

INTERNAL CORRESPONDENCE February 16, 1962

FROM F. H. REGEHR
VERNON WORKS

TO DR. LESTER CRALLEY
PITTSBURGH OFFICE

RE: SAWING MARANITE

**PLAINTIFF'S
EXHIBIT**

AL-213

Reference is made to Mr. Thomas Bonney's letter of February 8, 1962, in reply to my letter of January 29, 1962, to which I attached a letter from the Vernon City Health Department dated January 24, 1962.

We have just received another letter from the Vernon City Health Department which is attached and self explanatory. We will do nothing further with respect to this subject until we have your comments on the attached letter.

F. H. Regehr

FHR:cs
Attach.

cc: Thomas Bonney - Pgh.
T. I. McClintock - Vrn.
F. R. Powell - Vrn.
W. H. Sharp - Vrn.

ARCH 19182

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CITY HALL
4308 SANTA FE AVENUE



VERNON 58, CALIFORNIA
February 13, 1962

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DR. C. E. NEMETHI, Health Officer
J. S. COLTON, Building Engineer
LESTER C. MUSTED, Fire Chief
R. H. BOCKHACKER, Police Chief
JOHN B. MOORE, Administrative Officer
HASKINS & SELLS, Auditors

IN REPLY REFER TO:
Dept. of Public Health

SUBJECT: Laboratory
Analysis of "MARINITE"

Aluminum Company of America
5151 Alcoa Avenue
Vernon 58, California

Attention: Mr. Frank Regehr
Safety Director

Gentlemen:

During the "marinite" study we made on January 12, 1962, a sample was retained and submitted to the California Department of Public Health Air and Industrial Hygiene Laboratory for analysis.

The results of the analysis are as follows:

Quartz - not detected (less than 5%)
Diatomite - approximately 5%
Asbestos - approximately 50% (clinocrysotile)
Inorganic Filler - approximately 40%

The quartz content and identification of asbestos species were determined by x-ray diffraction methods. Composition of other materials were based on microscopic estimate.

In view of the above analysis, we recommend that a Threshold Limit Value of 5 million particles per cubic foot of air be used when designing controls and when making studies of potential exposures to this material. This value is based on the asbestos content.

If you have any questions in regard to this report, please

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CITY OF VERNON CALIFORNIA

Aluminum Company of America
5151 Alcoa Avenue
Vernon 58, California
February 13, 1962

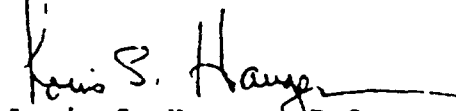
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IN REPLY REFER TO
Dept. of Public Health

feel free to contact us for additional information.

Very truly yours,

C. E. Nemethi, M.D.
Health Officer


Louis S. Hauger, R.S.
Dep. Dir. of Sanitation

LSH:lw.

ARCH 19184

February 8, 1962

THOMAS D. DONNEY
PITTSBURGH

MR. F. H. REGBER
VERNON WORKS

Re: SAWING MARINITE

Reference is made to recent correspondence re the sawing of Marinite. We would like to comment on the recommendation to add additional ventilation to the saw used for cutting Marinite. Although there may be several good reasons for ventilating the saw, the decision to ventilate it cannot be made on the basis of its being a health hazard.

As I understand it, the material would be cut at infrequent intervals and probably would not involve more than 12 hours a month. Assume that the average dust concentration is 30 mppcf (this was the extreme of four conditions measured). We know that Marinite contains asbestos and diatomaceous earth; therefore a threshold limit of 5 mppcf is a reasonable one to apply. This figure represents a time-weighted average concentration to which nearly all workers can be exposed day after day without adverse effect to the majority of workers. A threshold limit value of 5 mppcf is merely a guide and must be used with a considerable amount of judgment. However, Marinite dust concentrations may exceed this value if the daily exposures are less than eight hours. (See the preamble to the ACGIH list of Threshold Values and Pages 2-4 and 2-5 of the Alcoa Industrial Hygiene Handbook).

If you have a concentration of 30 mppcf of a non-irritant dust having a threshold limit of 5 mppcf, it means that your workers can be exposed daily to the high level for a little over one hour per day with little likelihood of adverse effects. In a month, this

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Feb. 8, 1962

amounts to an allowable exposure of over 40 hours. The actual exposure that you have estimated is 12 hours per month, and therefore there is no need for concern about harming your employees. This is a conservative estimate of the situation, especially in view of our using the highest measured concentrations for the evaluation.

Granted 30 mppcf is a rather heavy dust loading and, quite possibly, some means of control may be desirable for other reasons, such as discomfort or nuisance value. If discomfort and nuisance are the only factors, perhaps simple respiratory protection would be sufficient.

It should be remembered that the threshold limit values are statistical values and that by using them as intended, we are able to protect the vast majority of the working population. By using TLV's as intended, flexibly and sensibly, we can be assured that injury to our employees is highly unlikely. This assurance is, I think, our most important objective. Another possible objective is that of being able to disprove alleged injury. Without strict adherence to the TLV's, this latter end will be difficult to gain, but the problem is likely to be almost as great even with strict adherence.

Although it may not be important in this case, a realistic appraisal of potential hazards and the judicious use of threshold limit values may be extremely important in other instances. Whether or not costly controls are to be installed may depend on a careful analysis of each individual problem.

TBB:DB

cc: T.I. McClintock, Vernon
H.R. Powell, Vernon
W.H. Sharp, Vernon
L.V. Cralley, file

T.B. Bonney

ARCH 19187

INTERNAL CORRESPONDENCE January 29, 1962

FROM F. H. REGEHR

TO DR. LESTER CRALLEY

VERNON WORKS

PITTSBURGH OFFICE

RE: VISIT BY VERNON HEALTH DEPARTMENT

Attached is a photostatic copy of letter from the Department of Public Health, City of Vernon, dated January 24, 1962, which is self explanatory.

Previous correspondence and data on the subject matter was transmitted to you with my cover letter of January 24, 1962.

Upon receipt of the analytical report with respect to "Marinite" referred to in Mr. Hauger's letter, page 2, paragraph 2, it will be also forwarded to you.

F. H. Regehr

FHR:cs

cc: Messrs. F. R. Powell - Vrn.
W. H. Sharp - Vrn.
T. I. McClintock - Vrn.

CITY COUNCIL

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TELEPHONES

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BUILDING DEPT. . . LUDLOW 8-2522
ENGINEERING DEPT. LUDLOW 3-1666
HEALTH DEPT. . . . LUDLOW 3-1666

CITY HALL
4305 SANTA FE AVENUE



OFFICERS

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ARTHUR E. NELSON, JR., CITY ENGINEER
D. D. GRAYSON, TRAFFIC ENGINEER
R. H. KING, SUPT., WATER & SEWER SYSTEMS
DR. C. E. NEMETHI, HEALTH OFFICER
J. S. COLTON, BUILDING ENGINEER
LESTER C. HUSTED, FIRE CHIEF
R. H. BOCKHACKER, POLICE CHIEF
JOHN B. MOORE, ADMINISTRATIVE OFFICER

HASKINS & SELLS, AUDITORS

IN REPLY REFER TO:

VERNON 58, CALIFORNIA

Dept. of Public Health

January 24, 1962

SUBJECT: Preliminary
study of a proposed
"Marinite" cutting
operation in the pattern
shop.

Aluminum Company of America
5151 Alcoa Avenue
Vernon 58, California

Attention: Mr. Frank Regehr,
Safety Director

Gentlemen:

On January 12, 1962, representatives of the Vernon Health Department conducted a preliminary study of a "marinite" cutting operation in the pattern shop.

The pieces of "marinite" were cut on a band saw which is provided with a local exhaust connection to the lower pulley housing and a small hood located directly under the blade opening in the saw table.

Air movement observations were conducted during the cutting operation using smoke tubes and a velometer. Close observation of the blade as it passed through the material disclosed that fine dust was being generated from the top surface of the "marinite" similar to conditions that are encountered in crushing operations. This top surface generation explains why considerable dust was encountered even though an adequate exhaust hood was provided below the saw table.

In discussing this operation with Mr. Smythe and pattern shop personnel, I learned that "marinite" was cut rather infrequently and probably the time spent did not exceed an average of more than 12 hours monthly.

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January 24, 1962

Dept. of Public Health

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This time factor of course decreased the hazard potential of the operation, but because of the composition of the material local exhaust controls should be instituted. It was also stated that large pieces of the material were cut outdoors using a skill saw.

A sample of the material has been submitted to the laboratory for analysis and as soon as we receive the report, it will be forwarded to you.

An inspection of the local exhaust duct system in the pattern shop was also made during this study and you will find suggestions in regard to this system listed in our recommendations.

RECOMMENDATIONS: (SHOULD THE "MARINITE" CUTTING BE RESUMED)

1. Provide a transparent cylindrical plastic hood to enclose the blade above the material. This hood should be approximately 6" in diameter and long enough to leave about 1/2" of space above the material being cut. The hood should be attached to the upper saw blade guide (angle iron). It is suggested that the top portion of the hood be made of a circular disk of 1/2" plywood slotted to receive the blade. The plastic cylinder should be of material similar to that used in plastic face shields and screwed or tacked to the plywood disk. The plywood disk must also be provided with a hole to receive the flexible exhaust duct. (See attached drawing VS-48.) Approximately 350 cubic feet per minute exhaust volume should be provided.
2. Connect the under table hood to the same exhaust duct supplying the lower pulley housing. (See attached drawing VS-48.)
3. Secure door on lower pulley housing so it will fit tightly, by providing additional door latches. Close openings in lower pulley housing to prevent air leaks. This will increase velocity at blade opening in saw table.
4. Provide a brush or wiper on lower pulley and on blade in lower housing to continuously remove "marinite" adhering to these parts.

ARCH 19190

January 24, 1962

Dept. of Public Health

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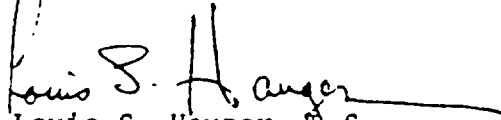
5. If large pieces of "marinite" are cut out of doors, the operator should be provided with a respirator approved for use against toxic dust (MSA Dustfoe or equal). The operation should be conducted so that all dust produced will be blown away from windows, doors and air intakes, so that other workers will not be exposed.

6. When making changes or when installing new exhaust systems, it is recommended that the principles of good duct design as advocated by the American Conference of Governmental Industrial Hygienists be followed. (See attached drawings, figures 6-6 through 6-9.)

In closing, we wish to thank you for the courteous cooperation and assistance given to this department during our study. If you should have any questions concerning this report, please do not hesitate to call upon us for any assistance we may be able to offer.

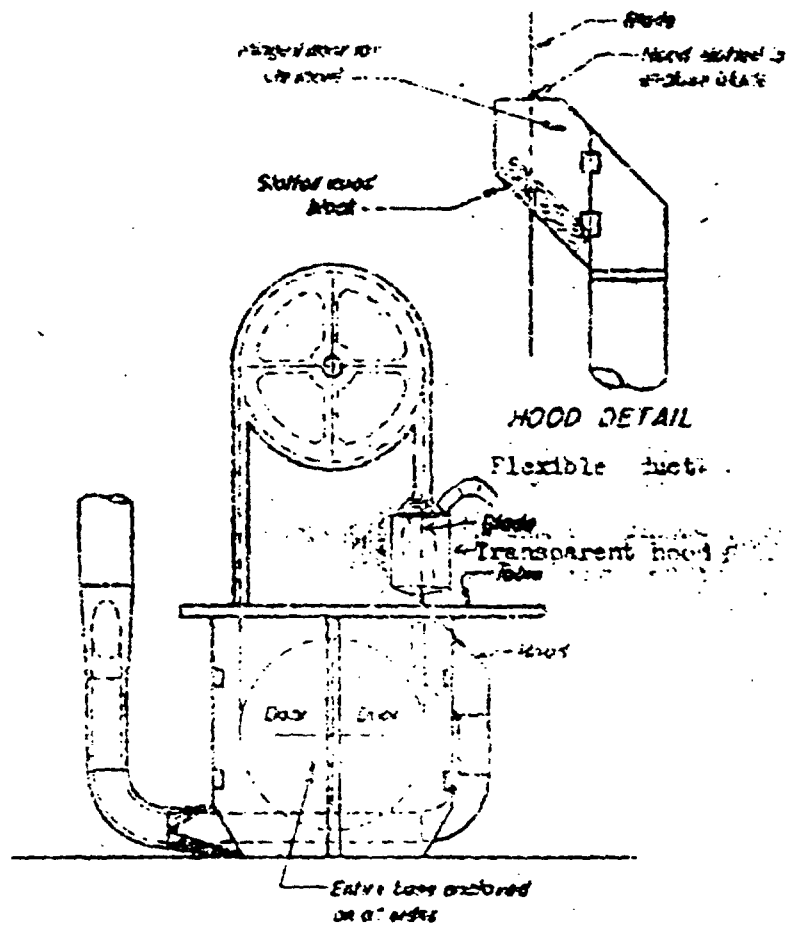
Very truly yours,

C. E. Nemethi, M.D.
Health Officer


Louis S. Hauger, S.S.
Dep. Dir. of Sanitation

LSH:r

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Blade width, inches	Exhaust volume, CFM		
	Bottom	Top	Total
Up to 2	350	350	700
over 2 to 3	350	550	900
over 3 to 4	550	800	1350
over 4 to 6	550	1100	1650
over 6 to 8	350	1400	1750

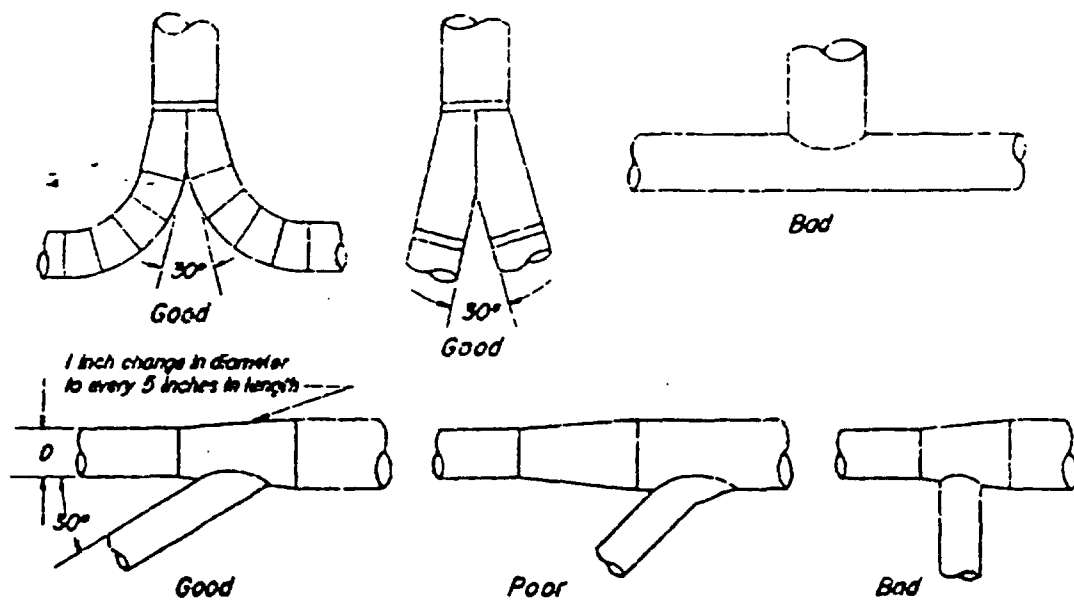
Duct velocity = 4000 FPM
Entry loss = 1.75 static VP plus conversions.

AMERICAN CONFERENCE OF
GOVERNMENTAL INDUSTRIAL HYGIENISTS

SAND. SCH

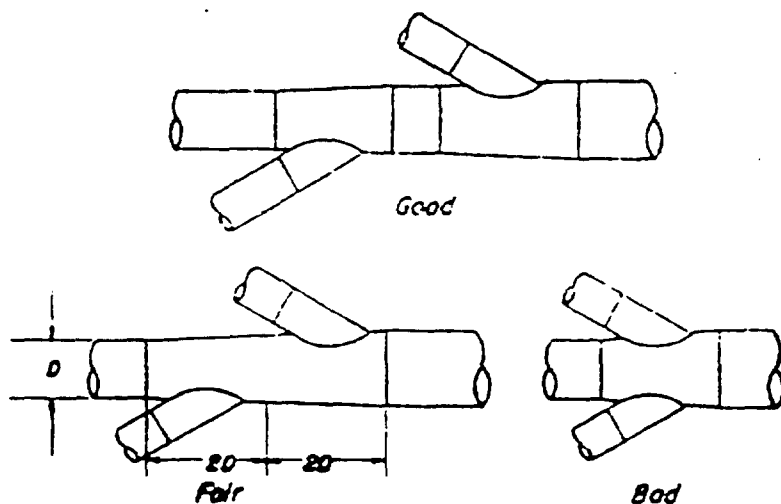
ARCH 19192

DET. 1-22-62



BRANCH ENTRY

Branches should enter at gradual expansions and at an angle of 30° or less (preferred) to 45° if necessary.



BRANCH ENTRY

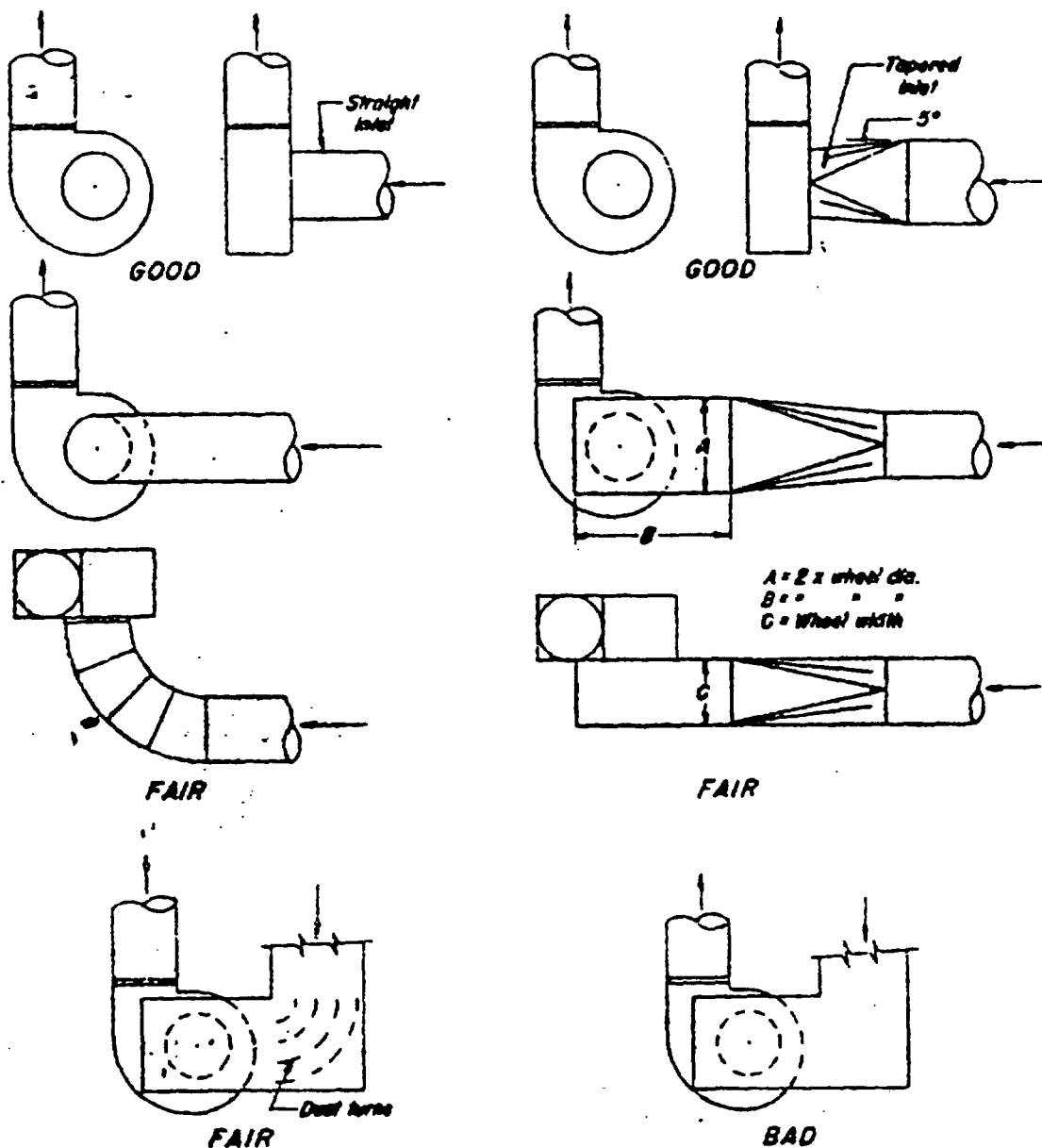
Branches should not enter directly opposite each other.

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GOVERNMENTAL INDUSTRIAL HYGIENISTS

PRINCIPLES OF DUCT DESIGN

DATE 1-56

Fig. 6-7



FAN INLET

A straight inlet is best: If an elbow inlet is necessary, provide an inlet box and duct turn vanes to eliminate air spin or uneven loading of the fan wheel. Inlet boxes should not be used for dust-laden air.

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GOVERNMENTAL INDUSTRIAL HYGIENISTS

PRINCIPLES OF DUCT DESIGN

DATE 8-55

Fig 6-8

ARCH 19195

TO DR. LESTER V. CRALLEY

DATE January 24, 1962

SHEET NO. 2

As indicated herein before, we are not now sawing any "Maranite" in the plant and do not intend to do so again unless and until we have resolved the problem with your assistance.

F. H. REGEHR

FHR:jsr

Attachments

cc: Messrs. F. R. Powell
W. H. Sharp
T. I. McClintock

ARCH 19198

Bldg. 5 - Sampling Sta. No. SPEC. Date 5-3 1961

ATMOSPHERIC TESTS

Sample no. 1307 Analysis for ASBESTOS FIBEROperation MARINITE SAWING Location UTILITY BLDG. - PATTERN SHOP

SAMPLING DATA

Position BREATHING LEVEL - WORKING AREA - APPROX. 30' DOWNWIND OF SAWTime of Sampling 10:47 AM To 10:57 AMMethod of Sampling MIDGET IMPINGERAbsorbing Medium ISOPROPANOL Volume 10 mlSuction Apparatus MIDGET IMPINGER PUMPVolume of Air Sample 1 C.F. Duration Min. 10 Air Sampling Rate 0.1 CFM

REMARKS

- 1) SAWYER WEARS RESPIRATOR
- 2) PORTABLE VACUUM ATTACHED TO BAND SAW DURING SAWING OPERATION.

Method IN 2-6-56T Collected by NO. Houghlin

ANALYTICAL DATA

ADJUSTED VOLUME = 104.2

CELL VOLUME FACTOR = 0.25

MEAN SAMPLE COUNT = 14.2

BLANK = 2.0

CALCULATIONS
$$\frac{(14.2 - 2.0) \times 4 \times 3636 \times 10}{1} = 1.774368 \times 10^2$$
RESULTS 1.8 MPPCF (MAC = 5 MPPCF) Chemist NO. Houghlin

WEATHER CONDITIONS

Temp. of Sampling 68 °F. Humidity 61 % Sky OVERCASTTemp. Outside 66 °F. Wind N.N.E.Percentage of Windows Open EAST & WEST DOORS

REMARKS

ALUMINUM COMPANY OF AMERICA

COPY

VERNON WORKS

Bldg. 5 - Sampling Sta. No. SPEC. Date 5-3 19 61ATMOSPHERIC TESTSSample no. 1308 Analysis for ASBESTOS FIBEROperation MARINITE SANDING Location UTILITY BLDG - PATTERNS SHOPSAMPLING DATAPosition BREATHING LEVEL - 6' DOWNWIND OF SHVTime of Sampling 10:59 AM To 11:09 AMMethod of Sampling MIDGET IMPINGERAbsorbing Medium ISOPROPANOL Volume 10 mlSuction Apparatus MIDGET IMPINGER PUMPVolume of Air Sample 1 CF Duration Min. 10 Air Sampling Rate 0.1 CFMREMARKS 1) SAWYER WEARS RESPIRATOR.
2) PORTABLE VACUUM ATTACHED.Method IH 2-6-46T Collected by D. H. H. H.ANALYTICAL DATA

ADJUSTED VOLUME = 10.1 L

CELL VOLUME FACTOR = 0.25

MEAN SAMPLE COUNT = 67.2

BLANK = 2.0

CALCULATIONS

$$\frac{(67.2 - 2.0) \times 4 \times 3636 \times 10}{1} = 9482688 \times 10^6$$

RESULTS 9.5 MPPCF (MAC = 5 MPPCF) Chemist D. H. H. H.WEATHER CONDITIONSTemp. of Sampling 68 °F. Humidity 61 % Sky OVERCASTTemp. Outside 66 °F. Wind N.E.Percentage of Windows Open EAST & WEST DOORSREMARKS

ARCH 19200

Bldg. 5 - Sampling Sta. No. SPEC. Date 7-19 19 61ATMOSPHERIC TESTSSample no. 1327 Analysis for ASBESTOS FIBEROperation MARINITE SAWING Location UTILITY BLDG. - PATTERN SHOPSAMPLING DATAPosition BREATHING LEVEL - WORKING AREA - 10-30' RADIUS FROM SAWTime of Sampling 9:12 AM To 9:22 AMMethod of Sampling MIDGET IMPINGERAbsorbing Medium ISOPROPANOL Volume 10 mlSuction Apparatus MIDGET IMPINGER PUMPVolume of Air Sample 1 CF Duration Min. 10 Air Sampling Rate 0.1 CFMREMARKS

1) SAWYER WEARS RESPIRATOR.

2) PORTABLE VACUUM ATTACHED.

Method IH 2-6-46 T Collected by NO. HooglandANALYTICAL DATA

ADJUSTED VOLUME = 1042

CELL VOLUME FACTOR = 0.85

MEAN SAMPLE COUNT = 15.2

BLANK = 1.4

CALCULATIONS

$$\frac{(15.2 - 1.4) \times 4 \times 3636 \times 10}{1} = 2.007072 \times 10^6$$

RESULTS 2.01 MPPCF (MAC = 5 MPPCF) Checked by NO. HooglandWEATHER CONDITIONSTemp. of Sampling 76 °F. Humidity 54 % Sky OVERCASTTemp. Outside 74 °F. Wind N.W.Percentage of Windows Open ALL DOORSREMARKS

ARCH 19202

INTERNAL CORRESPONDENCE

December 21, 1961

FROM D. C. HARKINS
MASSENA WORKS

TO MR. R. H. ALLEN
VERNON WORKS

RE: HOLE SAW FOR 20-3/4" I.D. MARINITE RINGS

(Reurtel December 6th to F. L. Letterman)

The following is the information you requested in your telegram of December 6, 1961. This was the first telegram we received from you.

The hole saw attachment, as shown in the accompanying pictures and sketch, is used on a 6 foot arm, Carlton Radial Drill. A boring mill adaptor is used to hold the saw, and a locking pin is used on the drill spindle. The setup and method used are as follows:

1. A sheet of plywood (1-5/8" x 4' x 8') is bolted to the drill table on one end and supported by a horse on the other.
2. Six sheets of 1" x 4' x 8' marinite are stacked and clamped on the plywood with "C" clamps.
3. The initial layout of rings is made on the top sheet of marinite.
4. Six rings are sawed from one sheet one at a time. The saw is hand fed into the marinite with an up and down motion to clear chips from the saw teeth.
5. The marinite skeleton and rings are removed from the stack and the "C" clamps replaced. The second sheet is marked for sawing by the through cut from the first sheet.

A steel ring is used as a track for the spring loaded rollers during the sawing.

As indicated on the print, the inside blade should cut through before the outside blade.

ARCH 19203

We obtained a clean ring with little burning or flaking,
and only cursory sanding was required.

Based on our experience with the steel construction, it is
recommended that aluminum construction be used to reduce the weight
of the saw.

D. C. HARKINS

DCH:lr

cc: Mr. P. L. Letterman
File

ARCH 19204