

CHEMICALS
RESEARCH

MAY 16 1975

Interoffice Communication

To Dr. Flynt Kennedy, Ponca City
From John Friend
Date May 14, 1975
Subject Refinement of Estimated VCM Exposures
in the Tabershaw Cooper Study

*Not reported
by Committee
Decision*

FK
WRBe
OCK
ALH
WDS
LM

As requested, time weighted average VCM exposures were estimated for the time spans defined in the Tabershaw Cooper study based on the guidelines you forwarded to us. These estimates do not consider all time prior to the present date, but only that time prior to the original submission of data (Feb., 1973).

	Exposure Intensities (ppm)			
	<20	20-200	200-2000	>2000
1) First exposure less than 10 years ago	92.7%	3.3%	2.4%	1.6%
2) First exposure 10-15 yrs. ago	-	-	-	-
3) First exposure 15-20 yrs. ago	-	-	-	-
4) First exposure over 20 years ago.	-	-	-	-

Please call if you need more information.


J. Friend,
Sr. Process Eng.

JF/kv

CC: RTF, LNV

C O N F I D E N T I A L

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VRD-00002013476

The Manufacturing Chemists Association, on behalf of its members making or polymerizing vinyl chloride, is considering the sponsorship of an epidemiological study of chemical industry employees with a long history of vinyl chloride exposure. Data on the incidence of neoplasms among this population would be one of the specific goals of the study. This data will be kept confidential by MCA and only industry totals, not identified with any company or plant, will be released without specific authorization by the company involved.

These data are required for a conference with prospective contractors for the study scheduled for February 20. To be useful for this purpose, the completed forms must reach MCA by Monday, February 19. "Best estimates" will be useful when more precise data cannot be developed in time to meet this schedule.

DEADLINE FOR RETURN: February 16, 1973

TO: Dr. Kenneth D. Johnson
Manufacturing Chemists Association
1825 Connecticut Avenue, N.W.
Washington, D. C. 20009

1. How long has your company been handling vinyl chloride on a commercial scale? 10 years
2. At how many locations (multiple plants in a small geographic area may be considered a single location)? 3
3. List these locations by metropolitan areas or other equivalent designation
 - a. Lake Charles, Louisiana (1968 on stream) - VCM manufacture
 - b. Oklahoma City, Oklahoma (1971 on stream) - PVC manufacture
 - c. Aberdeen, Mississippi (1963 on stream) - PVC manufacture
 - d. _____

e. _____

f. _____

The data are presented for plant location 3a/3b/3c

4. Of your present employees

a. How many are currently exposed?

50/38/84

b. How many have a history of at least one year of significant exposure that began

1) 10 - 15 years ago?

None

2) 15 - 20 years ago?

None

3) over 20 years ago?

None

c. Estimate the proportions in each length of exposure category with light, moderate or severe time-weighted average exposures

Exposure Intensities

	Lt.	Mod.	Severe
1) First exposure less than 10 years ago	<u>100/97/67%</u>	<u>0/3/33 %</u>	<u>*see attachment %</u>
2) First exposure 10 - 15 years ago	<u>-- %</u>	<u>-- %</u>	<u>-- %</u>
3) First exposure 15 - 20 years ago	<u>-- %</u>	<u>-- %</u>	<u>-- %</u>
4) First exposure over 20 years ago	<u>-- %</u>	<u>-- %</u>	<u>-- %</u>

5. Of your previous employees with a history of vinyl chloride exposure, please provide estimates of the following data

a. Now deceased, how many are

1) With history of initial exposure to vinyl chloride less than ten years prior to death?

None

- 2) With history of initial exposure to vinyl chloride 10 - 15 years prior to death? --
- 3) With history of initial exposure to vinyl chloride 15 - 20 years prior to death? --
- 4) With history of initial exposure to vinyl chloride over 20 years prior to death? --
- 5) For what percentage of these are death certificates locatable? -- %
- 6) For what percentage of this group can time-weighted average exposures be estimated? -- %

b. Retired, but still alive

- 1) With history of initial exposure to vinyl chloride less than ten years ago? None
- 2) With history of initial exposure to vinyl chloride 10 - 15 years ago? --
- 3) With history of initial exposure to vinyl chloride 15 - 20 years ago? --
- 4) With history of initial exposure to vinyl chloride over 20 years ago? --
- 5) For what percentage of this group can time-weighted average exposures be estimated? -- %

c. Employment terminated before retirement

- 1) With a history of initial exposure to vinyl chloride less than ten years ago? 1/1/635*

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- 2) With history of initial exposure to vinyl chloride 10 - 15 years ago? --
- 3) With history of initial exposure to vinyl chloride 15 - 20 years ago? --
- 4) With history of initial exposure to vinyl chloride over 20 years ago? --
- 5) What percentage of this group could be identified by name and traced? 100/100/100* %
- 6) For what percentage of this group can time-weighted average exposures be estimated? 90+ %

6. If medical records exist, for how many years past are they available

- a. For routine physicals, etc.? 5/0/0 years
- b. For job related injuries or illnesses? 5/2/5* years

* ATTACHMENT

- 4.c.1) At location 3b, one employee was rendered unconscious by VCM exposure. At location 3c, it is estimated, on average, one employee per quarter may be overcome by VCM vapor.
- 5.c.1) At location 3c, the turnover rate is very great. It is estimated that the rate is 150% for reactor cleaners. If employees remain longer than 6 months, the turnover rate is then 20-25%.
- 5.c.5) At location 3a and location 3b, the employee can be identified by name and probably traced. At location 3c, employees can be identified by name from 1/68; a trace is not possible.
- 6.b. At location 3c, pertinent medical records are available only from 1/68.

11-29-PB
REV. 7-1-52

WIRE MESSAGE

Teletype ☐

1975 MAY 12 PM 3 08

Telegram ☐Time
Filed

*Please send following message, subject to the terms of your company, which are hereby agreed to:*RUSH VIA FACSIMILE

R. T. Ferrell, Conoco Chemicals, Oklahoma City

R. D. Gamblin, Conoco Chemicals, Aberdeen, Miss.

J. A. deBernardi, VCM Plant, Westlake

Ponca City, Oklahoma

FAX COMPLETED

FAX COMPLETED 1975 MAY 12 PM 4 53

1975 MAY 13 AM 9 08

Perhaps the attached will assist you in fulfilling my request.

Flynt Kennedy

CHARGE: 8924-10-27

Gentlemen:

Subject: EMPLOYEE EXPOSURE TO VINYL CHLORIDE MONOMER

One of the chemicals produced/used in this plant, vinyl chloride monomer, has been reported to be carcinogenic. Studies are presently underway to determine the frequency of angiosarcoma among workers exposed to vinyl chloride. The Federal Government has declared that vinyl chloride is carcinogenic for humans and has issued an Emergency Temporary Standard for Exposure to Vinyl Chloride. (Federal Register 39 (67), April 5, 1974.)

This letter is to advise you that your employees may be exposed to vinyl chloride monomer while performing contract work within the _____ plant and to inform you of the plant's activities regarding exposure.

Exposure levels within the plant are presently being monitored to insure compliance with the Emergency Temporary Standard. Exposure to vinyl chloride monomer has been reduced by work practice and engineering modifications. Where exposure levels exceed 50 ppm, breathing air is available and must be used by employees in accordance with the Standard.

Because of the suspected harmful nature of vinyl chloride monomer, Conoco's Medical Division has established medical tests and examinations to be given Conoco employees. These consist of an annual medical examination, radiological examination and pulmonary function test, in addition to a semiannual urinalysis and complete blood work-up.

The Occupational Safety and Health Act imposes certain obligations on employers to prevent exposure of their employees to potentially harmful conditions. Should you wish to consider testing of your employees as described above, we could provide you copies of our medical procedures and of the Emergency Temporary Standard.

If we can be of assistance in providing help to you on this subject, please contact me.

Sincerely,

Plant Manager

VN 0002013484

L. N. Vernon



To R.W. Gerwig
J.D. Burns
J.J. Langford
F. Kennedy
K.L. Schurter

Date 4/17/74

Attached is a communication which went to the employees in the Lake Charles VCM plant and Aberdeen plant yesterday, April 16. It will be communicated to the Oklahoma City employees as soon as George Tillson returns to the plant later this week.

LNV

L. N. Vernon

mk
Attachment

Copy sent DVP

148-0002013485

Communication to Employees, April 16, 1974

Conoco is a participant in MCA-sponsored animal exposure studies which have been in progress since September 1973 at the Industrial Bio-Test Laboratories of Chicago, Illinois. Rats, hamsters and mice have been exposed to gaseous vinyl chloride at levels of 2500 ppm, 200 ppm, and 50 ppm for 7 hours per day, 5 days a week for about seven months. Yesterday, April 15, 1974, Industrial Bio-Test presented preliminary results to industry sponsors and representatives of NIOSH, OSHA, and EPA which indicated that angiosarcoma, a rare liver cancer, had been found in mice at all three levels of exposure.

As you know, this plant has taken action to define and minimize employee exposure to VCM. We will continue vigorous efforts to reduce employee exposure to the most practical level attainable.

On April 5, 1974, emergency temporary standards were published by OSHA which limited employee exposure to 50 ppm of VCM in air. Exposures above that level require the use of fresh air breathing equipment. As a result of this preliminary information from Industrial Bio-Test, industry and the governmental agencies are reviewing again the issue of a safe VCM exposure level.

We will keep you advised.

VPD 0002013486

TELEX March 29, 1974

TO: R. D. Gamblin - Lake Charles VCM
 E. M. Smith - Aberdeen
 G. F. Tillson - Oklahoma City

FROM: D. V. Porchey - Ponca City

Attached is a proposed statement to employees for your consideration. We recommend that it be made available to your employees as soon as possible.

You have all been informed of the investigation of a possible link between employee exposure to vinyl chloride and the cancer deaths of four employees of B. F. Goodrich in Louisville, Kentucky. We have also apprised you of our program to reduce employee exposure to VCM and PVC, Conoco's participation in an industry-sponsored vinyl chloride employee medical history survey and in similarly sponsored animal exposure tests. We would like to take this opportunity to communicate the most current accurate information available to you concerning both the industry-wide status of the problems and our efforts to reduce employee exposure.

The number of confirmed cases of angiosarcoma among PVC or related industries remains at nine. Seven of these cases were in the B. F. Goodrich plant at Louisville, Kentucky. All of these cases occurred to personnel with over thirteen years employment in the industry. Our medical department is continuing its regularly scheduled evaluation of employee blood-liver profile tests of Conoco PVC and VCM workers. No unusual liver functions have been noted.

Conoco and the _____ plant management have made a commitment to its employees to reduce exposure to vinyl chloride throughout our operations. These efforts include utilization of instrumented monitoring systems; enforcement of strict rules where employee exposure might be a possibility, a high level of maintenance to prevent leaks in piping, valves, and similar equipment and improvements in ventilation.

Portable vinyl chloride detection equipment is being used for initial plant exposure surveys. These surveys are being used primarily to determine engineering and maintenance priorities.

Telex
March 29, 1974
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In addition to the increased plant engineering and maintenance activities directed toward reduction of vinyl chloride exposure, work practice rules for potentially exposed employees have been reviewed and are being upgraded. These work rules will be strictly enforced. Conoco Chemicals management has also enlisted the aid of appropriate Ponca City personnel to help solve potential problems. Engineers and scientists from the Process Engineering, Central Engineering, Maintenance Engineering, and Research and Development Departments are presently providing assistance to the PVC and VCM plant managements.

Although it has not been proven that vinyl chloride was a direct cause of the nine angiosarcoma cases, the _____ plant is actively working to identify and reduce possible employee exposure to vinyl chloride. We will continue to keep you informed of developments that occur related to this problem, and appreciate your help and assistance in eliminating leaks, maintaining ventilation systems and improving our operations to reduce the chance of exposure to a minimum in this plant.

VRD 00002013488

from

JOH., J. LANGFORD

Feb. 5, 1974

To

cc: JDBu, FK, RWG, AJL, LJS

CHEMICALS
RESEARCH

FEB 7 1974

[illegible]

STATEMENT FOR SALES - to be used for inquiries only

Conoco Chemicals are participating in the two Manufacturing Chemists Association (MCA) programs described below.

A group of chemical companies that handle vinyl chloride monomer is sponsoring a survey program to document the health experience of present and former employees who have worked with the material. MCA is administering the study, which is being conducted by Tabershaw-Cooper Associates, Inc., of Berkeley, California.

This study complements a concurrent MCA project at Industrial Bio-Test Laboratories, Inc., in which the effects on laboratory animals of long-term exposures to vinyl chloride vapors are being evaluated. Both programs are designed to provide additional scientific data on which to base safeguards to protect employee health.

Conoco Chemicals are not aware of any health safety problems posed to its PVC customers. We have no information suggesting finished product use problems. The Goodrich situation recently publicized, as we understand it, concerns only employee working conditions during PVC manufacture. Conoco Chemicals will disseminate relevant information as it becomes available. Flynt Kennedy, Manager Chemicals Research Division, should be contacted if any customer requires additional information.

Flynt Kenn



To RWG-JDBu-JJL-LNV-(JDBr-LJS)-KLS Date 2/4/74
RDG-EMS-GFT-RLL-WRS-EAS

Please find attached an expanded "Statement to Employees." The expansion is a result of telephone conversations with L. N. Vernon, the plant managers, and Dr. Charles Whetstone.

The plant managers plan to begin their discussion with employees Thursday morning, February 7, 1974.

F. Kennedy

1m
enc

PROPOSED STATEMENT TO EMPLOYEES

The B. F. Goodrich Company reported on January 23 that it had informed Kentucky health officials and the Federal National Institute of Occupational Safety and Health that the Company was investigating whether the cancer deaths of three employees in the polyvinyl chloride operations at its Louisville plant were related to occupational causes.

The Goodrich director of environmental health recently received reports concerning the death of an employee late in December. A review of medical records uncovered that two other employees had apparently died from the same cause, one in September 1971 and one in March 1973. Awareness of this grouping warranted a thorough investigation. The death in December caused Goodrich to initiate intensive investigations throughout the vinyl products operations of the Company.

A team of experts from the National Institute for Occupational Safety and Health of the Center for Disease Control visited the Louisville plant to begin an investigation of health hazards involved in the polymerization of vinyl chloride. The team began its work in response to an alert from Goodrich which reported one case of liver cancer and three cases of angiosarcoma, a rare type of liver cancer, among polymerization workers at the plant.

The _____ plant will conduct programs to reduce exposure to vinyl chloride throughout its operations. While we believe that we are operating at levels below those prescribed by Federal Government Standards, we intend

to reduce levels to approximately one-tenth those specified. These efforts include utilization of more sophisticated monitoring systems; strict rules on procedures where employee exposure might be increased; a complete check of all pipes, valves and similar equipment to prevent leaks; and improvements in ventilation systems.

Portable equipment to methodically spot check the mechanical and laboratory operations has been ordered and we expect delivery on about February 15. This equipment will be used to determine where leaks occur. The whole operation will be "tightened up" to get to much lower levels of vinyl chloride in the plant. Continuous monitoring equipment will be placed in the plant as soon as feasible. Several alternatives exist; none is perfect and all require additional development prior to use in the plant.

Conoco Chemicals will provide medical examinations to all employees involved in any phase of vinyl chloride or polyvinyl chloride production and will review available medical records of any deceased former or retired employee. There is no diagnostic screening test specific for angiosarcoma. A liver profile blood test provides the best screening available; the blood test is the identical test which was initiated in this plant in the summer of 1973. The frequency of testing is at 6-month intervals. A review of the first tests by the Medical Staff in Ponca City late last week provided no indication of any abnormal liver activity, at least none which was not explained by additional testing. As improved testing procedures become known, those tests will be promptly included in the plant medical examination

VRD 0002013493

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program. Specific questions from individual employees will be handled by the Medical Staff in Ponca City. The review of medical records will be by an outside firm of experts, Tabershaw-Cooper Associates, Inc., in the near future.

Conoco Chemicals has been aware of increasing concern regarding vinyl chloride during the recent past and has been involved in industry studies coordinated by the Manufacturing Chemists Association. The studies include an industry wide medical record survey by Tabershaw-Cooper Associates, as mentioned above, and animal tests to determine effects of long term exposure to vinyl chloride vapor. The Tabershaw-Cooper survey is incomplete at this time; however, no significant trends have been observed in the data collected to date. That is, the data do not appear to depart from the usual distribution of causes for death. The animal exposure tests began last summer and will require approximately two years to complete and fully evaluate. The results of both studies will be made available promptly to Company employees and the National Institute of Occupational Safety and Health when completed.

FK-1m
Ponca City, Oklahoma
February 4, 1974