will be reduced from 5 fibers to 2 fibers.

IV. Monitoring for Asbestos Dust

1. Current jobs using asbestos, or products containing asbestos, are to be tested for airborne contamination. Whenever tests are scheduled, the prescribed procedure for sample collecting will be carried out by trained technicians who will then arrange to have the samples tested.
2. The air test samples are to be taken within the breathing zones of employees, and in the general work areas.

IV. Monitoring for Asbestos Dust (Cont.)

3. After the initial determination of exposure to concentrations of asbestos fibers is made, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of employees. In no case shall the sampling be done at intervals greater than six months for employees whose exposure to asbestos may reasonably be foreseen to exceed the limits as outlined in No. III of the Procedure.
4. Involved employees, or their representatives, are to be informed of the monitoring tests and of the results.
5. Any employee found to have been exposed to concentrations greater than the safe exposure limit is to be notified in writing within five (5) days of the findings. He is also to be notified of the corrective action to be taken.

V. Exposure

1. Employees may be exposed to asbestos dust and material when they are:
 - a. Unloading, loading or handling asbestos or asbestos-contained materials.
 - b. Mixing asbestos with other materials in the process of manufacturing joint systems products.
 - c. Bag filling operation used in manufacture of dry compounds.

VI. Unsafe Exposure

In the event tests prove that the asbestos airborne concentration is above the acceptable threshold limit as stated in the OSHA regulations, the following safe precautions will be taken and strictly enforced until suitable engineering controls can be instituted to render the situation harmless.

1. Personal Protective Equipment - All employees engaged in the handling of asbestos or working in the immediate area where the asbestos airborne concentration exceeds the permissible exposure limit will wear the following personal protective equipment.
 - a. NIOSH approved Respirator
 - b. Head Covering
 - c. Coveralls
 - d. Gloves
 - e. Foot Covering

NOTE: The NIOSH approved respirator shall only be used when the airborne asbestos concentration does not exceed 10 times the permissible exposure limit in an eight-hour period.

2. Handling Asbestos

3

- a. In all stages of handling - packaging, transporting, unloading, storing and in-plant moving - asbestos fiber bags should be handled carefully and in such a manner as to prevent the generation of dust.
- b. Care should be taken to avoid puncturing the asbestos fiber bags during unloading from railroad cars, trucks or other modes of transportation. No hooks or other sharp instruments should be used. Loose fiber accumulated during transit should be picked up by vacuum cleaner before unloading.
- c. Damaged bags should be immediately repaired, resealed or put into suitably closed receptacles. Any spillage of asbestos fiber should be picked up either by vacuum equipment or after thoroughly wetting, by sweeping, and should be deposited in suitable closed receptacles.
- d. For storage, fiber bags should be stacked and moved with care to avoid breakage, protected from puncture by moving vehicles and, if possible, should be isolated from traffic in the warehouse and covered to prevent dust generation. To prevent deterioration of stored bags, the principle of first-in, first-out should be followed.
- e. Maximum possible enclosure and fully effective dust control hoods should be provided at all stages of in-plant handling where dust is unavoidably created, such as at bag opening, fiber dumping and bag disposal operations. Loose fiber should be cleaned from work areas as described in 4, above, to prevent dust regeneration.
- f. All dust from exhaust systems should be collected and safely disposed of. It should not be released into the outside air. Particular attention should be paid to the protection of the employees whose job it is to dispose of the collected dust.
- g. Storage piles of bags of asbestos shall be covered with a non-clinging cover or tarp. Plastic is recommended. All spillage shall be vacuum cleaned to prevent so-called fugitive fiber release.

3. Disposal of Asbestos

- a. During clean-up, dry sweeping shall not be performed.
- b. If in an area where practical, the material will be wet with water, then cleaned up with shovel and brooms into the proper container.
- c. If not practical to wet down the area, the clean-up of asbestos dust shall be performed with a vacuum cleaner.

3. Disposal of Asbestos (cont.)

- d. All waste material including bags, boxes, cartons, etc., shall be sealed in an impermeable bag or other closed impermeable container and labelled.
- e. Asbestos waste material shall not be burned as a form of disposal, it shall be buried in the ground, covered with dirt and the area posted.

4. Caution Signs and Labels

a. Signs

- 1) Caution signs shall be displayed at each location where airborne asbestos concentration exceeds the permissible level.
- 2) Caution signs shall be posted at such a distance from the contaminated area that employees may read the sign and take necessary protective precautions before entering the area.
- 3) Caution signs shall be posted at all approaches to areas where concentration exceeds the permissible level.
- 4) Size of caution sign 20" x 14", vertical format. The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to that specified in this subdivision.

Legend

Notation

Asbestos	1" Sans Serif, Gothic or Block
Dust Hazard	3/4" Sans Serif, Gothic or Block
Avoid Breathing Dust	1/4" Gothic
Wear Assigned Protective Equipment	1/4" Gothic
Do Not Remain in Area Unless Your Work Requires It	1/4" Gothic
Breathing Asbestos Dust May Be Hazardous To Your Health	14 Point Gothic

4. Caution Signs and Labels (Cont.)

a. Signs (Cont.)

- 4) Spacing between lines shall be at least equal to the height of the upper of any two lines.

b. Labels

Caution labels shall be affixed to all raw materials, mixtures, scrap, waste, debris and other products containing asbestos fibers where the possibility exist that airborne asbestos fibers may be released in the air.

c. Label Specification

- 1) The caution label shall be printed in letters of sufficient size and contrast as to be readily visible and legible.
- 2) The caution label shall read as follows:

CAUTION

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

BREATHING ASBESTOS DUST MAY CAUSE

SERIOUS BODILY HARM

USE APPROVED RESPIRATOR WHEN SANDING

5. Change Rooms

Employees who are exposed to asbestos fibers in excess of the permissible level shall be provided with:

a. Change Room

- b. Two separate lockers, one for work clothes and one for street clothes; they shall be so separated or isolated as to prevent contamination to the employees' street clothes from his work clothes.

6. Laundering

- a. Any employee who gives asbestos contaminated clothing to another person for laundering shall inform that person of the requirements in effectively preventing the release of airborne asbestos fibers and the precautions that should be taken.

6. Laundrying (Cont.)

- b. Contaminated clothing shall be transported in sealed impermeable bags or other impermeable containers and labeled accordingly.

VII. Medical Examinations

- 1. The Company shall provide medical examination relative to the exposure of asbestos fibers in the following manner:
 - a. Within one month after being assigned to work in an area containing asbestos dust.
 - b. Annual Examination.
 - c. Examination on termination.

NOTE: No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with this paragraph within the past one year period.

NOTE: All examinations will conform to OSHA requirements, and include as a minimum:

- 1. Chest X-Ray
- 2. Pulmonary Function Tests
 - a. Forced Vital Capacity
 - b. Forced Expiratory Volume at 1 second
- 3. Medical History to determine whether the employee has ever had any respiratory diseases.

VIII. Medical Records

Any employee who has been examined because of exposure to asbestos airborne fibers will have his medical records complete and accurate, containing all information pertaining to his medical examinations. These records shall be retained for twenty (20) years.

IX. Recordkeeping

Exposure records shall contain all information pertaining to personal or environmental monitoring and shall be retained for three (3) years. Every employee and former employee shall have reasonable access to any exposure records which indicate the employee's own exposure to asbestos fibers.

X. Housekeeping

All external surfaces in any place of employment shall be maintained free of accumulations of asbestos fibers if, with their dispersion, there would be an excessive concentration.

Asbestos
Control

JUL 3 1974

intracompany memo

to Lance Ryder location Stanford
from R. L. McCallister location Portland
subject Akron - Asbestos Problem date July 1, 1974

Attached is a copy of a evaluation report submitted to our Akron management by Dr. Marvin Amdur.

Jim Hurd and the other management people in the Gypsum Division are most anxious to have you investigate this problem further and advise what corrective action you feel is indicated.

I suggest that you contact Mr. Schifferle and advise him when you will be able to come to the Akron area to handle this problem.

During the course of your investigation, I would appreciate a contact with Dr. Amdur for further explanation of some of his findings on specific employees. Also, at that time you can elicit from him, his recommendations with regard to what actions he feels should be taken in specific cases. Incidentally, none of these individuals tested by Dr. Amdur have filed workmen's compensation claims and we hope that they will not.

In your travels you've probably come across other safety personnel who have asbestos exposure in their operations and it might be well for you to contact some of them together with whatever information you can with respect with how they've handled asbestos exposure situations. Of particular interest would be information with respect to what they do with the employees that have had asbestos exposure and who have positive findings, as we have with some of the employees at Akron.

In your talks with Dr. Amdur, would you find out from him whether there is any evidence that any of the individuals who show a diminished vital capacity or pathology on x-ray have developed whatever the positive findings are as a result of an exposure to asbestos or any particulate matter in our Akron plant.

This is becoming a priority matter and I would appreciate your immediately contacting Mr. Schifferle and arranging to contact him at an early date.

RLM
R.L.M.

RLM:dd
attachment



GEORGIA-PACIFIC

INTERDEPARTMENTAL COMMUNICATION

DATE: July 27, 1971

TO: *See Below

LOCATION:

FROM: M. F. Fink

LOCATION: Portland

SUBJECT: MICA-ASBESTOS CONTROLS

Upon reviewing the Occupational Health and Safety (OSHA) Standards, we note a change in the Threshold Limits as regards mica. It had been established that mica containing 5% or less of free silica (SiO₂) rated as nuisance dust, limited to 50 M.P.P.C.F. The new Hazard Control Act specifies that there shall be a conversion factor based on the percent of free silica and Threshold Limits shall be reduced accordingly. The Threshold Limits value for mineral dusts as adopted by the American Conference of Governmental Industrial Hygienists is 250% SiO₂ + 5. Mineral dust containing 2.5% free silica would be limited to 33.4 M.P.P.C.F. instead of 50 M.P.P.C.F.

When placing a purchase order for mica request an analysis of the product especially the free silica content. Do not confuse combined silica with free silica. The analysis will indicate percentages of combined and free silica.

The problem will be created when the employee empties the sacks of mica into the mixer or blender. He and other employees in the area shall wear dust respirators. We recommend the "Dustfoe 66" obtainable from Mine Safety Appliance. It gives maximum protection against toxic dusts, to the permissible limits of lead, plus fibrous dusts.

Asbestos: We have a similar problem with asbestos, that is when the employee empties the material into the mixer. No Threshold Limits have been established for fibrous asbestos. This is the raw material that is added to the batch or mix. We must take every precaution to eliminate the hazard and to protect the employee.

The "Dustfoe 66" is recommended for respiratory protection. The medical profession and hygienists have stated that exposure to asbestos dusts are harmful as the respiratory system cannot expel the dusts. The particles lodge in the lungs and keeps building up and asbestosis results from the exposure and breathing of these dusts. It shall be mandatory that the employee or employees handling the bags or containers of asbestos wear respirators.

ABATE PRODUCTION
MAY 1994

July 27, 1971

Mica and asbestos are included in the Federal Occupational Safety and Health Act of 1970, (OSHA). The inspector will review rules and regulations pertaining to safe handling and preventive measures. The procedures referred to in this letter shall be adopted and enforced.

M. F. P.

MFT/ab

← THIS COPY FOR →
*Mr. K. W. Brown - Acme
Mr. J. D. Rauch - Akron, N. Y.
Mr. P. A. Jackson - Chicago
Mr. E. W. Scharf - Marietta

cc: All Plant Managers (except Canadian)
Mr. G. E. Wilson
Mr. E. S. Hollingsworth
Mr. T. W. Richards
Mr. J. W. Hart
Mr. C. W. Lehnert
Mr. J. E. Moss

ABATE PRODUCTION
MAY 1994

GP-137

ATION

1. The first part of the document is a list of names and addresses, which appears to be a directory or a list of contacts. The names are written in a cursive script, and the addresses are listed below them.

T-2.13	157
AS-6A	SECTION
0280	04

70:1

Georgia Pacific Corporation
P. O. Box 776
Marietta, Georgia 30060

1. Citation Number 1

4. Page _____ of 1

TYPE OF ALLEGED VIOLATION(S): Non-Serious

An inspection was made on July 31, 1975 of a place of employment located at:
1456 White Circle Court, Marietta, Ga.

Manufacturing

and described as follows:

On the basis of the inspection it is alleged that you have violated the Occupational Safety and Health Act of 1970, 29 U.S.C. 651 et seq., in the following respects:

10. Serial number	11. Standard, regulation or section of the Act specifically violated	12. Description of alleged violation	13. Date by which violation was to be corrected
1	29 CFR 1910.22(a)(1)	Failed to keep place of employment clean, orderly, and in a sanitary condition exposing employees to hazard of tripping and slipping at Ready or Wet Area.	3 Working Days from receipt of Citation
2	29 CFR 1910.1001(i)(1)	Failed to perform initial determination of asbestos within six (6) months of the publication of section 1910.1001, exposing employees to the hazard of asbestos in the: a. Bagging unloading area b. Bagging Machine Operator c. Bag Stacker at Bagging Machine.	October 7, 1975
3	29 CFR 1910.1001(i)(2)	Failed to take asbestos samples for the determination of the 8 hour time-weighted average airborne concen- tration of asbestos fibers, exposing employees to the hazard of asbestos in the Dry Mixer.	October 7, 1975
4	29 CFR 1910.1001(e)(1) (1)	Failed to display caution signs at each location where airborne concentrations of asbestos fibers may be in excess of the exposure limits.	September 2, 1975
5	29 CFR 1910.1001(h)(2)	Failed to dispose asbestos bags and containers in sealed impermeable bags, or other closed (impermeable) containers.	3 Working Days from receipt of Citation
6	29 CFR 1910.1001(j)	Failed to provide employees exposed to asbestos a medical examination which shall include as a minimum a chest X-ray, history and pulmonary functions tests to include forced vital capacity (FVC) and forced expiratory volume at one second (FEV 1.0).	October 7, 1975

The law requires that a copy of this citation shall be provided to the employee.

The law requires that a copy of this citation shall be prominently posted in a conspicuous place at or near each place that an alleged violation occurred to be the citation occurred. The citation must remain posted until all alleged violations cited therein are corrected, or for 3 working days, whichever period is longer.

44-38861-1000

[illegible]

11. The Department's safety and health staff, the new "Safety" group, is working through flight log and work history records, and other records.

Also Narrine's Signature: *Joseph L. Farr*

Issuance Date AUGUST 7 19 7

NOTICE: Additional Important Information On Reverse Side

Future research

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

ATLANTA AREA OFFICE
LANETA PERIMETER OFFICE PARK
BUILDING 10 - SUITE 20
TUCKER, GEORGIA 30084

Case No.	T-2710	157	74
Area	0780	04	

Georgia Pacific Corporation
P. O. Box 776
Marietta, Georgia 30060

Date AUGUST 7, 1975
THERE IS NO ELEMENT THAT
THIS NOTIFICATION BE POSTED.

NOTIFICATION OF PROPOSED PENALTY

This notification and the penalty (if imposed by the Secretary of Labor) shall be deemed to be the final order of the Occupational Safety and Health Review Commission (an independent agency with authority to hear disputes respecting enforcement and monetary penalties) and are subject to review by the court or agency within 15 working days from the date of receipt of this notification. You must submit a letter of protest. The letter of protest should be written or otherwise delivered to the Area Director named below at the address shown at the top of this notification. If no notice of protest is filed within the 15 working day period the proposed penalty (if any) becomes final and is immediately payable.

Payment of all penalties shown is to be made by check or money order payable to the order of "Occupational Safety and Health-Labor". If a protest is filed, it should be received at the Area Director at the address shown above.

Section 17(1) of the Act states: "Civil penalties under this Act shall be paid into the Treasury of the United States and shall remain in the United States Treasury until the date when the violation is alleged to have occurred or where the employer has not principal office."

On the 7th day of AUGUST, 1975, a citation was issued to you in accordance with the provisions of Section 17(a) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 661, et seq.) hereinafter referred to as the Act. You were then notified of certain alleged violations of the Act, as specified in the enclosed.

YOU ARE HEREBY NOTIFIED that pursuant to the provisions of Section 17(a) of the Act, the penalty (if any) shown below is/are being proposed, based on the enclosed.

Non-Serious VIOLATIONS			VIOLATIONS		
3A. Citation No.	3B. Item No.	3C. Proposed Penalty	4A. Citation No.	4B. Item No.	4C. Proposed Penalty
1	1	\$25.00			
	2	None			
	3	None			
	4	None			
	5	None			
	6	None			

Total Proposed Penalty for
ALL cited violations is \$25.00

Area Director
Tucker, Georgia

The civil and penalty for Non-Serious Violations of safety and health standards collected is a process adjustment for the enforcement of the Act. It is not to be taken within the period provided in the Act. If a person is alleged to have violated the Act within this period, the 15 working day period will be added to each other penalty as may subsequently be proposed for failure to correct a violation within the above period. No abatement credit is allowed for violations of recordkeeping or posting requirements.

A TUESDAY. DATE 07-31-75

174-1

- 1.) COMPLETED WITHIN 3 WORKING DAYS FROM RECEIPT OF CITATION.
- 2.) GEORGE FOWLER COLLECTED AIR-BORNE SAMPLES IN DESIGNATED AREAS A, B, C. THESE SAMPLES WERE MAILED TO GEORGE GREEN AT TIGER WHO IN TURN DETERMINED CONCENTRATIONS OF ASBESTOS. COMPLETED BY OCT. 7, 1975.
- 3.) SAMPLES WERE TAKEN AS OUTLINED IN PARAGRAPH #2 ABOVE. (NOTE ON OCTOBER 16, 1975 A REINSPECTION WAS CONDUCTED & WE WERE FOUND TO BE IN VIOLATION.)
- 4.) SIGNS WERE ORDERED & POSTED AS REQUESTED (NO ON 10-16-1975, ON REINSPECTION, WE WERE FOUND TO BE IN VIOLATION.)
- 5.) WE COMPLIANT - BY PURCHASING HEAVY DUTY PLASTIC BAGS, & INSERTING ALL MTY ASBESTOS BAGS IN THESE PLASTIC BAGS. A CAUTION LABEL WAS PLASTED IN THESE CONTAINERS, & SHIPPED WITHIN OUR OTHER DUMP MATERIALS. COMP. WITHIN 3 WORKING DAYS.
- 6.) WE ESTABLISHED A MEDICAL EXAMINATION TO INCLUDE CHEST-X RAY, & PULMONARY FUNCTION TESTS, FOR ALL EMPLOYEES. COMPLETED WITHIN TIME (10. THESE TESTS WERE CONDUCTED ANNUALLY. THE LAST SERIES OF TESTS WAS IN 1976.

WE WERE FINED \$25.00 ON ITEM #1.

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

ATLANTA AREA OFFICE
LA VISTA PENNELLER OFFICE BUILDING
BUILDING 10 - SUITE 205
TUCKER, GEORGIA 30084

Form No.	157
T-2710	157
AREA	SECTION
0280	02

TO:
Georgia Pacific Corporation
P. O. Box 776
Marietta, Georgia 30060

Subject: Citation(s) for Alleged Occupational Safety and Health Violation(s)

An inspection of a place of employment has revealed conditions which we believe do not comply with the provisions of the Occupational Safety and Health Act of 1970, (29 U.S.C. 651 et seq.). The nature of such alleged violation(s) is set forth in the enclosed citation(s) with references to applicable standards, rules, regulations and provisions of the Act. These conditions must be corrected on or before the date shown to the right of each alleged violation.

The Act requires that a copy of the enclosed citation(s) be prominently posted "in a conspicuous place upon receipt of such citation(s) in the citation occurred. It must remain posted until all violations are corrected, or for 3 working days", whichever period is longer. A sufficient number of copies of the citation(s) should be prepared to permit posting in accordance with the requirements of the Act. The Act also provides penalties for violation of the posting requirements.

You are hereby notified, or will soon be notified, whether or not penalty(ies) will be proposed as a result of the citation(s). You have the right to contest any or all parts of either the citation(s) or the proposed penalty(ies) with the Occupational Safety and Health Review Commission. The Review Commission is an independent agency with authority to make decisions regarding citation(s) and proposed penalty(ies). If you do contest, you should submit a written notice of contest to the Area Director at the address shown above within 15 working days* after receipt of the certified mail notice of proposed penalty(ies). If you fail to contest within the 15 working day period, the citation(s) and proposed penalty(ies) as proposed, shall be deemed to be a final order of the Review Commission and not subject to review by any court or agency.

If an employer contests the citation, the abatement period specified therein does not begin to run until the date the Commission's final order in the case **PROVIDED** the employer indicated his contest in good faith and not solely for the purpose of avoidance of penalties.

You have a right to request a discussion with the Area Director concerning any results of the inspection (abatement, citations, penalties, etc.). Please direct correspondence to, or call, the Area Director at the address shown at the top of this letter. A request for an informal discussion cannot extend the 15 working day period allowed for filing a notice of contest. Therefore, a request for an informal discussion should be brought to the attention of the Area Director prior to the end of the 15 working days allowed for filing a notice of contest, preferably as soon as possible.

An employee or representative of employees may file a notice (letter) to contest the reasonableness of the time stated in the citation for the abatement of the alleged violation(s).

Alleged violations that are not contested shall be corrected within the abatement period specified in the citation. Followup inspection may be made for the purpose of ascertaining that the employer has posted the citation(s) as required by the Act and corrected the alleged violations. Failure to correct an alleged violation within the abatement period may result in further proposed penalties for each day the alleged violation has not been corrected. Timely correction of an alleged violation does not affect the initial proposed penalty.

Correction of alleged violations which have an abatement period of 30 days or less should be reported in writing to the Area Director promptly upon correction. Reports of corrections should show specific corrective action on each such alleged violation and the date of such action. On alleged violations having an abatement date of more than 30 days, a written progress report should be submitted each 30 days. The progress report should detail what has been done, what remains to be done, and the time needed to fully abate each such violation. When the alleged violation is fully abated, the Area Director should be so advised.

The Act provides that whoever knowingly gives false information is subject to a fine up to \$10,000, imprisonment up to 6 months, or both.

If you wish additional information, you may direct such request to the undersigned at the address shown above.

*Under the Occupational Safety and Health Act, the term "Working Day" means Mondays through Fridays but does not include Saturdays, Sundays, or Federal Holidays.

Citation(s) Enclosed		
Quantity	Description	Page
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
4. Non-filing of Proposed Penalty and/or		
☒ Yes ☐ No		

U.S. Department of Labor
by Area Director

Joseph L. Galt
JOSEPH L. GALT
Date AUGUST 7 1973

U.S. DEPARTMENT OF LABOR

Occupational Safety and Health Administration

CITATION

ATTESTED TRUE COPY
LA VISTA PHOTOGRAPHIC SERVICE
SUNSHINE BOULEVARD
TUCKER, GEORGIA 30084

T-2710

0280

TO:

Georgia Pacific Corporation
P. O. Box 774
Marietta, Georgia 30060

1. Citation Number 1

4. Page 1 of 1

TYPE OF ALLEGED VIOLATION(S): Non-Serious

An inspection was made on July 31, 1973, of a place of employment located at:
1. 1646 White Circle Court, Marietta, Ga.
2. Manufacturing and described as:

On the basis of the inspection it is alleged that you have violated the Occupational Safety and Health Act of 1970, U.S.C. 651 et seq., in the following respects:

10. Date inspected	11. Standard, regulation or section of the Act allegedly violated	12. Description of alleged violation	13. Date corrected (if not)
1	29 CFR 1910.22(a)(1)	Failed to keep place of employment clean, orderly, and in a sanitary condition exposing employees to hazard of tripping and slipping at Lendy or Wet Mine Area.	3 Work Days fr receipt Citation
2	29 CFR 1910.1001(c)(1)	Failed to perform initial determination of asbestos within six (6) months of the publication of section 1910.1001, exposing employees to the hazard of asbestos in the: a. Railcar unloading area b. Bagging Machine Operator c. Bag Stacker at Bagging Machine.	October 1973
3	29 CFR 1910.1001(c)(2)	Failed to take asbestos samples for the determination of the 8 hour time-weighted average airborne concentration of asbestos fibers, exposing employees to the hazard of asbestos in the Dry Mixer.	October 1973
4	29 CFR 1910.1001(a)(1) (1)	Failed to display caution signs at each location where airborne concentrations of asbestos fibers may be in excess of the exposure limits.	Septem 1973
5	29 CFR 1910.1001(h)(2)	Failed to dispose asbestos bags and containers in sealed impermeable bags, or other closed impermeable containers.	3 Work Days fr receipt Citation
6	29 CFR 1910.1001(j)	Failed to provide employees exposed to asbestos a medical examination which shall include as a minimum a chest X-ray, history and pulmonary functions tests to include forced vital capacity (FVC) and forced expiratory volume at one second (FEV 1.0).	October 1973

The law requires that a copy of this citation shall be prominently posted in a conspicuous place at or in each place that an alleged violation referred to in the citation occurred. The citation must remain posted until alleged violations cited therein are corrected, or for 3 working days*, whichever period is longer.

RIGHTS OF EMPLOYEES

Any employee or representative of employees who believes that any period of time fixed in this citation for the correction of a violation is unreasonable has the right to contest such time for correction by submitting a letter to the U.S. Department of Labor at the address shown above within 15 working days of the issuance of this citation.

The Union shall arrange or in any manner assist, cause or induce any employee because such employee has filed any such challenge or failed to be instituted any proceeding before or under the Act or has testified or is about to testify in such proceeding or because of the exercise by such employee on behalf of himself or others of any right afforded by this Act." Sec. (1) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 651, 680(c)(1).

*Under the Occupational Safety and Health Act, the "15 working days" period for contesting a citation does not include Saturdays, Sundays or Federal Holidays.

16. Agent's Signature: Joseph L. Camp

Signature Date: August 7, 1973

NOTICE: Additional Important Information On Reverse Side

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

ATLANTA AREA OFFICE
LA VISTA PERIMETER OFFICE PARK
BUILDING 18 - SUITE 23
TUCKER, GEORGIA 30084

CASE NO.	FILE NO.
T-2710	157
DATE	FILED
0280	DC

TO:
L

Georgia Pacific Corporation
P. O. Box 776
Marietta, Georgia 30060

DATE August 7, 1975
THIS IS THE SECOND OF TWO PAGES OF THIS NOTIFICATION. IF POSTED.

NOTIFICATION OF PROPOSED PENALTY

This notification and the penalty (ies) proposed by the Secretary of Labor shall be deemed to be the final order of the Occupational Safety and Health Review Commission (an independent agency with authority to review decisions respecting citations and proposed penalties not subject to review by any court or agency other than the Commission) within 15 working days from the date of receipt of this notification, the subject of complaint. The issue of review should be raised in a petition delivered to the Area Director named below at the address shown at or before this notification. If no notice of review is filed within the 15 working day period the proposed penalty (ies) become final and is immediately payable.

Payment of all penalties shown is to be made by check or money order payable to the order of "Occupational Safety and Health-Labor Department" and should be remitted to the Area Director at the address shown above.

Section 17(1) of the Act states: "Civil penalties owed under this Act shall be paid into the Treasury of the United States and shall be to the United States and may be recovered in a civil action in the name of the United States brought in the United States district court in the district where the violation is alleged to have occurred or where the employer has its principal office."

On the 7th day of August, 1975, a citation(s) was issued to you in accordance with the provisions of Sec. 17 of the Occupational Safety and Health Act of 1970 (42 USC 1461; 29 U.S.C. 651, et seq.) hereinafter referred to as the Act. You were notified of certain alleged violations of the Act, as specified in the attachment.

YOU ARE HEREBY NOTIFIED that pursuant to the provisions of Section 18(a) of the Act, the penalty(ies) set forth below is/are to be imposed, based on the citation(s).

B. Non-Serious VIOLATIONS			C. VIOLATIONS		
1A. Citation No.	1B. Item No.	1C. Proposed Penalty	2A. Citation No.	2B. Item No.	2C. Proposed
1	1	\$25.00			
	2	None			
	3	None			
	4	None			
	5	None			
	6	None			
Total Proposed Penalty for All Alleged Violations: \$ 25.00					
APPROVED: <i>[Signature]</i> DATE: August 7, 1975					

The proposed penalty for Non-Serious Violations of safety and health standards reflects a 10 percent adjustment factor for companies to be taken within the period prescribed in the citation. If a particular alleged violation is not covered within this period, the 10 percent adjustment will be added to such other penalty as may subsequently be proposed for failure to correct a violation within the citation period. No abatement credit is allowed for violations of recordkeeping or posting requirements.

INSPECTION. OCT - 16, 1975

THE CASE FILES FOR ITEMS # 3 & 4 ON
INSPECTION CONDUCTED August 7, 1975
FILES WERE: # 3 - 225.10
4 - 155.10

ITEM # 3 - ON REINVESTIGATION WE WERE FOUND GUILTY
NOT TAKING THE COMPLAINT IN RECKARDNESS TO
THE STANDING REGULATIONS. IN DISMISSING THE
WITH THE INSPECTOR & GIVE FEELING. THE
APPROX MARCH WAS REVIEWED, & ADDITIONAL
DAMAGING WAS INITIATED & CONDUCTED WITH
17 APRIL - 1976.

ITEM # 4 - ON REINVESTIGATION WE WERE TOLD, FOR
SOME WE WERE NOT POSTED IN THE CORRECT
PLACE. AT THE TIME OF INSPECTION, THE
WERE DESIGNATED & SIGN WERE PLACED
+ WEAVING BY.

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Case No.	7-2710
Date	0280

TO:
Georgia Power Corporation
P. O. Box 778
Marietta, Georgia, 30060

NOTIFICATION
OF FAILURE TO CORRECT ALLEGED VIOLATION
AND OF PROPOSED ADDITIONAL PENALTY

On the 7th day of August, 1973,
a citation(s) was (were) issued to you in accordance with the provisions of section 9(a) of the Occupational
Safety Act of 1970 (84 Stat. 1601; 29 U.S.C. 651, et seq.), hereinafter referred to as the Act, notifying
you of alleged violations of the Act and the dates by which they were to be corrected.
On October 16, 1973, upon reinspection conducted on October 16, 1973, you
have failed to correct the alleged violation(s) specified below within the times prescribed:

A. SERIOUS VIOLATIONS:

Case No. <u>7-2710</u>	Number of Days Failed to Correct <u>10</u>	SC. Proposed Daily Additional Penalty <u>\$225.00</u>	=	Proposed Total SC. Additional Penalty For Failure to Correct <u>\$2250.00</u>
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B. NON-SERIOUS VIOLATIONS:

Case No.	Number of Days Failed to Correct	SC. Proposed Daily Additional Penalty	SC. Proposed Total Daily Additional Penalty	SC. Previously Allowed Abatement Credit	SC. Proposed To Additional Pen For Failure to C
Item 3	9	\$25.00	\$225.00	None	\$225.00
Item 4	10	\$18.50	\$185.00	None	\$185.00
Total					\$410.00

1. Area Director Joseph J. [Signature] 2. Date October 22

The proposed penalty for failure to correct each alleged violation is computed by multiplying a proposed penalty times the number of days the alleged violation remained uncorrected, counting from the prescribed abatement date to the date of reinspection. In the case of nonserious violations, the 50 percent adjustment; timely abatement, which had been deducted in calculating the initial proposed penalty, has been added to the proposed penalty for failure to correct.

Additional penalties may be proposed on a daily basis for each violation that is allowed to continue unabated beyond the date of reinspection appearing on the front of this form. You are to notify the Area Director named on the front of this form of the date and nature of any abatement action which you have taken.

The payment of penalties is to be made by check or money order, payable to the order of "Occupational Safety and Health-Labor". Remit to the Area Director whose address appears on the front of this notification.

YOU ARE FURTHER NOTIFIED that this notification and the penalties, as proposed, shall be deemed to be the final order of the Occupational Safety and Health Review Commission and not subject to review by any court or agency unless, within 15 working days from the date of receipt of this notification, you notify in writing the Area Director named on the front of this notification that you intend to contest this notification. The proposed additional penalty before the Review Commission. The Review Commission is an independent body with authority to issue decisions respecting citations and proposed penalties including this "Notification of Failure to Correct Alleged Violations and of Proposed Additional Penalty".

There is no requirement that this notification be posted.

RECEIVED
OCT 24 1975
OSHA-DC-102
CARTER

THIS INSPECTION OCCURRED ON OCT 16, 1975.

THEY ARE HARD TO READ, & ITS THE ONLY COPY

@ MARIETTA. TO THE BEST OF MY KNOWLEDGE

WE WERE ^{NOT} FINED FOR ANY, & WE COMPLIED

WITHIN THE TIME FRAME.

ITEM #1 & #2 WERE NOT ASBESTOS RELATED.

ITEM #3. WE FAILED TO INCLUDE LABORATORY
EMPLOYEES WHEN MONITORING ASBESTOS. THIS
PROGRAM WAS ADDED TO THE OTHER
TEST PROGRAMS.

CITATION

7-2710	114
0.60	02

George Foster, Secretary
P. O. Box 774
Martinez, CA, 94551

Thomas Fisher
P. O. Box 774
Martinez, CA, 94551

THE FOLLOWING VIOLATIONS

1. Failure to maintain accurate records of employee exposure to asbestos.

2. Failure to provide training for employees who are required to handle asbestos.

3. Failure to provide information to employees about the hazards of asbestos.

4. Failure to provide information to employees about the health effects of asbestos.

5. Failure to provide information to employees about the methods of minimizing exposure to asbestos.

6. Failure to provide information to employees about the methods of testing for asbestos.

7. Failure to provide information to employees about the methods of removing asbestos.

8. Failure to provide information to employees about the methods of disposing of asbestos.

9. Failure to provide information to employees about the methods of preventing asbestos.

10. Failure to provide information to employees about the methods of controlling asbestos.

11. Failure to provide information to employees about the methods of monitoring asbestos.

12. Failure to provide information to employees about the methods of evaluating asbestos.

13. Failure to provide information to employees about the methods of reporting asbestos.

14. Failure to provide information to employees about the methods of investigating asbestos.

15. Failure to provide information to employees about the methods of correcting asbestos.

16. Failure to provide information to employees about the methods of preventing further asbestos.

17. Failure to provide information to employees about the methods of controlling further asbestos.

18. Failure to provide information to employees about the methods of monitoring further asbestos.

19. Failure to provide information to employees about the methods of evaluating further asbestos.

20. Failure to provide information to employees about the methods of reporting further asbestos.

21. Failure to provide information to employees about the methods of investigating further asbestos.

22. Failure to provide information to employees about the methods of correcting further asbestos.

23. Failure to provide information to employees about the methods of preventing further asbestos.

24. Failure to provide information to employees about the methods of controlling further asbestos.

25. Failure to provide information to employees about the methods of monitoring further asbestos.

1. Failure to maintain accurate records of employee exposure to asbestos.

2. Failure to provide training for employees who are required to handle asbestos.

3. Failure to provide information to employees about the hazards of asbestos.

4. Failure to provide information to employees about the health effects of asbestos.

5. Failure to provide information to employees about the methods of minimizing exposure to asbestos.

6. Failure to provide information to employees about the methods of testing for asbestos.

7. Failure to provide information to employees about the methods of removing asbestos.

8. Failure to provide information to employees about the methods of disposing of asbestos.

9. Failure to provide information to employees about the methods of preventing asbestos.

10. Failure to provide information to employees about the methods of controlling asbestos.

11. Failure to provide information to employees about the methods of monitoring asbestos.

12. Failure to provide information to employees about the methods of evaluating asbestos.

13. Failure to provide information to employees about the methods of reporting asbestos.

14. Failure to provide information to employees about the methods of investigating asbestos.

15. Failure to provide information to employees about the methods of correcting asbestos.

16. Failure to provide information to employees about the methods of preventing further asbestos.

17. Failure to provide information to employees about the methods of controlling further asbestos.

18. Failure to provide information to employees about the methods of monitoring further asbestos.

19. Failure to provide information to employees about the methods of evaluating further asbestos.

20. Failure to provide information to employees about the methods of reporting further asbestos.

21. Failure to provide information to employees about the methods of investigating further asbestos.

22. Failure to provide information to employees about the methods of correcting further asbestos.

23. Failure to provide information to employees about the methods of preventing further asbestos.

24. Failure to provide information to employees about the methods of controlling further asbestos.

25. Failure to provide information to employees about the methods of monitoring further asbestos.

by placed in a conspicuous place and the citation must remain posted for a period of 30 days.

1. Failure to maintain accurate records of employee exposure to asbestos.

2. Failure to provide training for employees who are required to handle asbestos.

3. Failure to provide information to employees about the hazards of asbestos.

4. Failure to provide information to employees about the health effects of asbestos.

positive ion and hydrogen; this is characteristic for most of the elements in the center of the periodic table, such as the transition elements. Finally, when the ionic potential is high (> 10) the positive ion appropriates one or more oxygen ion, freeing the hydrogen and forming an oxyanion, which is generally soluble; this is characteristic of the nonmetals in the upper right corner of the periodic table.

If life began in the primitive terrestrial oceans, elements whose abundances in the aqueous phase are high should have a high representation in living material. In Fig. 1, the enrichment factor for a number of elements—that is, the ratio of the concentration of the element in an organism to its concentration in the earth's crust (7)—is plotted against ionic potential. A similar curve is seen for all major groups of organisms, as we proceed up the evolutionary scale from bacteria to fungi to plants to land animals, and for the ocean (Fig. 2).

A general pattern is observed for all living organisms: (i) For elements of low ionic potential values ($IP < 3$) the log of the enrichment factor (EF) is in the range of -1 to $+1$ indicating small enrichment or small depletion relative to the crust. (ii) For intermediate IP values ($3 < IP < 10$) log EF is -3 to -4 indicating large depletion in living organisms. (iii) For large IP values ($IP > 10$) log EF increases as the ionic potential increases and varies from -4 to $+4$. It should be noted that the elements mentioned by Crick and Orgel as showing anomalous distribution patterns—Mo, Ni, and Cr—also follow this general pattern. Specifically, Mo does not show any significant enrichment in living organisms as compared to the earth's crust. Obviously, taking each element and each group of organisms separately, we may expect many exceptions to the rules; still, the general pattern is strikingly similar for all the groups of organisms investigated.

According to Oparin (8), some combinations of biochemical reactions are characteristic of all contemporary organisms. These are combinations of patterns acquired by the emerging living matter in its very early stages of development, before further specialization and differentiation took place. Thus the basic similarity of the elemental composition pattern of all groups of living organisms (Fig. 1) indicates that the pattern was determined at the initial steps of the development of life.

It should be noted that in the range of ionic potentials higher than 10, where the major biochemical elements sulfur, carbon, and nitrogen are found, organisms have a very significant enrichment of 10 to almost 10,000 relative to the ocean. This

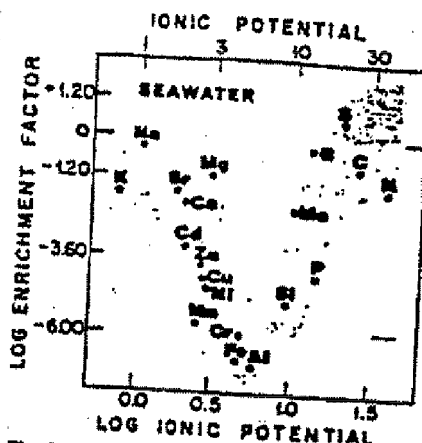


Fig. 2. Elemental enrichment factors in seawater, related to the ionic potential of the elements.

may be taken as a clue to a more exact location for the origin of life. It can be speculated that life began at the interface of the primitive atmosphere and the ocean, in the thin microlayers at the surface of the ocean where large enrichments of the atmospheric constituents (mainly nitrogen and carbon at that stage) may occur. Various other elements may also be concentrated in these microlayers because of the effects of surface-active materials, surface tension, and the transfer processes between the liquid and the gaseous phase. In any event, it is evident that a chemical environment similar to the earth's ocean is sufficient to explain the elemental abundance relationships in living materials. A nonterrestrial explanation, especially one that has in-

voked special c
advantageous l
life, is not just

Δ 67

Department of
Hebrew Univ
Rehovot, Isra

1. S. Arberius, *Worlds in the Making* (Row, New York, 1968).
2. F. H. C. Crick and L. E. Orgel, *Life* 19, 341 (1972).
3. W. R. Chappell, R. R. Meehan, D. D. Runnells, *ibid.* 21, 513 (1974).
4. T. H. Jukes, *ibid.*, p. 516.
5. L. E. Orgel, *ibid.*, p. 518.
6. K. B. Krauskopf, *Introduction to Geochemistry* (McGraw-Hill, New York, 1965).
7. Data on concentration ranges and mean values of elemental abundances were compiled from the following sources (Earth's crust) S. R. Taylor, *Geochim. Cosmochim. Acta* 23, 1280 (1964); (Seawater) J. P. Riley and G. Skirrow, Eds., *Chemical Oceanography* (Academic Press, New York, 1965), vol. 1, pp. 164-185; (Bacteria and fungi) J. R. Porter, *Bacterial Chemistry and Physiology* (Wiley, New York, 1948), p. 365; W. S. Spence, Ed., *Handbook of Biological Data* (Saunders, Philadelphia, 1956), pp. 48-49; C. Long, Ed., *Biochemistry Handbook* (Spaul, London, 1961), pp. 1050-1052; (Plants) M. D. Chapman, Ed., *Diagnostic Criteria for Plants and Soils* (Univ. of California Press, Berkeley, 1964), p. 793; (Land animals) H. J. M. Bowen, *Trace Elements in Biochemistry* (Academic Press, London, 1966), pp. 174-210; A. Banin and J. Nevo, *Commun. Soil Sci. Plant Anal.* 3, 177 (1972). Where available, data for a range of concentrations were used to calculate a range of enrichment factors for a group of organisms. When only the mean concentration was available, only one enrichment factor value was given. The ionic potential was calculated using crystal radius values given by L. H. Ahrens [*Geochim. Cosmochim. Acta* 2, 155 (1952)]. For elements appearing in various oxidation states the most abundant form was chosen.
8. A. I. Oparin, in *Exobiology*, C. Poonampruma, Ed. (North-Holland, Amsterdam, 1972), p. 11.
9. For constructive criticism of this manuscript we extend our thanks to J. Kronfeld and I. Cohen.

11 March 1975

Exposure to Asbestos in the Use of Consumer Spackling, Patching, and Taping Compounds

Abstract. Analysis of representative samples of spackling, patching, and jointing compounds, purchased at retail stores in the New York City area, has shown that some contain asbestos minerals as well as other biologically active substances. Measurements suggest that home repair work involving the use of such materials may result in exposure to dust at concentrations sufficient to produce disease.

Spackling and drywall taping compounds consist of extremely fine-grained white powders or premixed pastes. Plaster of Paris is supposedly the major constituent, but other light-colored materials including clays, micas, quartz, talc, and ground limestone, supplement or replace the plaster in many formulations. Chrysotile is added to some products apparently because these minute fibers act as reinforcing agents. The presence of amphibole asbestos in some products results from its natural occurrence in talc, carbonates, and other rocks used as raw materials (1).

Fifteen samples of consumer spackling and patching compounds were purchased at hardware stores in the New York City area, four in 1972 or earlier and the remainder in January 1974. We analyzed the samples for mineral phases by polarized light microscopy, x-ray powder diffraction, and transmission electron microscopy, with particular attention to quantitative determination of asbestos minerals. The spackling and taping compounds consist mainly of particles smaller than 3 μ m in average diameter or length (Fig. 1). Particles of this size are generally too small to

Table 1. Mineral content of consumer spackling and patching compounds and industrial drywall taping compounds.

Mineral phase	Frequency of occurrence of mineral phases	
	In 15 consumer spackling and patching compounds	In 10 industrial drywall taping compounds
Chrysotile	3 (5-10%)	9 (5-12%)
Tremolite	1 (4-6%)	1 (5-7%)
Anthophyllite	1 (10-12%)	
Talc	2	2
Quartz	9 (5-70%)	6 (10-30%)
Feldspar	1	
Pyrophyllite	2	
Mica	8	9
Kaolinite	5	7
Calcite	11	4
Dolomite	3	4
Plaster of Paris	7	6

be individually studied by polarized light microscopy, and identification is further confounded because these compounds commonly are mixtures of four or more different materials. The analytical use of the optical microscope with its limited resolution allows large numbers of fibers to go undetected. The asbestos minerals, in particular, are usually too fine-grained to identify. In such circumstances, x-ray powder diffraction may be used to identify and quantify the individual crystalline phases present in the mixtures.

In this investigation the amounts of asbestos present in spackling compounds was determined by comparison with dilution standards (2). Binary systems of chrysotile, tremolite, and anthophyllite asbestos in plaster of Paris ($\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$) were prepared at varying dilutions on a weight-to-

weight basis. Diagnostic reflections for each of the asbestos minerals were selected. These reflections were step-scanned by x-ray diffraction at increments of $0.02^\circ 2\theta$, where θ is the dispersion angle, over a goniometric interval sufficient to define a peak-to-background ratio for the diagnostic reflections. A digital printout of elapsed time in a fixed-count determination was used to prepare precise positions and profiles of the diagnostic reflections. The area above background, determined with a compensating polar planimeter, was taken to be proportional to the concentration. Details of the method have been presented elsewhere (2). Samples of spackling and taping compounds were prepared, analyzed, and measured under the same conditions as the dilution standards. Comparison of the results of known dilution standards with the samples permitted the amounts of asbestos to be estimated with approximately 20 percent reproducibility.

The presence of certain minerals may interfere with the detection or quantitation of chrysotile in spackling and taping compounds. For example, chrysotile and kaolinite have similar crystal structures and consequently similar x-ray diffraction patterns (3). However, electron microscopy can be used to corroborate the results of x-ray diffraction and to directly estimate the asbestos content of materials, since each mineral type has a characteristic morphology and electron diffraction pattern.

The results of the analyses of 15 consumer spackling and patching compounds are given in Table 1. Three of the samples were found to contain chrysotile asbestos, and two others contained tremolite and anthophyllite asbestos. Talc was a major con-



Fig. 1 Electron photomicrograph of a consumer spackling product. Large numbers of chrysotile fibers and fiber bundles are present. Granular particulates are clay, mica, and carbonate minerals.

stituent in two samples and pyrophyllite in two. The crystal structure and physical properties of pyrophyllite are almost identical to those of talc; pyrophyllite may be considered the aluminum analog of talc. Its biological activity is presently unknown. Quartz was a major constituent in seven of the samples, and it was present in two others in lesser concentrations. On the basis of the x-ray intensities of several major quartz reflections, including those at 4.26, 3.34, and 1.817 Å, the amount of quartz present is estimated to be greater than 10 percent in the seven samples. Optical and transmission electron microscopy have shown essentially all the quartz to be of respirable size ($< 5 \mu\text{m}$). Both quartz and talc can produce pulmonary fibrosis (silicosis, talcosis) (4). One sample consisted largely of quartz with lesser amounts of feldspar and anthophyllite. This may indicate that the source material for this product was an anthophyllite schist. The combination of talc with some tremolite and quartz in another sample represents a common mineral association typical of commercial talc ore bodies.

Both optical and electron microscopic analyses showed that the asbestos fibers present in the samples ranged in length from 0.25 to 8.0 μm . Most were shorter than 5 μm in length, which is respirable size, yet they were not generally detected by optical microscopy.

The possibility of asbestos exposure during home construction and repair is indicated by the fact that drywall construction workers are exposed to significant concentrations of asbestos air contamination. Mineralogical analyses of ten industrial drywall taping compounds show that nine contain chrysotile, in concentrations ranging from 5 to 12 percent (by weight) (Table 1).

Table 2. Asbestos fiber concentrations during use of taping compounds containing asbestos minerals. Multiplication of the number of fibers per milliliter by 10^6 gives the number of fibers per cubic meter of air, an amount which may be inhaled during 1 hour. An unstudied proportion of these fibers is retained and others are exhaled. Current (interim) regulations of the OSHA prohibit concentrations of 5 fibers per milliliter or more, longer than 5 μm , as a time-weighted average for workers. Concentrations above 2 fibers per milliliter will be illegal after 1976. Current regulations set a ceiling concentration of 10 fibers, longer than 5 μm , per milliliter of air.

Operations	Number of samples	Peak fiber concentration (fibers per milliliter)	
		Mean	Range
Pole-sanding (1 to 1.5 m)	10	10.0	
Background (2.5 m), same room	3	8.6	1.2 to 19.3
Background (7.5 m), adjacent room	2	4.8	3.5 to 19.8
Hand-sanding (1 to 1.5 m)	11	5.3	0.7 to 8.8
Background (2.5 m), same room	2	2.3	1.3 to 16.9
Background (4.5 m), adjacent room	2	4.3	2.1 to 2.5
v mixing (1 to 1.5 m)	2	47.2	1.5 to 7.1
Background (3 to 6 m), same room	3	5.8	35.4 to 59.0
Background (5 to 10 m), adjacent room	2	2.6	0.5 to 13.1
sweeping floor (3 to 15 m)	1	41.4	2.1 to 3.1
15 Minutes after sweeping	1	26.4	
35 Minutes after sweeping	1		

We made measurements of peak asbestos air concentrations in the breathing zone of drywall construction workers, utilizing the standard technique of the National Institute for Occupational Safety and Health (NIOSH) for asbestos sampling and analysis (phase-contrast optical microscopy at $\times 430$) (5). These air samples were also analyzed by transmission electron microscopy. Air samples were taken at various building jobs and job sites and included such operations as hand-sanding, pole-sanding, mixing of dry spackle with water, and sweeping after completion of such operations. Personal air samples were also taken in adjacent areas; such air samples, taken in the breathing zones of the operators, constitute measurements of their exposure to dust.

Table 2 shows that airborne concentrations of 5 fibers per milliliter of air or more, longer than 5 μm , are common during the use of drywall taping compounds containing asbestos. This exceeds the interim legal standard excursion set by the Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor. The OSHA standard calls for an 8-hour time-weighted average. The discontinuous nature of these operations suggests that the 8-hour sampling is inappropriate in that peak exposures in the present instance, under a range of application and cleanup operations, greatly exceed the maximum allowable excursions of 10 fibers per milliliter for a 15-minute interval.

These concentrations, determined by the NIOSH method, are only suggestive of the total asbestos exposure. Comparison of optical microscopic and electron microscopic analyses of asbestos fiber counts of identical samples showed that, for every fiber visible by light microscopy ($\times 400$ magnification), there were from 200 to almost 1000 that could be seen only at electron microscopic magnifications of $\times 25,000$.

The background measurements in Table 2 suggest that in home repair work involving sanding of spackling compounds, members of the entire household or other occupants of a building may inhale asbestos fibers. This could occur during mixing, sanding, or cleaning up of debris. During mixing of drywall taping compounds, spackle is gradually poured from a bag into a bucket of water and the mixture is stirred until the desired consistency is attained. Fiber counts measured during mixing were found to be from 7 to 12 times greater than the current occupational standard. Detectable fiber concentrations were found in adjacent rooms during mixing, and fibers were still suspended in the room air at least 15 minutes after mix-

ing had ceased. Personal air samples were taken after sanding was completed. The floors of the rooms and halls were swept with a hand broom, which raised a cloud of dust. Fiber counts could not be made on floor sweeping samples because the filters were too heavily laden to count. Samples were taken after 15 minutes had elapsed, and, in one case, 15 m away in another room. Measurements showed that significant concentrations of asbestos remained suspended and could pervade living quarters for a considerable duration of time after sweeping had ceased.

In summary, our analysis of 15 representative samples of consumer spackling, patching, and taping compounds has shown that five contained appreciable amounts of chrysotile or other asbestos minerals. Many contained substantial amounts of quartz, talc, and other minerals with disease potential. Optical microscopic analysis of personal air samples obtained during the use of asbestos-containing compounds showed concentrations frequently in excess of the current occupational standard of 5 fibers per milliliter, longer than 5 μm . Use of these materials in home repair work (for example, mixing, sanding, and cleanup) may expose the user (and other members of the household) to significant concentrations of asbestos.

Even more important, none of the 25 industrial and consumer spackling and taping compounds examined had warning labels or indication that they might contain toxic or hazardous materials. It is, there-

fore, recommended that potentially toxic or hazardous materials be eliminated from consumer spackling, taping, and patching compounds as soon as possible. As an interim measure, labels should be required on such products stating contents and providing instructions for use of appropriate respirator protection for safe cleanup procedures, including disposal of waste materials.

A. M. I. J. S. W. J. Nicolson
Environmental Sciences Laboratory,
Mount Sinai School of Medicine, C
University of New York, New York

References and Notes

1. M. Ross, W. L. Smith, W. Ashton, *Am. J. Sci.* 53, 751 (1958); W. A. Deer, R. A. Howie, *Rock Forming Minerals* (Wiley, New York, 1962), vol. 2, pp. 223-262; H. S. *Am. J. Sci.*, Ser. 2, 56 (1952), p. 368.
2. A. N. Rohl and A. M. Langer, *Environ. Perspect.* 9, 95 (Dec. 1974).
3. G. W. Bradley, in *X-ray Identification and Structures of Clay Minerals*, G. W. Bradley (Mineralogical Society, London, 1951), pp. 1-10.
4. For example, see M. Kleinfield, J. Messine, *Langer, Environ. Res.* 4, 132 (1973); M. Klein, J. Messine, O. Kooyman, M. Zaki, *Arch. Environ. Health* 14, 663 (1967); W. G. B. Graham and Gaensler, *Med. Thorax* 22, 590 (1965).
5. S. G. Bayer, T. A. Brown, R. D. Zumwalt, *Mem. TR-44*, U.S. Department of Health, Education, and Welfare, Public Health Service, National Institute for Occupational Safety and Health, Cincinnati, Ohio, 1973.
6. Supported by National Institute of Environmental Health Sciences (NIEHS) Center grant ES 00014 and by New York City Health Research Council grant U-2331. One of us (A.M.I.) wishes to acknowledge support under a Career Scientist Award from the NIEHS (grant ES 44812) and thank K. Martin, R. Klementz, and P. For technical assistance.

7 March 1975

Water Wells as Possible Indicators of Tectonic Strain

Abstract. Coseismic water level changes associated with the Izu-Hanto-oki earthquake of 9 May 1974 were recorded in 59 among 95 observation wells located in the districts of Tokai and Kanto, Japan. The spatial distribution of wells in which the groundwater level rose or fell is rather systematic. The areas in which these wells are located closely coincide with the areas of contraction and dilatation expected by the faulting. This strongly suggests a possible correlation between the observed changes in groundwater level and the tectonic strain. The results may indicate that the water level of wells is able to monitor at least acute coseismic strain changes.

A destructive earthquake occurred on the southern tip of the Izu Peninsula, Japan, at 08:33 hours on 9 May 1974. The seismological data (1) are: epicenter, 34° 34'N, 138° 48'E; depth of focus, 10 km; and magnitude, 6.9. The focal mechanism of the earthquake was a quadrant type with the maximum pressure axis in a nearly north-south and horizontal direction. Distinct earthquake faults appeared along the preexisting, dextral strike-slip faults trending in a northwest-southeast direction (2).

Coseismic changes in groundwater level caused by the earthquake were examined in 95 observation wells (3), located 50 to 210 km from the epicenter. These wells were drilled originally for the protection of groundwater resources and measurement of land subsidence. Most of the wells range in depth from 100 to 300 m, the shallowest and the deepest being 35 and 2150 m deep, respectively. Groundwater level changes were continuously monitored, in most cases, with recorders manufactured by the Nakuasa Sokki Co. The practical sensitiv-

Georgia-Pacific



TVS 5

Intracompany memo

to Dave Corkill
from W. D. Brooks
subject Ready Mix
re: Asbestos free

location Portland
location Dallas
date November 17, 1975

Some of the independents are now trying to market asbestos free ready mix and they are having problems - and losing business. We are benefiting from various manufacturers' attempts to get asbestos free ready mix into the market. Eventually the others will probably find a way to make it and have it acceptable but the damage will have already been done and they'll have no business. Let's keep this in mind when we come to ours and not market an asbestos free type from Acme until and unless it is such that the working qualities are so similar to our current production that a user can't tell the difference. This way we won't suffer the loss of business the other mfgs are going thru now.

WDB/kb

W. D. B.

cc: Bill Lehnert - Tigard

RECEIVED BY
NOV 19 1975
GYPSUM DIVISION

Georgia-Pacific



intracompany memo

to Branch Managers

location

from G. F. Baitinger

location Portland

subject OSHA REGULATIONS REGARDING
ASBESTOS IN JOINT COMPOUNDS

date June 24, 1976

F
I
L
E

We are currently manufacturing joint compounds with and without asbestos fiber. For those products which contain asbestos we comply with the OSHA regulations regarding the use of asbestos. These regulations include the level of asbestos fiber in the air at our plant locations.

For the past two years we have been making measurements of the asbestos in the air at each plant location. The measurements are in fibers per cubic centimeter of air. The present OSHA regulation calls for a maximum of five fibers/cc and this will be reduced to two fibers/cc on July 1, 1976. Our bi-annual measurements show that we are well below the new standard of two fibers/cc. Also, we comply with all of the other OSHA requirements such as product identification, housekeeping, etc. These OSHA regulations cover manufacturing plants only. There are no regulations governing jobs on construction sites. — not correct

We have received reports that OSHA inspectors have said that our products cannot be used on jobs and that competitive salesmen are claiming that our product is illegal. These statements are totally false and cannot be substantiated. There was also a report that OSHA has a maximum requirement for the amount of asbestos a product can contain. This is also false.

Apparently these reports come from misinformed OSHA inspectors and competitive sales people. Incidents where these false claims hurt our sales should be reported to O. E. Burch and include the customer or job involved, the name of the individual who made the statement and any other circumstances that may be pertinent.

The most important message we want to get across is that we are in compliance with all the OSHA regulations regarding asbestos.

G. F. B.

GFB:de

Georgia-Pacific

Intracompany memo

Δ 71

to *See Below location
from G. E. Wilson location Portland
subject Joint Cement Products date August 18, 1976

In view of the continued pressure and the petition to the Consumer's Product Safety Commission to ban the use of asbestos in joint cement compounds, we want to spell out our program to all concerned. This is basically what we are doing, although some changes in bag goods will be required.

First, all products designed for the do-it-yourself trade, i.e. the 5-pound packages of dry products and 1-gallon Ready-Mix, will contain asbestos-free formulas. This program has been in effect and should not require any changes; however, if any plant has an inventory of these products that contains asbestos, it should be scrapped.

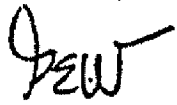
We should use up any inventory of containers with asbestos warning labels by the use of "asbestos-free" labels to be placed over the warning on the container.

Effective immediately, the only dry powder products in 25-pound or larger bags that will be sold will be casein products produced at Akron and Chicago. If you are producing any other bag goods with asbestos, you will eliminate this formula from your product line and have Tigard issue you an asbestos-free replacement formula.

You can ship your remaining inventory of finished products, and we want to use the inventory of bags by the use of "asbestos-free" labels to be placed on the bags.

We will continue to produce both asbestos and asbestos-free products in 4- and 5-gallon containers for applicators and work toward improvement of the asbestos-free product.

If you have any questions, please let me know.


G. E. W.

GEW/cw

*Messrs. K. W. Brown - Acme
R. V. Favero - Marietta
M. A. Palmowski - Chicago JS
H. W. Scharf - Milford
I. F. Weibel - Akron, NY

(Distribution continued on Page 2)

Georgia Pacific Corporation

SUBJECT: Joint Cement Products

DATE: August 18, 1976

cc: Messrs. E. L. Aasen

O. E. Burch

D. C. Corkill

Ms. R. L. Dixon - for your information for 1977 Standards

E. B. Hollingsworth - Wilm., DE - Gypsum

C. W. Lehnert - Tigard Lab

T. W. Richards - Tigard Lab

T. E. Withycombe



Georgia-Pacific Corporation

900 S.W. Fifth Avenue
Portland, Oregon 97204
Telephone (503) 222-3361

R&D 34

January 21, 1977

Mr. Craig Burningham
2821 West 7180 South
West Jordan, UT 84084

Dear Mr. Burningham:

Your letter of January 14, 1977, has been forwarded to me. I assure you that you need not concern yourself over the possibility of harm due to the Asbestos Fiber content in the Joint Cement Product you recently used.

To our knowledge, there is no known case of harm from Joint Cement containing Asbestos Fiber, even after prolonged exposure, numbered in many years.

There is no truth to your information that "Since 1973 the E.P.A. has barred materials containing more than 1 percent Asbestos Fiber."

There is no asbestos fiber in Gypsum Wallboard manufactured by Georgia-Pacific, nor to our knowledge, in other domestic gypsum wallboard manufacturers.

Georgia-Pacific is in full compliance with all OSHA and E.P.A. requirements on the use of Asbestos Fiber in Joint Cement products.

If I can be of further assistance, please advise.

Very truly yours,

O. E. Burch
General Sales Manager
Gypsum Division

RECEIVED

OKB:ms

cc: Messrs. G. E. Wilson - Portland)
S. S. Dennison - Portland) /attachment
G. W. Lehnert - Tigard Lab)
T. E. Withycombe - Portland)

Craig Cunningham

Jan. 14, 1911

2821 West 7180 South
West Jordan, Utah
84084

JAN 20

Dear Sir:

I just recently did alot of const.
in my home using Georgia Pacific - Ready
Mix Joint Compound, Lot # 9306 T 11702.
I didn't notice on the label till after
I was completed that the material
contained asbestos fiber which const.
a serious health hazard.

In sanding the Ready Mix Joint Com.
on the new sheet rock I installed,
got this fine dust all over my home.

My questions are as follows: 1- How
much (percentage) asbestos fiber is in
your Joint Compound? 2- Is the amount
in your Joint Compound (fiber) really
3- Is there asbestos fiber in sheet rock?
4- Any other information you might be

your sending to me.

I have small children that w
living in our home while I was
remodeling and I am concerned
their welfare. I have heard that
since 1973, The Environmental Protec
Agency has banned materials contain
more than 1% asbestos fibers.

I would appreciate hearing from
you. Also if you have any info
on asbestos fiber and its use in
various building materials, I would
like a copy.

Thanks For Your Time,
Craig Burningham

Georgia-Pacific



intracompany memo

to Mr. C. E. Wilson

location Portland

from C. W. Lehnert

location Tigard

subject Ratio of Asbestos/Asbestos Free
Joint Compound Shipments -
First Quarter, 1977

date April 21, 1977

Our percentage of asbestos free joint compound shipments including textures were as follow:

<u>Plant</u>		<u>Tons</u>	<u>%</u>
Akron	Asbestos Free	572	14.2
	Asbestos	3,442	85.8
Acme	Asbestos Free	2,917	43.9
	Asbestos	3,735	56.1
Chicago	Asbestos Free	1,314	37.7
	Asbestos	2,173	62.3
Marietta	Asbestos Free	348	6.5
	Asbestos	5,000	93.5
Milford	Asbestos Free	955	20.1
	Asbestos	3,786	79.9
TOTAL	Asbestos Free	6,106	25.2
	Asbestos	18,136	74.8
GRAND TOTAL		24,242	

We can make this comparison periodically to keep abreast of the transition to asbestos free products.

CWL
C. W. L.

CWL/gvp

cc: Mr. E. B. Hollingsworth - Wilmington
Mr. O. E. Burch - Portland
Mr. D. C. Corkill - Portland
Ms. R. L. Dixon - Portland
Mr. G. F. Fowler - Marietta

THIS COPY FOR

RE
APP
GYPS

77 APR 28 PM 12:39

GEO PAC PTLD E

STRT WILM

4/27/77 3:30 P M

TO:

I F WEIBEL - AKRON

R J FAVERO - MARIETTA

H W SCHARF - MILFORD

M A PALMOWSKI - CHICAGO

FM: E B HOLLINGSWORTH - WILM

CC:

G. E WILSON - PORT

O E BURCH - PORT

C W LEHNERT - HIGARD

D C CORKILL - PORT

*"Pls. make copies for Portland
personnel listed and distribute*

WE HAVE HEARD THAT A BAN MAY BE IN EFFECT FOR ASBESTOS IN OUR JOINT CEMENT PRODUCTS. PLEASE REPORT ANY WORD CONCERNING THIS WHICH MAY REACH THE PLANT. BY COPY OF THIS MESSAGE I AM REQUESTING GUIDANCE IN PRODUCTION FORMULAS FROM PORTLAND. DO NOT RUN ASBESTOS FORMULAS AFTER TODAY UNTIL CLARIFICATION IS RECEIVED.

GA OR END

GEO PAC PTLD E

P

G P TGD RD

WU INFOMASTER 1-019984M122015 05/02/77
TWX GEO PAC PTLD C
015 PORTLAND OREGON
TWX 910-458-8899 G P TGD RD

REGIONAL GYPSUM MANAGERS FROM D C CORKILL S-2-77

CC: O E BURCH - PORTLAND
E B HOLLINGSWORTH - WILM DEL
T W RICHARDS - TIGARD LAB
C W LEHNERT - TIGARD LAB
G F BAITINGER - PORTLAND
M A PALMOWSKI - CHGO JT
H W SCHARF - MILFORD
R V FAVARO - MARIETTA
K W BROWN - ACME
J F WEIBEL - AKRON
JACK SCHANZ - CHGO NORTH
MIKE BORTOSCH - WASH DC

L H KABOOS - LANDOVER
W D BROOKS - CARROLLTON
E C GALLOWAY - ATLANTA
D W MCCUBBIN - CHGO REGL
J E TIERNEY - BUCHANAN
R P BALLAST - GR RAPIDS FLT
E G REYNOLDS - OAKLAND REGL

THE CONSUMER PRODUCTS SAFETY COMMISSION HAS VOTED TO PHASE OUT ASBESTOS PRODUCTS OVER A REASONABLE TIME PERIOD, PROBABLY 4-6 MONTHS, WHICH WILL ALLOW US TO USE UP OUR EXISTING ASBESTOS INVENTORY. DURING THIS PERIOD, OUR ASBESTOS FORMULA IS TO BE SOLD TO CONTRACTOR CUSTOMERS AND DEALERS SUPPLYING CONTRACTORS ONLY; THE ASBESTOS-FREE TO RETAIL OUTLETS FOR CONSUMER USE. THE JOINT CEMENT PLANTS WILL AGAIN PRODUCE THE ASBESTOS FORMULA UNTIL PRESENT ASBESTOS STOCKS ARE GONE, AND YOU WILL BE ADVISED OF THE APPROXIMATE TIME PERIOD BEFORE COMPLETE CONVERSION TO ASBESTOS-FREE.

1406 EST

G P TGD RD

SEP 23 1971

Bill Hunt
NATIONAL GYPSUM COMPANY

BUILDING PRODUCTS DIVISION

BUFFALO, NEW YORK 14202

ALBERT H. PAY

VICE PRESIDENT, RESEARCH AND MAINTENANCE

Albert H. Pay
Bill Hunt
September 24, 1971

Mr. W.H. Hunt, President
Georgia-Pacific Corporation
900 S.W. Fifth Street
Portland, Oregon 97204

Dear Bill:

We were indeed sorry that you were unable to attend our Seminar.

Of course, I cannot be certain, but I would guess that you do use asbestos fiber in joint treatment products and in finishes for wallboard.

Our tests indicate that sanding of joint treatment products and particularly the spraying of wall finishes offers some substantial potential hazards.

You may feel it advisable to check into this.

Sincerely,

Albert H. Pay
AHF:les

~~WHL~~
~~WHL~~
1
G P TGD RD

GPEW WILM
5/2/77 2 P M
TO:

I F WEIBEL - AKRON
M A PALMOWSKI - CHICAGO
R V FAVERO - MARIETTA
MILFORD - H W SCHARF

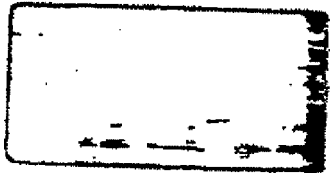
FM: E B HOLLINGSWORTH

CC: C W LEHNERT - TIGARD
D C CORKILL - PORT

WE HAVE A TEMPORARY REPRIEVE ON THE ORDER TO BAN ASBESTOS IN OUR WALL AND CEILING PRODUCTS. EFFECTIVE AT ONCE YOU ARE FREE TO MANUFACTURE JOINT CEMENT PRODUCTS CONTAINING ASBESTOS. YOUR INVENTORY OF ASBESTO WILL DETERMINE THE TIME WHEN YOU CEASE MANUFACTURING THE ASBESTOS PRODUCTS. DO NOT ORDER ANY MORE ASBESTOS. YOUR CONTAINERS AND RAW MATERIALS WHICH ARE USED ONLY FOR THE ASBESTOS PRODUCTS SHOULD BE COORDINATED TO BE USED UP WHEN YOUR ASBESTOS IS GONE. SOME RESTRICT ARE PLANNED BY SALES REGARDING THE SHIPMENT OF PRODUCTS CONTAINING ASBESTOS. PLEASE CONTACT DAVE CORKILL FOR GUIDANCE. WE ANTICIPATE A 3 TO 4 MONTH PERIOD BEFORE THE ASBESTOS BAN IS MADE EFFECTIVE.

GA OR END

G P TGD RD
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WO INFOMASTER

GP REG. CLRTN

008263C123 0953EST

MA 01 CLRTN, TX. 5-3-77

GCS 16C1GPA

~~RE: TO BRANCH HEADERS~~

FBI W. D. BROOKS 5-3-77

CC: L. B. FRAMMEL

D. C. CORKILL

D. E. BURCH

K. W. BROWN

~~RE: ASBESTOS TYPE JOINT SYSTEM~~

THE CONSUMERS PRODUCTS SAFETY COMMISSION HAS NOW VOTED TO PHASE OUT ASBESTOS TYPE JOINT SYSTEMS OVER A REASONABLE LENGTH OF TIME, LIKE 4-6 MONTHS, WHICH WILL ALLOW US TO USE UP OUR EXISTING ASBESTOS INVENTORY. DURING THIS PERIOD, OUR ASBESTOS FORMULA READY MIX (4 AND 5 GAL) IS TO BE SOLD TO CONTRACTOR CUSTOMERS AND DEALERS SUPPLYING CONTRACTORS ONLY. THE ASBESTOS FREE FORMULA IS TO BE SOLD TO RETAIL OUTLETS FOR CONSUMER USE. JOINT SYSTEM PLANTS WILL CONTINUE PRODUCING THE ASBESTOS FORMULA UNTIL PRESENT ASBESTOS STOCKS ARE GONE. WHEN THAT'S DEPLETED, WE'LL REVERT TO ASBESTOS FREE ENTIRELY.

P
G P TGD RD

GPBW WILM
Y5/3/77 2:15
TO:

I F WEIBEL - AKRON
M A PALMOWSKI - CHICAGO
R V FAVERO - MARIETTA
H W SCHARF - MILFORD

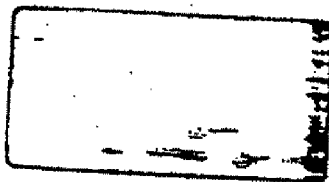
FM: E B HOLLINGSWORTH - WILM

CC: C W LEHNERT - TIGARD
D. C. CORKILL - PORT
E. AASEN - PORT

WE WILL AGAIN STOP THE MANUFACTURE OF PRODUCTS CONTAINING ASBESTOS.
THIS WILL BE EFFECTIVE WEDNESDAY A.M. MAY 4. IT WILL BE OK FOR YOU TO
SHIP YOUR INVENTORIES OF FINISHED PRODUCTS CONTAINING ASBESTOS.
OTHERWISE FOLLOW THE PROGRAM SET UP WHEN DISCONTINUANCE WAS ANNOUNCED
ON THURSDAY, APRIL 28.

GA OR END

G P TGD RD





Georgia-Pacific Corporation

900 S.W. Fifth Avenue
Portland, Oregon 97204
Telephone (503) 222-5561

Δ 73

C
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P
Y

June 21, 1977

Mr. R. E. Byrne, Jr.
Union Carbide Corporation
Mining & Metals Division
P.O. Box 579
Niagara Falls, New York 14302

Dear Bob:

It has been sometime since we last moved any of our discontinued inventories of SG-210 and HPO asbestos.

We still have 92,355 pounds of SG-210 asbestos at our Acme, Texas plant and 123,600 pounds of HPO at our Marietta, Georgia plant.

With your cooperation we have cleared out the small inventories at Akron, New York and Chicago and we are most anxious to eliminate these others as well.

Should I be working through Linda Grogan at King City to seek shipping instructions to other users or do you direct her in this regard?

Any further assistance you can give us will be appreciated. Thank you.

Very truly yours,

Edward L. Aasen
Purchasing Manager
Gypsum Division

ELA:bga

cc: Messrs. D. C. Corkill - Portland (8)
S. R. Clark - Acme Plant
R. V. Favero - Marietta Plant
Gypsum Cost Dept. - Portland (8)

THIS COPY FOR



Georgia-Pacific Corporation

900 S.W. Fifth Avenue
Portland, Oregon 97204
Telephone (503) 222-5561

△ 74

July 6, 1977

Mr. S. John Byington
Chairman
Consumer Product Safety Commission
1750 "K" Street, N. W.
Washington, D.C. 20036

Subject: Asbestos - Spackling Compound

Dear Chairman Byington:

In the staff report presented to the Commission at your meeting on June 30, two issues were discussed on which I would like to comment. The issues were:

1. A definition of consumer packaging as differentiated from an industrial size package, and
2. The effective date of the ban.

First, I would like to point out that, on the date of your announced ban on spackling compound containing asbestos, we ceased using asbestos in our product and switched to a substitute.

We have also worked closely with your contractor developing the environment and economic report on asbestos. In the course of our discussion with your contractor, we focused on the issues mentioned above and would like to directly express our recommendations to you.

We support a total ban on spackling compound containing asbestos without regard to the packaging size. We package our spackling compound in both one-gallon and five-gallon containers. Although the smaller size is directed toward the "do-it-yourself" market, we have no way of policing the sale of our five-gallon containers and keeping those out of this market. A ban which differentiated the size of packaging would be difficult to enforce; and for that reason, we do not recommend you make the ban effective to different sizes of containers.

RECEIVED

Mr. S. John Dyrington
Page 2
July 6, 1977

Because we no longer manufacture a spackling compound containing asbestos, we support the 180-day effective date of the ban. Our pre-mix compound results in a minimum exposure which, based on your assessment analysis, presents an insignificant health hazard. Your risk assessment analysis was based on a four-day, eight-hour exposure which is not typical of the nonprofessional use patterns in using gypsum board and applying joint compound. The one-time user is at the lowest end of the exposure curve.

A ban of 180 days will provide sufficient time for any existing inventories to be depleted and replaced with asbestos-free spackling compound.

We will continue to work with your contractor, and if we can provide any direct information, please do not hesitate to contact us.

Yours very truly,

G. E. Wilson
Vice President

CEH/cw

cc: Messrs. O. E. Burch
C. T. Howlett, Jr. - Wash., DC - Exec. Office
C. W. Lehnert - Tigard Lab
T. F. Mitchell - Wash., DC - Exec. Office
T. E. Withycombe

WTPB
#82
RDP

Georgia-Pacific



intracompany memo

to Mr. E. B. Hollingsworth

location Wilmington

from C. A. Spear

location Marietta

subject Asbestos-free Ready-mix

date 5/20/77

No major problems have been encountered in regard to our Asbestos-free production. All quality tests have been satisfactory. However, we find that the Asbestos-free is requiring more mixing time than the Asbestos formula, and subsequently, our production rate has dropped about ten batches a day (five pr shift). The Asbestos^{FRE} requires a entirely different mixing cycle. Water, Elvace, Nalco and filler is added to the mixer. The filler is mixed until it is lump-free. At this time, Acrysol (a liquid thickner) is added to the blended filler, and mixed until it reaches the pumping viscosity of 120 ± 20pts.

Retain samples indicate a viscosity rise of 120pts - 160pts after 24 hrs. We have experienced some problems regarding a humid bond. Bond tests indicate about 80% fiber tear at 12% moisture (readings were taken with a model DC-10 moisture register). However, at this level (12%) a 100% tear is noted with our old Asbestos formula. Even at a 7% level (considered dry) the asbestos-free does not yield as strong a bond as the Asbestos formula. Subsequently, we have raised our Elvace loading to 136lbs (formula usage) - 142lbs pr batch to insure a satisfactory bond.

We have yet to hear any field reports concerning its market acceptance. At such time any information is received you will be advised.

CAS.
C.A.S.

cc: Mr. A. J. Petraline - Wilmington
Mr. J. B. Moss - Wilmington
Mr. C. W. Lehart - Tigard
Mr. W. N. Gettel - Tigard
Mr. G. F. Fowler - Marietta
Mr. R. V. Favero - Marietta

RECEIVED

October 24, 1977

Mr. R. E. Byrne, Jr.
Union Carbide Corporation
Mining & Metals Division
P.O. Box 579
Niagara Falls, New York 14302

Dear Bob:

Enclosed is a copy of Union Carbide credit memo AU 561100 in the amount of \$4,980.00 covering a net of 80,000 pounds of HPO asbestos which was returned to King City, California in August by our Marietta, Georgia plant.

As noted in my letter to you on August 10 we would need a check from your company to settle this as it would be impossible to absorb a credit memo through future purchases.

Will you please see that a check is sent to us for the value of the returned product less the restocking charge of 25% plus prepaid freight of \$2,949.50 less local rail freight of \$224.64 plus demurrage costs of \$60.00. This should total \$7,764.86 unless minor corrections are made to both freight charges due to the 3,200 pounds of damaged material.

Thank you.

Very truly yours,

Edward L. Aasen
Purchasing Manager
Gypsum Division

ELA:hga

cc: Messrs. R. V. Favero - Marietta Plant
D. C. Corkill - Portland (8)
Mrs. [REDACTED]
Gypsum Cost Dept. - Portland (8)

*Call
JTB
Dft
DATE*

*12-13-2
R+D 347
pg 9*

October 7, 1971

- Portland -

Tigard Lab

Mr. W. H. Hunt

C. W. Lehnert

ASBESTOS FIBER

We do market joint compounds and interior surfacing textures which contain between three and seven percent asbestos fiber. Our sales level of these products is over 50,000 tons annually, so it is an important business for us. We do not, however, market the fireproofing plaster which is mentioned in the correspondence from National Gypsum and might contain as much as 25% asbestos.

Glenn has asked us to try to eliminate the asbestos in these products. We have been moderately successful in as much as we are in the process of reducing or eliminating the asbestos from our texture line. We had felt that the presence of asbestos in the textures would be more critical because they are spray applied and there would be more danger of inhaling the fibers. If National Gypsum is correct, the joint compounds will also come under considerable pressure from the environmental people.

In any event, we will expedite our efforts to get rid of the asbestos in the joint compounds. This will be far more difficult because the asbestos controls the working properties which are essential to acceptance by the contractors. Our competition will have the same problems, so it will be a case of finding a solution before they do.

It might be helpful to have any information from the seminar Mr. Fay mentions. We had heard some time ago that limitations might be imposed upon the quantity of asbestos that would be permitted in a given product. If so, the problem would not be as difficult as completely eliminating asbestos fiber. If you agree, I will contact Mr. Fay to see if there is any information he can pass along to us. I have made copies of the correspondence and am returning your file.

JWB

CWL:elz

C. W. L.

Attachment



Δ 43

INTERDEPARTMENTAL COMMUNICATION

DATE: January 6, 1972

TO: All Plant Managers (Canadian Excepted) LOCATION:

FROM: M. F. Fink

LOCATION: Portland

SUBJECT: SAFETY BULLETIN - OSHA

Attached are pamphlets containing information which should assist you and your staff to understand the regulations and their interpretations.

You will note that there are changes proposed for record keeping. It is planned to record data as regards man-hours, injuries and other pertinent information on IBM. A trial program will be initiated during the next 30 days and a study will be made until July 1, 1972 to decide whether we can adopt this programming. Until this is finalized, we will continue the program in effect at the present time.

Statistical reports will not be required at all locations. This is OSHA Form 103, and will be mailed to the plant for completion. Actually, the report is a review of safety activities, type of operation and information that appears on OSHA 102. If your plant should receive the form, contact the writer or Dick Tuttle here in the Portland office.

Emergency standards for asbestos. We have received temporary standards which implied that all employees exposed to asbestos shall wear an approved type respirator. We covered this item in our previous bulletin, also we have outlined a medical program for employees handling asbestos. To obtain the proper type of respirator, it is recommended that Mine Safety Appliance or Wilson Products be contacted. The respirators must be approved by the U. S. Bureau of Mines.

General duty clause. This is a very controversial subject and permitted the inspector to issue citations for conditions he assumed were unsafe, also conditions not spelled out in the standards. You will find reference to this clause in the paragraph "Contested Citations".

The entire Act will be reviewed during May, 1972, and we can expect several changes in recordkeeping, inspection procedures and citations. We doubt whether the inspection standards will be changed. There will be added standards to cover health hazards, especially asbestos, lead and chemicals.

We will keep you informed as these standards are developed.

M. F. F.

MFF/ab

Attachment

cc: Messrs. G. E. Wilson
E. B. Hollingsworth
T. W. Richards
J. W. Hart
J. DiLorenzo
H. W. Peele - Delair
J. B. Moss & C. W. Lehnert - Tigard Lab



INTERDEPARTMENTAL COMMUNICATION

DATE: January 20, 1972

TO: All Plant Managers

LOCATION:

FROM: M. F. Fink

LOCATION: Portland

SUBJECT: OSHA INFORMATION

The first six months of operating under OSHA have been completed and some criteria has been established. Three items stand out namely:

1. The inspectors do not or cannot, because of lack of knowledge, offer any corrective recommendations, solely criticism and imposition of penalties.
2. It seems that they are very reluctant to criticize labor, however management can be fined for employee violations.
3. The inspection citations appear to be petty, however, penalties are assessed. The entire program leaves a lot to be desired, it is a far cry from the Federal Mine Act supervised by personnel from the U. S. Bureau of Mines. They inspect, note violations recommend corrective measures and allow grace periods to correct before assessing fines.

Attached is a report resulting from an OSHA inspection at Georgia-Pacific's Ottawa, Ohio plant, also a letter from Floyd Arnold, Manager of Safety. You will note the citation for a fire extinguisher set on the floor also the tagging of extinguishers. This is a continuous problem and if you or your staff have a suggestion please forward. Also, covers an electrical switch and junction boxes. We have this problem in our plants and it has been called to your attention. We recommend that the supervisors discuss these items at the safety meetings.

Aisles must be marked and maintained. The code reads "Aisles shall be provided of sufficient width to permit the free movement of employees, mechanical trucks, lift trucks, etc. The aisle is to be independent of working and storage space and should be defined by marking". We have checked this and the information received is that yellow marking is acceptable but they prefer white or white with black stripes.

Several citations have been issued for improper recordkeeping great percentage of the recordkeeping citations indicated changes in the entries and not initialed. Every entry must be initialed by the person making the entry. Rather than have several parties attempting to maintain the log we suggest that only the safety coordinator or the office manager be responsible for proper recording.

Also other materials as regards OSHA are attached. There maybe a suspicion that we are sending out too much material. It is our intention to preface all locations for the initial visit and what to expect.

The standards on dust bath nuisance and hazardous, have not been received. We do know that the reduction in allowable concentrations have



SGP 0006445

Plaintiff's Exhibit
S-GP-31

been reduced as much as 50%, especially asbestos, limestone, mica and talc. All employees working with these materials shall be furnished an approved type respirator and it must be worn in the proper manner, while exposed to the above mentioned dusts.

M. F. F.

MFY/mv

Attachments

cc: Messrs. C. E. Wilson
E. B. Hollingsworth
T. W. Richards
J. W. Hart
J. DiLorenzo
H. W. Feele - Delair
H. W. Scharf - Marietta
P. A. Jackson - Chicago

SGP 0006446

PLAINTIFF'S
EXHIBIT

10957.00

GEORGIA-PACIFIC

INTERDEPARTMENTAL COMMUNICATION

DATE: January 24, 1972

TO: Mr. E. B. Hollingsworth

LOCATION: Portland

FROM: J. D. Rauch

LOCATION: Akron

SUBJECT: FEDERAL OCCUPATIONAL SAFETY
AND HEALTH ACT

The steady flow of plant requirements by Portland and the O.S.H.A. requirements leave the plant confused as to what should be done and what should not be done. So far we have accomplished the following items on a general plant charge since they were not budget items.

1. Had all of the plant fire hose pressure tested. This test resulted in several ruptured lines that have been replaced with new hose.
2. Had all of the plant fire extinguishers pressure tested. None of the extinguishers failed, but several were found to be inoperative or of such style, due to age, that they had to be replaced.
3. New dust masks for employees working in asbestos or talc dust areas. Current masks in use were found inadequate for this condition. This required enough masks for all Joint System and Plaster P&S employees plus extras and refills.
4. Chest X-rays for the Joint System Mixer operator and the Plaster P&S operator. We may find that all employees working in these departments should have the same protection.
5. Various other requirements have been met such as hard hats, ear plugs, safety glasses, low pressure air controls for cleaning up, etc.

The following items are understood by the Akron Plant to be O.S.H.A. requirements. We have not started the following items and need to know how we can provide the required funds under our 1972 budget.

1. Hearing tests for each employee. This has been set up for March of this year. This testing program will cost about \$1,000.00 for test administration, plus about \$300.00 to provide an approved test area.
2. Roll bars for all rubber tired high lift machines. As we understand the regulation, we have two pieces of equipment that this rule covers. Our only quote on approved bars to date will require an expenditure of \$4000 for one and \$2000 for the other machine.
3. Provide a new exit door in west side of Joint System warehouse building. See item #1 of attached report.
4. Rework the freight elevator in the Plaster P&S building. See items #2 & #3 of attached report. We have arranged to get an elevator inspection and repair company to supply an estimate on this requirement. This could be an expensive repair item.
5. Item #4 of attached report will be repaired by plant labor this week. This is a result of recent rock pile removal work. This work uncovered 3 stair steps that had been covered by the old rock storage pile for a number of years.

SGP 0006447

Plaintiff's Exhibit
S-GP-32

- ✓ 6. Item #5 is the same as above. Will be repaired by Plant Labor. Condition was unnoticed until inspection.
- ✓ 7. Item #6, same as 4 and 5 above.
8. Item #7 in attached report is also an O.S.H.A. covered item. According to our information every door leading to the outside has to have a lighted exit sign of the required size. This inspection only indicated one such sign is required. *Lighted*
NOT If we are to meet the O.S.H.A. regulation in full we will need about 25 of these about \$15.00 each. With installation labor this could cost over \$500.00 in total.
- ✓ 9. Item #8 of the attached report is a no cost item. Requires only rearrangement of finished products and raw materials in the Joint System and Wallboard warehouses. This will result in a loss of some storage area.

As you can see, the total of all items listed above will result in a heavy expenditure that is not covered by our 1972 Standards. May we have your comments regarding this matter?

I have not sent Mr. Matt Fink a copy of the attached report. After you have looked it over, will you please forward it to him for his files. Thank you.


J. D. R.