



JOHN S. ANDERSON M.D.
EXECUTIVE OFFICER



06046086

State of Montana

State Department of Health

HELENA, MONTANA

November 27, 1968

Mr. E. D. Lovick, Manager
Libby Operations
Zonolite Company
Libby, Montana 59923

Dear Mr. Lovick:

Enclosed are additional results concerning sampling done at your plant some months in the past which we believe will be of some interest to you. This information indicates the need for continued vigilance in the reduction of dust concentrations at your Libby mill.

Sincerely yours,

A handwritten signature in cursive script, reading "Benjamin F. Wake".

Benjamin F. Wake, Director
Div. of Air Pollution Control
and Industrial Hygiene

BFW:ma

Enc.

15162478



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

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October 17, 1968

NATIONAL CENTER FOR
URBAN AND INDUSTRIAL HEALTH
1014 BROADWAY
CINCINNATI, OHIO 45202

REFER TO:

Mr. Benjamin F. Wake, Director
Division of Air Pollution Control
and Industrial Hygiene
State Department of Health
Helena, Montana 59601

Dear Ben:

Enclosed are the last of the results from our survey of the W. R. Grace Co. Zonolite plant at Libby, Montana. The tremolite analysis by X-ray diffraction took some time since the vermiculite had a peak in the same area as the principle peak of tremolite. As you can see the airborne dust collected on Hi-Vol filters was high in tremolite while the product contains very little tremolite. This indicates that whatever tremolite is present in the ore is ending up in the air. The cyclone waste would probably be higher in tremolite if a more efficient collector were used.

Please let me know if I can give you any further assistance with this problem.

Sincerely yours,

Jeremiah R. Lynch
Assist. Chief, Environmental
Activities
Field Studies
Occupational Health Program

Enclosures

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Hi-Vol Filter Identification

Field No.	Location	Total Dust mg/m ³	Tremolite	
			%	mg/m ³
38-023	Dry Mill, 1st floor	26.4	60	14.0
38-004	Dry Mill, 3rd floor	22.3	74	16.5
38-001	Dry Mill, 3rd floor	27.1	73	19.8
38-011	Dry Mill, 4th fload	12.0	78	9.4
38-141	Verxite Plant	2.5	71	1.8
38-020	Outside-near office	1.2	80	1.0

Memorandum

06046089

TO : Associate Chief, for Field Studies, ORL
ATTN : Jeremiah Lynch
FROM : Acting Chief, Laboratory of Physical & Chemical
Analysis, ORL

DATE: October 1, 1953

SUBJECT: Results of the Determination of Nickel, Chromium, Cobalt, Manganese,
Magnesium and Tremolite in 6 Atmospheric Dust and 12 Bulk Samples
(Lab. Nos. 45622 - 45639)

The 6 atmospheric dust samples collected on Hi-Vol filters and the 12 bulk samples all collected at Libby, Montana have been analyzed for nickel, chromium, cobalt, manganese and magnesium using atomic absorption spectrophotometric procedures. All of the above samples have also been analyzed for the percent tremolite. The sample of tremolite (lab. number 45621) supplied by Mr. Lynch was used to prepare the standard curves and all samples were compared to this material. The limit of detectability of the X-ray diffraction is 3 percent; therefore, some of the samples will be reported in this manner as tremolite was not detected by x-ray analysis. The results of these determinations are presented in the following table. (See attached)

Richard E. Kugel
Richard E. Kugel



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Expressed as per Element/3 of material
Except as noted

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Lab. No.	Field No.	Type of Sample	Fl.	Gr	Co.	Am	Gr	Am
33333	33-001	Hi-Vol Filter	92	584	65	247	64	73
33333	33-004		112	573	58	279	111	74
33334	33-011		132	587	61	393	141	75
33335	33-020		155	997	57	1256	150	76
33336	33-023		162	595	56	939	164	77
33337	33-141			Insufficient Sample				
33338	33-035	Vermiculite, expanded Grade 4	100	1300	95	577	124	78
33339	33-037	Dust from cyclone at plant making 33-936	171	1574	58	800	113	79
33340	33-038	Vermiculite, crude from mill	185	2294	79	455	135	80
33341	33-039	Tremolite asbestos, matted picked from mine	70	573	57	762	101	81
33342	33-040	Tremolite asbestos - veins	36	230	36	653	76	82
33343	33-040	Parent rock of 33-940	49	205	32	443	59	83
33344	33-029	Vermiculite - unexpanded mill product Grade 0	229	2533	103	1107	110	84
33345	33-030	Vermiculite - unexpanded mill product Grade 1	187	1363	103	572	183	85
33346	33-031	Vermiculite - unexpanded mill product Grade 2	233	1595	104	724	175	86
33347	33-032	Vermiculite, unexpanded mill product Grade 3	147	1215	95	566	132	87

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Lab. No.	Field No.	Type of Sample	Ul	Cr	Co	Fe	Si	Al
46337	30-933	Vermiculite - unex- posed mill product Grade 4A	426	1156	33	631	127	23
46338	30-934	Vermiculite - unex- posed mill product Grade 5	137	1217	90	725	119	5
46339	30-935	Waste from cyclone dry mill	104	945	67	636	102	20.5

* = 100 Magnesium/3 Material

** = % Tremolite

NA = Not analyzed