

06159367

GRACE

Construction Products Division

To: O. M. Favorito

Date: November 20, 1980

From: F. W. Eaton

Subject: EPA Vermiculite
Investigation Source
Sampling

cc: H. C. Duecker
R. H. Locke
W. J. McCaig/Libby
G. G. Vaplon/Enoree
J. W. Wolter
E. S. Wood
J. C. Yang

The attached summarizes source sampling activities at Libby the week of October 20, 1980 and Enoree, November 3, 1980 with representatives from EPA and Midwest Research Institute (MRI) of Kansas City, Missouri. I have refrained from incorporating personal opinions in the summary but they have been conveyed to you verbally.



F. W. Eaton

FWE/cc

Attachments

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EPA VERMICULITE INVESTIGATION

SOURCE SAMPLING

CONFIDENTIAL

Frederick W. Eaton

November 20, 1980

INDEXEPA VERMICULITE INVESTIGATION - SOURCE SAMPLING

<u>I</u>	<u>Libby, Montana</u>	Page
	A. General	1
	B. Source Sampling	1
	1. Office Conference	1
	2. Site Tour	2
	3. Sampling	3
	4. Results	3
	C. Comments	5
<u>II</u>	<u>Enoree, South Carolina</u>	5
	A. General	5
	B. Source Sampling	6
	1. Office Conference	6
	2. Site Tour	6
	3. Sampling	6
	4. Results	6
	C. Comments	8

EPA VERMICULITE INVESTIGATION

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SOURCE SAMPLING

I Libby, Montana

A. General

On October 21, 1980, F. Eaton met with W. McCaig and E. Lovick to make preliminary plans for EPA's source sampling at Libby scheduled to start October 22nd. Since a revised test protocol had not been received, preliminary plans were based on the initial protocol. During the week prior to EPA's visit, Libby had taken daily composite bulk samples as follows:

Mill

Head Feed
Concentrate
Baghouse fines
Course and fine tailings

Screening Plant

Concentrate size fractions (No. 1, 2, 3, 4, & 5)
Baghouse fines

All of the above samples were split and CPD's samples will be retained in Libby. Since CPD was going to take side-by-side air samples with EPA, nine operating sampling pumps at Libby were calibrated at 2 liters per minute.

Since Eaton had not been in Libby since 1972, a familiarizing tour was given by R. Geiger prior to EPA's arrival the following day.

B. Source Sampling

1. Office Conference

At 8:00 a.m. October 22, 1980, an office conference was held in the downtown Libby Office with the following people present.

W. J. McCaig
E. D. Lovick
F. W. Eaton
Thomas Dixon, EPA Washington D.C.
Gaylord Atkinson, MRI - Kansas City, Missouri
Kenneth Thomas, MRI - Kansas City, Missouri
Donna Rose, MRI - Kansas City, Missouri

After brief introductions and discussions, it was decided to move the conference to the training center (old expanding plant) where the visitors would be shown a movie and Grace people given time to read EPA/MRI Test Protocol revised October 20, 1980. Prior to discussing the test protocol, McCaig gave a brief description of the Libby operation from mining to shipping including facility/ boundary locations.

Eaton objected to the background section in the protocol and felt that references to W. R. Grace & Co. were unethical, unprofessional and damaging since this was a public document that would be given to competitors or fall into the hands of present or potential Grace customers. Dixon commented that this information came from Lisa Barrera and had been extensively modified in the October 20th revised protocol. In a casual comment, Dixon said he felt Grace would not be happy with the section as written. With exception of minor adjustments to suit the Libby facility, the protocol was reviewed and accepted knowing that there may be some revision to the sample analysis section as a result of J. C. Yang's visit with MRI, McCrone Associates and Ontario Research.

2. Site Tour

From 1000 to 1400 McCaig and Lovick conducted a tour of mine, mill, screening plant and areas bounding these facilities. Based on an agreement reached between Dixon and Favorito, only EPA representatives would be allowed in the mill, screening plant and expanding plants were applicable. At Libby, only Dixon was given a tour of the mill and screening plant. During the mine tour the visitors were very interested in obtaining large samples, especially biotite, for office displays. Atkinson requested and was given a sample of pure tremolite and this sample was identified by its chemical name and Lincoln County, Montana as the sample source.

At the conclusion of the site tour, EPA/MRI returned to their motel to establish stationary, engineering and personnel sampling points. To assist EPA, R. Geiger gave Dixon a copy of Libby's sampling stations as a guide. At 1600, EPA/MRI returned to the office with their list of sampling locations. After reviewing the locations, McCaig informed Dixon that ore would not be mined October 23 and 24 due to the inventory of ore in the OS & B facility. He indicated that there would be activity in the loading and hauling of mine waste. Dixon appeared upset that there would be no mining activity during their planned sampling schedule but McCaig informed him that there should be no difference whether they were hauling ore or mine waste. They were offered the opportunity to sample October 27 as this was the next scheduled mining date. From the sampling locations drawn up by EPA/MRI and discussions, it appears that more emphasis was being placed on the mining operation rather than the beneficiating, screening and transporting activity. Without Jim Salois, MSHA local inspector, EPA/MRI, would have floundered on their sampling locations. Jim knows the problem areas but for some reason the screening plant, lower bin haul truck and dozer operator were not listed as sampling locations. Libby's sampling points are attached as Appendix II and EPA/MRI sites as Appendix III.

At approximately 1630, Eaton and EPA/MRI representatives returned to the hill to setup the mine site meteorological station and to verify sampling pump calibration. Geiger assisted Thomas and Dixon in setting up the met station in the mine but when it was determined that 110 volt power was not available at the selected location, the met station was reinstalled on the garage roof. MRI calibrated thirteen Dupont personnel sampling pumps the evening of October 21. A wet test meter was used to calibrate one pump and the Dupont

Magnehelic^(R) gauge for calibrating the remaining personnel pumps. During the calibration check on October 22, the Magnehelic^(R) gauge was erratic so all pumps were checked against the wet test column. Flow rates of the thirteen EPA/MRI pumps ranged from 1.93 to 2.22 l/min. EPA/MRI departed the hill at approximately 1930.

3. Sampling

EPA/MRI arrived on the hill at 0715 October 23 to start stationary and personnel sampling. The plan was for Geiger to be with Dixon and Atkinson on the hill and Alica Walk with Thomas and Rose at the screening plant/loadout area. When MRI discovered that personnel sampling pumps were left in the motel, Jim Salois departed for town while Thomas, Rose and Geiger setup stationary sampling sites on the hill. The sampling schedule slipped due to the delay in receiving personnel sampling pumps and showing Atkinson and Dixon the stationary sampling sites which were established by Thomas and Rose who were scheduled to monitor off the hill. Due to the availability of sampling pumps, Grace took side-by-side personnel samples but only two stationary samples downwind at the screening plant and downwind at river load out.

While installing the sampling pumps on the two mill operators Eaton and Geiger noted that EPA/MRI cassette joints were not tight nor were the joints tapped. This was pointed out to Dixon and for the most part all samples thereafter taken at Libby by EPA/MRI had a good filter fit in the cassette and the joints were tapped.

Due to the start delay, only three hours sampling time was obtained on the screening plant shuttle truck driver. Dixon wanted a full 8 hour sampling period so the swing shift driver was monitored from approximately 1530 to 2230. During the sampling period, flow rates were checked periodically and Grace changed filters only when EPA/MRI changed their filters. Dixon was shown sampling location for all bulk samples and these were packaged up (both mill and screening plant) prior to departing the facility at 2230 October 23, 1980.

4. Results

Of the nine Grace sampling pumps available at Libby, seven were used for personnel sampling and two for stationary sampling. Those stationary sites not sampled side-by-side with EPA/MRI were sampled by Geiger the week of November 3, 1980. It was established that two wedges would be cut from each Grace sample and the fiber concentrations determined by Geiger and Walk for each wedge slide. One slide and the remaining filter will be maintained at Libby and the second slide sent to Cambridge for counting by J. C. Yang. The reverse procedure will be carried out in counting samples from Enoree. In the Libby samples, 50 fields or 100 fibers/sample were counted. Instructions to J. C. Yang are that 100 fields will be counted by two separate people.

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Fiber concentrations and TWA's will not be fixed until all designated samples have been counted by both Libby and Cambridge. The following results were determined by Libby and are listed as preliminary findings at this time:

FIBER COUNT ANALYSIS (R. GEIGER/A. WALK)

PERSONNEL SAMPLES

SAMPLE NO.	EMPLOYEE NAME	JOB DESCRIPTION	<u>FIBER CONCENTRATION (f/cc)</u>	
			LIBBY	CAMBRIDGE
3	Ron Anderson	#2 Mill Operator	3.55	1.53
6			1.40	1.37
29	Larry Aucutt	Bottom Floor Mill Operator	0.54	0.48
15			0.88	0.90
5	Don Cook	Mine Front End Loader	0.03	0.04
7			0.03	0.04
2	Mike Brooks	Mine Haul Truck E-5 Driver	0.06	0.04
4			0.04	0.03
1	Ray Bromps	Mine Assay Truck Tech.	5.42	5.05
27			2.83	2.78
26	Frank Widic	Mine Dozer Operator	0.01	0.06
24			0.11	0.07
13	Dean Johnson	Screen Plant Shuttle Truck Driver	0.36	0.39
8	Richard Slauson	Screen Plant Shuttle Truck Driver	0.35	0.36

STATIONARY SAMPLES

SAMPLE NO.	LOCATION	<u>FIBER CONCENTRATION (f/cc)</u>	
		LIBBY	CAMBRIDGE
16	Downwind River Load Out	0.06	0.06
11		0.07	0.06
28	Downwind Screen Plant	0.16	0.17
14		0.08	0.11

C. Comments

Bulk samples given EPA/MRI are representative of ore, concentrate and waste fractions produced or generated over a one week time span prior to and during source sampling on October 23, 1980. Personnel and stationary air samples represent a one time hit or miss sample and should be representative if the main emphasis is to characterize airbourne fibers.

At Libby, the EPA/MRI team did not demonstrate the leadership, coordination and technical expertise one would expect from an Agency/Contractor assigned to carry out this task. With exception of six stationary ambient air samples, Grace has taken side-by-side air samples with EPA/MRI and has an equal split of all bulk samples. Grace should obtain a copy of any written source sampling documentation prepared by either EPA or MRI.

On the day of source sampling, the mill experienced operating problems which explains the higher than normal fiber counts on No. 2 mill operator. At the start of the swing shift, the screening plant enclosed shuttle truck broke down and a standby open dump truck used during the remainder of this sampling period. Fiber exposure between these two trucks show no difference.

II Enoree, South Carolina

A. General

Dixon arranged through Favorito to source sample Enoree mine/mill and expanding plant the week of November 3, 1980. At Libby the week of November 20, 1980 Eaton and Dixon agreed to the following schedule:

1. On November 3, EPA/MRI would visit Patterson Vermiculite and tour Grace's active and reclaimed mine sites. G. G. Vaplon would conduct the tour and it was agreed that there would be no discussions on the test protocol, tour of the mill or expanding plant. Source sampling would not commence until November 4.
2. On November 4, an office conference would be held with Grace and EPA/MRI representatives on the Enoree mine/mill operation and schedule source testing. At the completion of the conference, a tour of mill and expanding plant facilities would be conducted followed by stationary and personnel air sampling.
3. On November 5, stationary and personnel air sampling would be conducted at one or more operating mine sites.
4. November 6 and 7 were targeted as float days in the event of inclement weather and/or sampling at Patterson Vermiculite. MRI was to have revised the test protocol deleting any reference to Grace in the background section and incorporating revised analysis methodology worked out by J. C. Yang, MRI, McCrone Associates and Ontario Research.

B. Source Sampling

1. Office Conference

At 0800 November 4, 1980, an office conference was held at the Enoree mine/mill office with the following people present:

G. G. Vaplon
O. F. Stewart
F. W. Eaton
P. Kostic
Thomas Dixon, EPA Washington D.C.
Lynn Delpire, EPA Washington D.C.
Kenneth Thomas, MRI - Kansas City, Missouri
Donna Rose, MRI - Kansas City, Missouri
Edward Olson, MRI - Minneapolis, Minnesota

Since EPA/MRI was basically familiar with personnel and Graces mine/mill operation, the conference was relatively short. Vaplon gave a short review of Grace's Enoree operation and pointed out some of the differences between the Enoree and Libby facility and mode of operation. Due to other travel commitments, EPA/MRI had not revised the test protocol but assured Grace representatives that the October 20, 1980 revised protocol would not be given to Patterson Vermiculite. The office conference ended approximately 0845.

2. Site Tour

Vaplon and Stewart gave EPA/MRI a "lay of the land" tour of the Enoree facility. At the completion of this tour, MRI personnel set-up the meteorological station on the hill opposite the office while Eaton, Kostic, Dixon and Delpire toured the wet mill and screening plant with Vaplon. At the end of this tour, Dixon and Delpire were given a short tour of the expanding plant and a brief explanation of the Number 4 D-18 expanding furnace.

3. Sampling

At the completion of the plant tour at approximately 1030 Kostic accompanied Thomas, Rose and Olson in setting up upwind, downwind and crosswind stationary air sampling sites. Eaton, Dixon and Delpire set-up personnel and engineering sampling pumps in the mill/screening plant and expanding plant. Sampling points at the Enoree facility established by EPA/MRI are listed in Appendix IV.

Sufficient sampling pumps were available in Enoree so that Grace was able to sample side-by-side with all stationary, engineering and personnel samples taken by EPA/MRI. At each location the first sample was for approximately 2 hours and the second sample for approximately 5 to 6 hours. Sampling at the mill and expanding plant ceased at approximately 1930. Prior to departing the facility, all EPA/MRI sampling pumps were recalibrated and the flows determined to be within plus or minus 5% of the initial calibrated flow rate.

On November 5, 1980, Grace and EPA/MRI personnel met at the Enoree office at 0715 and were taken to the Foster mine by the mine superintendent. Operating at the Foster mine this date was a dozer, grader, dragline, oil/lube truck and 8 haul trucks including 2 old Macks. EPA/MRI did not provide written sampling locations but the stationary samples were upwind, downwind, crosswind, off site 1/2 mile upwind and off site on highway I-26 two miles from the Foster mine. Personnel samples were dozer operator, dragline operator, haul truck #250 (Kenworth) and haul truck #231B (Mack). With exception of the dozer operator, the first sample was for approximately two hour duration and the second sample up to approximately 5 1/2 hours. At the mining location, Grace took side-by-side samples at all stationary and personnel points.

At approximately 1400 Dixon departed the Foster mine site for Enoree to pick up daily composite samples of head feed, concentrate, size 3, 4, and 5 screening fractions and solid effluent from the dryer scrubber. While at Enoree, Vaplon arranged for Dixon to obtain a grab sample of tailings from the settling pond. Since samples from the expanding plant had not been specifically requested, no samples were taken nor were samples requested by EPA/MRI during the previous days source air sampling. When Dixon requested expanding plant samples from Vaplon, he was informed that the expanding plant was out of his jurisdiction. When Dixon returned to the Foster mine at approximately 1530 Eaton noticed in the station wagon that Dixon had obtained numerous samples of expanded vermiculite. When questioned by Eaton, Dixon responded that he had obtained the samples from T. W. Carrothers, plant manager. Eaton restated the established ground rules to Dixon concerning bulk samples and if there was not an equal split of the samples for Grace to retain, EPA/MRI could not retain the samples obtained from Carrothers. An agreement was reached that Eaton and Dixon would return to the Kearney expanding plant and obtain equal split samples of products run November 4, during the air sampling period. These samples were K-3 plain, K-3 masonry fill, K-4 plain and K-4 stabilized concrete.

EPA/MRI departed the Foster mine at approximately 1700 and the Kearney expanding plant at 1900.

4. Results

Fiber determination of air samples taken at Enoree November 4 & 5 are not available at this date. Based on observed dust levels in the screening plant, fibers are expected to be seen in samples from the mill lab technician and engineering samples taken on the fourth level of the screening plant.

All personnel and engineering samples taken on mine haul truck 231B are coated with black soot due to diesel exhaust discharging into the haul tractor cab. The color density was not as apparent on the EPA/MRI filters as they were using a 0.45 micron pour size filter where as the Grace filter was the standard 0.8 micron pour size.

C. Comments

With exception of the minor misunderstanding on obtaining expanding plant bulk samples, Grace-EPA/MRI relations were good and both teams operated in a cooperative effort. EPA/MRI learning curve at Libby was noticeable in Enoree as sampling was conducted in a more professional manner.

Based on conversations with Dixon, EPA/MRI plans to sample selected expanding plants during the first part of 1980. So as to be consistent, scheduling should be made through Favorito and Eaton should be present at each expanding plant where source sampling is conducted.

06175652

FROM:

REC'D AUG 25 1980

O.M. Favorito

To: H. C. Duecker
F. W. Eaton
H. A. Eschenbach
R. M. Vining
E. S. Wood
D. C. Evans (Please give me
a call when
you have
read the att'd.)

For your information.

8-22-80

An Important Message From:
BRIAN C. RUGG

TO:

Florida Rep.

Cliff McDaniel

1-800-432-5828

FL. ONLY

1-305-629-5857

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