

B.M.G. Zwickler

September 27, 1973

To: L. A. Augsburg
F. R. Carvell
T. R. Linak
M. D. Schrader
G. P. Smith

EPIDEMIOLOGICAL STUDY

The Research Group of the Tabershaw-Cooper Associates recently visited our Avon Lake facilities and plan to visit the other B.F.G. facilities involved in this study within the next six to eight weeks. You will be contacted later regarding specific dates.

The following information is being forwarded to you so the visit can be handled efficiently:

- 1) Exhibit I is the general instruction sheet being used to gather the desired data.
- 2) Exhibit II is used to compile data on "Workers Known to be Alive". This form will be filled out by the Research Group from the information obtained at the plant. You should make available records which provide: the employee's job history, date of birth, service date, and present status. This information will be microfilmed by the Research Group at each plant.

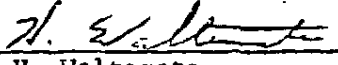
In addition, you will have to estimate the exposure in groups of < 50ppm, 50-199ppm, 200-500ppm, or > 500ppm, for each job title, as previously submitted. This information is needed on employees exposed to vinyl chloride within the last ten (10) years and with at least twelve (12) months exposure.

- 3) Exhibit III is used to compile the data on "Workers Known to have Died".
- 4) Exhibit IV is used to compile data on "Workers Whose Vital Status is Unknown". (For employees no longer employed by BFG, but through other contacts you know they are alive, Form A, Exhibit II, should be used.)

2103-001

- 5) Exhibit V is a copy of the letter send^d to the employee's last known address, if the vital status is unknown. This letter has been reviewed with necessary persons.
- 6) Exhibit VI is a copy of the post card sent to the employee's last known address if no response is received to the letter.

If you have any questions or require further clarification, please feel free to call on me.


H. Waltemate

HW:kats
Attachments

cc: B. M. G. Zwicker
J. L. Nelson - E. W. Harrington
W. T. Gunning
F. E. Krause

21081002

EXHIBIT I

VCM Epidemiological Study - Individual Work History

Instructions

Work History

List all job titles which involve some exposure to vinyl chloride, starting with the earliest job. If these jobs are interspersed with jobs involving no exposure, simply omit the latter. We will understand that gaps in the job history mean jobs with no exposure. If a man leaves a vinyl chloride unit but continues to work in a different part of the plant, his job history on the form will end as of his last job in the vinyl chloride unit, but we will know from the data at the top of the form how long he worked in other parts of the plant.

Estimated Exposure

"Estimated exposure" means a time weighted average. For example, if a job involves a 200 ppm exposure for $\frac{1}{4}$ of the time, a 50 ppm exposure for $\frac{1}{4}$ of the time, and a 25 ppm exposure for $\frac{1}{2}$ of the time, the estimated exposure will be

$$\frac{200}{4} + \frac{50}{4} + \frac{25}{2} = 50 + 12.5 + 12.5 = 75 \text{ ppm.}$$

We realize that these estimated exposures will be educated guesses in many instances, and that no such precise calculation as the above may be practical. An industrial hygienist's estimate of 200 may be a best guess at a value which he feels may in fact be as small as 50 or as large as 500. We expect that on the average those whose estimated exposures are high will probably have true exposures which are high, even though the estimates may be imprecise.

However, please note the hazards of consistently overestimating or consistently underestimating exposure. If it is overestimated, men with low exposure will be erroneously classified as high, diluting whatever effects may be occurring among those whose true exposure is high. Underestimating exposure will place men with high exposure, who may be experiencing some effects of that exposure, in a low exposure group, and the effects may then be attributed to low level exposure.

Confidentiality in Follow-up

On Form B we request the worker's name if no death certificate is available. We will then obtain the death certificate, which is a public document, from the appropriate health department. No contact with the worker's family or physician is necessary nor will any be attempted.

On Form C we request the worker's name and last known address. We will not contact the worker, but will contract with a retail credit bureau to find out by the usual indirect means (purchases, driver's license violations, etc.) if the man was alive on December 31, 1972.

2-03-003

EXHIBIT II

VCM Epidemiological Study - Individual Work History

Form A - Workers known to be alive

1. Date of birth _____ Status: _____
2. Date hired _____ 3. Now employed _____
4. Retired (give date) _____
5. Terminated (give date) _____
6. If retired or terminated, please state how you know that this man
is alive.

Job history with estimated exposure

Job no.	Title	Check estimated exposure in ppm			
		<50	50-199	200-500	>500
1	_____	from	_____		
		to	_____		
2	_____	from	_____		
		to	_____		
3	_____	from	_____		
		to	_____		
4	_____	from	_____		
		to	_____		
5	_____	from	_____		
		to	_____		
6	_____	from	_____		
		to	_____		
7	_____	from	_____		
		to	_____		

21002001

EXHIBIT III

VCM Epidemiological Study - Individual Work History

Form B - Workers known to have died (please attach copy of death certificate)

- | | |
|-------------------------|---------------------------------|
| 1. Date of birth _____ | Status at time of death: |
| 2. Date hired _____ | 5. Employed _____ |
| 3. Date of death _____ | 6. Retired (give date) _____ |
| 4. Place of death _____ | 7. Terminated (give date) _____ |
8. If death certificate is not available, please give name of worker so that death certificate can be obtained. No contact will be made with relatives or attending physician.
- _____

Job history with estimated exposure

Job no.	Title	Check estimated exposure in ppm			
		<50	50-199	200-500	>500
1	_____				
		from _____			
		to _____			
2	_____	from _____			
		to _____			
3	_____	from _____			
		to _____			
4	_____	from _____			
		to _____			
5	_____	from _____			
		to _____			
6	_____	from _____			
		to _____			
7	_____	from _____			
		to _____			

21085005

EXHIBIT IV

VCM Epidemiological Study - Individual Work History

Form C - Workers whose vital status is unknown

1. Date of birth _____ 3. Date of retirement _____
2. Date hired _____ 4. Date of termination _____
5. If we may trace this man through a retail credit bureau, which will not directly contact him or his family, please give his name and last known address:

Job history with estimated exposure

Job no.	Title	Check estimated exposure in ppm			
		<50	50-199	200-500	>500
1	_____				
		from	_____		
		to	_____		
2	_____				
		from	_____		
		to	_____		
3	_____				
		from	_____		
		to	_____		
4	_____				
		from	_____		
		to	_____		
5	_____				
		from	_____		
		to	_____		
6	_____				
		from	_____		
		to	_____		
7	_____				
		from	_____		
		to	_____		

21035005

BBK
cc sent to MN Johnson
5/18/73

May 17, 1973

To: A. W. Clements
C. B. Cooper
R. M. Kreager
P. H. Lawrence
T. R. Linak
R. N. Rylands
A. R. Webber
C. L. Woods

EPIDEMIOLOGICAL STUDY

Thank you for the immediate response on appointing an individual in your plant to work with Tabershaw-Cooper Associates Research Group and myself.

Dr. Zwicker and I have discussed where we should start in conducting this study. Of course, we do not know exactly what information will be requested by the Research Group at the present time. The following items could be helpful in orientating our thinking:

1. Level of exposure to VCl with respect to concentration:

High Level--200 ppm and above
Moderate Level--50-199 ppm
Slight Level--0-50 ppm
None--0 ppm

2. Time exposure to VCl

Appreciable--6-8 hours per 24-hour day
Intermittent--4-6 hours per 24-hour day
Occasional--1-3 hours per 24-hour day
None--0 hours per 24-hour day

To inform you of our thinking, we offer a few examples:

A poly operator may be exposed to vinyl chloride concentration of moderate level (50-199 ppm) during an intermittent exposure time (5 hours) but also be exposed to a high level (above 200 ppm) for an occasional time (1-1/2 hours) during the 24-hour period.

A homopolymer bagger may be exposed at a slight level (0-50 ppm) for an appreciable time (8 hours) per the 24-hour day. A compound man may also fit in this group.

21000009

A secretary in the Personnel Office would probably have a none (0 ppm) level exposure at a none (0 hours) time exposure per 24-hour day.

A maintenance man at Calvert City may be exposed at a slight level (30 ppm) for an intermittent time (4 hours) per 24-hour day.

3. We should be thinking about the following jobs to be considered in this study: poly building personnel (operators, cleaners), dryer building operators and baggers, compound building personnel (probably Henschel operators, mill operators), personnel entering paste grinder rooms, micro collectors, operators in VCI production areas, maintenance personnel who work most of their time in VCI production or polymerization areas.
4. You should refer to your past Environmental Control Audits when VCI concentrations have been determined.

I would like to clarify one item in my letter of May 8, 1973 concerning micro-filming of the position and salary record cards. We are not interested in the employees salary, only his jobs and how long he has worked on the individual job. For example:

John Doe--poly cleaner from 1/60-1/62, blowdown operator from 2/62-9/66, charge operator from 10/66-7/72, polymerization shift foreman from 8/72-present.

We are not requesting that you submit information to us concerning items numbered 1, 2, 3, and 4, but you should be putting your thoughts on paper with respect to job, what exposure, how long, and if possible, who. We certainly want to be ready to supply adequate information to Tabershaw-Cooper Associates Research Group when requested. In this regard, it would probably be helpful to have prepared a job and department classification code for your plant, including past changes, so that simple micro-filming of selected employee records will provide the appropriate data base to Tabershaw-Cooper.

Please feel free to make comments and suggestions on the above items.

Dennie L. Dowell

Dennie L. Dowell

DL D:kjm

cc: B. M. G. Zwicker
J. L. Nelson
E. W. Harrington
G. Pow

21085010

BMGZ copy

R. D. Scott

May 16, 1973

TLV AND TWA OF VINYL CHLORIDE*

D. Dowell informed me today that the 1972 edition of American Conference of Government and Industry Hygienists (ACGIH) shows 200 ppm for vinyl chloride. He plans a meeting on May 31 with Ed Katzenmeyer of our Corporate Industrial Hygiene Department to evaluate the test results in our plants during recent months and audit our situation.

During a recent conversation with Dr. Doug Rausch of Dow concerning our MCA vinyl monomer studies, I asked him what DOW did to be able to recommend 50 ppm in a polymer plant (they copolymerize vinylidene chloride and vinyl chloride). He replied that they have been recommending 50 ppm for vinyl chloride to ACGIH for ten years, because they believe VCM is nearly as toxic as vinylidene chloride (TLV = 25 ppm). In order to tighten up their plant operations, they have monitored continuously in their exposure areas such as polymerization for the past ten years.

The analytical monitoring tool they use is conductivity of a burned air sample for total volatile chloride (as HCl). Their interest in the long path infra-red analyzer is for areas with several volatile organics where identification of species is important. Dr. Rausch will have copies of their analytical procedures forwarded to me promptly.

It is my recommendation that our plants get prepared promptly for a drastic reduction in allowable VCM concentration in our working areas.

BMGZ:kcd

B.M.G. Zwicker / kcd
B.M.G. Zwicker

cc: A. Vittone, Jr.
J. L. Nelson
E. W. Harrington
D. Dowell
M. N. Johnson, M.D. (Akron)
L. B. Crider (ALTC)
D/5004 File

*TLV = Threshold Limit Value
TWA = Time ~~Waited~~ Average

Waited

21033011

EXHIBIT V

Tabershaw-Cooper Associates, Inc.

2180 MILVIA STREET, BERKELEY CALIFORNIA 94701

MAILING ADDRESS: P.O. BOX 772

Irving R. Tabershaw, M. D., President
W. Clark Cooper, M. D., Secretary-Treasurer

Telephone
(415) 845-3355

Dear

We are a research firm concerned with the health of workers in industry in the United States. We have been asked to study certain occupations in order to determine the health of men who have at one time or another worked in these occupations.

To accomplish this we need to know if those men we are interested in were alive on December 31, 1971. For any of the men who died on or before that date, we need to know the place and date of death. With these facts, we can compare the health statistics of our men with the general population.

To assist us, can you provide information regarding the person whose name appears below? A stamped, addressed return envelope is enclosed for your reply. If you have any questions about our work, feel free to write me at the address above or call collect at (415) 845-3355.

Needless to say, any information you give us is strictly confidential.

Thanks for your cooperation and assistance with this project.

Sincerely,

W. Clark Cooper
W. Clark Cooper, M.D.

Name:

Birthdate:

Was above named man alive as of 12/31/71? _____

If deceased prior to 12/31/71:

Date of death _____

Place of death (city and state)

21037007

EXHIBIT VI

Tabershaw-Cooper Associates, Inc.

P.O. Box 772
Berkeley, California 94701

Recently we sent you a letter requesting information to complete our health research study. Please help us by filling out the attached card. No postage is necessary. The information you give us will be kept strictly confidential. Thank you for your cooperation.

Sincerely,

W. Clark Cooper
W. Clark Cooper, M.D.

First Class
Permit No. 2372
Berkeley,
California

BUSINESS REPLY MAIL no postage stamp necessary if mailed in the United States

Postage will be paid by —

Tabershaw-Cooper Associates

2180 Milvia Street
Suite 104
Berkeley, California 94704



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