

Monsanto

FROM NAME & LOCATION

John E. Fox - Texas City, Texas

DATE June 4, 1974

TO

REFERENCE

TO : G. A. Danner:

cc. R. V. Butz
R. W. Flint
C. L. Gilmore
E. H. Jones
J. G. Trafton
H. J. Corbett-S. L.

As per your request, I have tried to make a quick excerpt of the proposed OSHA standard on Vinyl Chloride along with the probable problem areas that we will need to work on if the proposal becomes law as now written.

1. The proposed standard for employee exposure to VC is set at no detectable level by an analytical method capable of detecting VC concentrations of 1 ppm.
2. Access to areas handling, storing, reacting or releasing VC would be limited to authorized employees only. This would include the Department 60 block, VC unloading, tank car washing and loading, truck loading, drum loading and any outside storage warehouse. The areas would be posted as cancer-suspect agent area. A daily roster of entry shall be made and maintained and kept for at least 20 years. A program of medical surveillance shall be required for all employees entering the regulated areas. This would entail a blood test and doctor examination for everyone who entered at least one time during each year. If one or more of the tests are abnormal, the test must be repeated. If the abnormalities persist, the employee must be removed from the area until a complete individual medical workshop is instituted and evaluated by a medical doctor.
3. All personnel entering the regulated area would be provided with full-body protective clothing, footwear or shoe covers, gloves and headcoverings. Since food and beverages would be prohibited in the regulated area, personnel would be required to remove the clothing before smoking or obtaining food or drink at a separate facility. Showers would be required after final exit of the day. Shower facilities, additional change room and locker facilities and a separate kitchen and smoking area would have to be provided. Unless throw-away clothing is used, a laundry probably would be required.
4. A program of air monitoring would be required. This will require frequent monitoring of employees on an individual basis and probably also fixed area continuous monitoring. Anytime a spill occurs (level not defined but probably at 1 ppm), you would institute engineering controls and work practices to reduce the VC to undetectable levels. These periods would also require temporary respiratory protection. There shall also be tests made for process or equipment leaks. Frequency shall be such as to insure integrity of equipment.

RSV 0019911

5. Each spill or release of VC (level not defined) would require detailed written reports to OSHA. Also, a report must be written to each employee exposed (level also not defined but probably low). Medical treatment and medical surveillance would be started on each affected employee within 24 hours. -
6. Maintenance or repair operations on contaminated systems, including tank entry, shall require whole-body, air-supplied suits impervious to VC along with an approved respirator. When an employee enters a vessel, another employee similarly equipped shall be present. They are required to shower after removing the protective suits. Local exhaust ventilation shall be used when opening vessels or piping (no mention of contamination level) and vented from all occupied areas.
7. Employees loading or unloading VC shall wear approved air-supplied respirators. Inert gas purging will be used on transfer lines and effluent returned to process or flared.
8. Waste resins contaminated with VC shall be placed in closed containers pending disposal or decontamination. Appropriate procedures shall be developed and implemented for the decontamination or disposal of all such waste material. All containers shall be labeled as cancer-suspect agent.
9. All EVC product containers (drums, tank cars and trucks) containing detectable levels of VC shall also be labeled as cancer-suspect agent.
10. Written requirements for decontamination, work procedures and entry to all equipment will be required.
11. Collection and control of disposal of all waste streams and washings from such areas as filter changes, screen changes, tank cleaning, pump decontamination, tank car and tank truck cleaning, drum loading filters must be provided. Will sewer disposal be allowed?
12. Probable removal of the drum loading facilities from the same building used for lactic acid drum loading will be required.
13. Regulated areas in the monomers control lab and research will be required if they continue to handle EVC. This would require isolated work space, clothing, showers, lockers and change rooms.
14. NIOSH also recommended that "no woman who is pregnant or who expects to become pregnant should be employed directly in VC monomer operations." This recommendation may affect those working on EVC in the laboratories.
15. Would suggest that we prohibit use of outside contractors and construction personnel inside the regulated area since they would have to be included in the medical surveillance program.


John E. Fox

RSV 0019912

VINYL CHLORIDE TESTING

You may have seen the recent publications in regard to some cases of liver cancer which have occurred in a Goodrich polyvinyl chloride plant. At this time there is a known total of six cases of such illness. This is a total of six at some 37 plants, with a total of 6500 employees in the polyvinyl chloride and vinyl chloride operations. In the six known instances, there was an average of 20 years exposure per employees.

There is a great deal of testing going on at this time by a large number of organizations trying to determine the causes of the problem. One of the many chemicals being questioned, of course, is vinyl chloride; however, in the polyvinyl chloride operations where the incidents occurred, the workers were exposed to a larger number of other chemicals in the polyvinyl chloride process.

Since we use vinyl chloride in our processes to make EVC, we are interested in determining what the level of exposure to VCM is for our employees. We want to make it clear that we have no indications of any problems in EVC nor do we feel that we will find such problems after we have tested for such exposure.

We are going to begin testing for such exposure as soon as possible. The testing will be handled by John Fox in the loss prevention department. Two methods of testing will be used to determine the level of exposure in EVC areas.

RSV 0019903

First, an infra-red portable analyzer will be used to determine monomer level in several of the department areas. These include the filtration, drumming and control house. We expect these tests to begin this week or next as soon as equipment is calibrated.

Second, we will do personal exposure monitoring and need your assistance and cooperation for these tests. This will involve the wearing of a portable pump and air sampling unit similar to that used for asbestos testing by insulators. We expect to have equipment and test evaluation procedures available to begin tests within approximately two weeks. This will involve EVC operators, pumper-gaugers, pipefitters and instrument personnel assigned to EVC unit. Production and maintenance foremen will also participate.

To reiterate, we want to make it clear that we do not feel we have a problem, but want to determine what levels of VCM, if any, do we have in our EVC operations. We will keep you informed of any information that develops and is pertinent to our particular situation.

2/25/74

RSV 0019904

SUGGESTED DISCUSSION OUTLINE
FOR USE WITH EMPLOYEES FROM OLD VCM PLANT

You must have seen the recent publications in regard to some cases of liver cancer which have occurred in a Goodrich polyvinyl chloride plant. At this time there is a known total of six cases of such illness. This is a total of six at some 37 plants, with a total of 6500 employees in the polyvinyl chloride and vinyl chloride operations. In the six known instances, there was an average of 20 years exposure per employee.

There is a great deal of testing going on at this time by a large number of organizations trying to determine the causes of the problem. One of the many chemicals being questioned, of course, is vinyl chloride; however, in the polyvinyl chloride operations where the incidents occurred, the workers were exposed to a larger number of other chemicals in the polyvinyl chloride process.

Our medical department has evaluated the work history and file of all the employees who were a part of the old Texas City VCM operations and find no evidence of any problems at Texas City.

We will continue to evaluate all of the material resulting from the studies being made and will keep you informed of any information pertinent to our particular situation.

We would like to re-emphasize. We find no problems at Texas City resulting from the old VCM operation.

RSV 0019905

TO BE USED ONLY IF OK'D BY ST. LOUIS

There is one series of blood tests that are being used to determine if there is any damage to the liver. These are called Liver Functions Tests and are normally used to determine liver damage from cases of Hepatitis. The tests do not tell you what caused damage to the liver, only that the liver isn't functioning properly.. We would be willing to offer these tests to the ex-VCM employees who desire to take them.

RSV 0019906

2/22/74

Retired

R. R. Whitley
M. H. Morris
M. F. Smith

Deceased

F. J. Rollins
H. L. Weir
V. L. Adams
H. E. Shields
M. S. Lockard
J. H. Roberts
V. L. Frederick

Terminated

E. A. Bell
A. A. Hammock
B. D. Beverly
L. J. Donoho
W. E. Bouray
G. P. Hales
B. H. Tillitson
W. W. Spurgeon
N. P. Dorsey
T. W. Nalley
H. E. Thompson
H. Hagues
C.C. Bieg
J. W. Branesky
D. C. Covington
G. E. Follett
J. T. Clark

Discharged

B. J. Crawford

Supervisors

W. F. Bailey, Jr.
H. B. Ferguson C. L. C. . . .

Engineering Services

C. L. Gilmore

Plant Engineering

G. L. Decker
D. H. Smith
W. F. Bailey Jr.

Production

H. B. Ferguson
G. T. Ryan
Ken Webb
Lee Vickery

P-T

J. W. Kengable
W. D. Staten
J. L. Price
J. C. Parks
R. L. Hartnett
Roy Eby
D. D. Kos - Chocolate Bayou
J. W. Frizzell

Terminated

Mark Cook
H. W. Cutcher
Art Simons
T. Shirley

C. P. Fullerton - St. Louis
Glenn Pratt - Latin America

RSV 0019907

Date: June 12, 1974

Subject: BLOOD TEST

To: _____

The Occupational Safety and Health Administration (OSHA) recently announced that several people had contacted a rare type of liver cancer believed to be the result of many years of occupational exposure to high concentrations of vinyl chloride related to polyvinyl chloride resin production units. Although the level and type of exposures around the old VCM unit (Depts. 21, 22 and 23) are considered quite different from those in other companies where the cancer has been discovered, Monsanto is offering the blood screening program recommended by OSHA to all of our employees who worked for an extended period around the VCM unit. OSHA suggests five tests that should be carried out on the blood sample but since there are other tests that can easily be performed at the same time you will also get the benefit of the additional tests. A total of fourteen tests will be reported. It should be understood that the blood screening test gives an evaluation of liver function and is not an actual test for cancer nor does it reflect that any disfunction shown is necessarily related to vinyl chloride. If the test results are not within prescribed normal limits, further evaluation would then be recommended.

Our records reflect that you worked in the VCM area. If you desire the blood screening test, it will require that you come to First Aid to allow the nurse to draw a sample of your blood for analysis. The one requirement is that you do not eat any food for a minimum of four hours prior to the blood test. Water, soft drinks and coffee without cream are permissible within this period. Also, please note that alcoholic beverages consumed within 18 hours prior to the test will sometimes interfere with the results.

The following times have been set aside by First Aid. A Beeler-Manske laboratory technician will also be here during these periods to assist our nurses.

Wednesday, June 19 8:00-11:00 A.M. and 3:00-4:15 P.M.

Wednesday, June 26 8:00-10:00 A.M. and 3:00-4:15 P.M.

Wednesday, July 3 8:00-10:00 A.M. and 3:00-4:15 P.M.

If you are absent from the plant during the above periods, contact First Aid for an additional time schedule.

You will be individually notified of the test results within two to three weeks.

RSV 0019913

BLOOD TEST

Page 2

If you do not desire the test, please so indicate by signing below and returning this letter to me.

John E. Fox
Loss Prevention

I do not desire the test: Name _____ Badge No. _____
Date _____

RSV 0019914

Monsanto

L. E. DePauw (4-7078) - Corporate Engineering G3WB

March 11, 1975

TO :

O. W. Cooper - 1890
~~XXXXXXXXXXXX~~
H. Nelson - 1890

This is a copy of a summary of our recent conversation. I included this in the minutes of a meeting of the Toxic Substances Task Force, which is a group established to develop a uniform approach to handling certain toxic materials at the Luling and Nitro plants. Thank you for your help.


L. E. DePauw

/mag

RSV 0019915

TOXIC SUBSTANCES TASK FORCE

RESULTS OF CONTACTS AT TEXAS CITY

As requested in the first task force meeting, I contacted Herb Nelson in Licensing Department at the Texas City plant. I also talked with John Fox of the Safety Department and O. W. Cooper in Research at Texas City. This is a summary of those conversations.

1. Herb Nelson (861-2433) is involved with licensing of vinyl chloride technology. His clients are all in foreign countries.

Herb has been dealing with licensing in Mexico, Spain, Israel and Japan, where exposure regulations are much less harsh, so they do not need to use any unusual methods for exposure prevention. They are using single non-flushed mechanical seals, without any type of hood or fume collection. The vents on storage tanks and other vessels are condensed and recycled, if possible, or burned. They do not do any exposure monitoring or air sampling. For incineration equipment, Herb recommended the Scientific Design Co.

2. John Fox (861-2325) was in the Safety Department when the vinyl chloride plant was in operation at Texas City.

The plant processed vinyl chlorides for two years before the government passed the current strict regulations. It tried to meet these regulations for nine months, after which it shut down because of the expense involved. The plant tried to achieve 1 ppm levels, and could sometimes reach this, but most often were between 1 and 5 ppm. Blood tests were done on the personnel, but none of the other medical surveillance measures spelled out in the regulations. They used both personnel carried adsorbers with the Siper pumps, and also had a portable leak detecting device which could measure total hydrocarbon levels.

The equipment in the plant was designed for operation at 2000 psig, but there were no special equipment modifications made for exposure prevention. John said that they had some problems with the pumps leaking. He was not sure whether single or double seals were used, but said they were not flushed. There were leak problems in the unloading area, at the fittings on the tanks for unloading and for sampling. They used a vacuum box for sampling.

3. O. W. Cooper (861-2181) did the lab analysis of the samples taken in the Texas City vinyl chloride plant.

Results of Cont. At Texas City Continued

Mr. Cooper said the gas chromatograph used was originally obtained from Dow, but that many modifications were made. They were able to do analyses in the parts per trillion range. He suggested equipment made by Ethyl Corp. as being more operable, with similar accuracy, and possibly adaptable to the toxic substance dealt with by this task force.

L.E.D.
3/11/75

RSV 0019917

DATE

May 17, 1976

cc:

J. A. Glass
E. H. Jones
✓ W. R. Johnson
J. L. Rasmussen
G. L. Stacy
D. R. Wise

REFERENCE

TO

W. C. Fuller
N. L. Marsh

It has come to my attention that the purchased anhydrous HCl used in styrene and lactic acid production contains 42-410 ppm vinyl chloride. Since vinyl chloride is now on the USHA list of cancer suspect agents and is covered by an individual substance standard, it behoves us to determine the final disposition of the material in our process operations. I feel that it is particularly important that we be able to prove that personnel exposures are below the permissible limits and that no vinyl chloride ends up in our food grade materials.

In talking with PT personnel closely associated with the two units, it is believed very highly unlikely that vinyl chloride could survive the processes and reach the final products or be vented to flare or atmosphere. In styrene, the vinyl chloride is more highly reactive than ethylene so it should not get through the alkylation step unvented. If any ended up in the ethylbenzene it would be expected to selectively react with the dehydro catalyst. The final disposition is not quite so clear cut in the lactic acid unit.

It is suggested that all atmospheric vents that could possibly vent vinyl chloride from the process should be checked. In addition, we should assure ourselves by analysis that the product streams are free of vinyl chloride.

John E. Fox

John E. Fox

gk

*We tried to tell Banford, et al.
but they wouldn't listen. We are
just ahead of our time!*

RSV 0019918

MONSANTO COMPANY
ORGANIC CHEMICALS DIVISION
Texas City
RAW MATERIAL
SPECIFICATION

MATERIAL CODE

84185

USING DEPT.

840.33

SUPPLIER

840.03

840.02

B-2
33-601.02

Approvals:

R. J. Holtschlag
R. J. Holtschlag
Manufacturing Supt.

J. J. Van Ness
J. J. Van Ness
Research Group Leader

MATERIAL

HYDROGEN CHLORIDE, ANHYDROUS

CHEMICAL FORMULA

HCl

MOL WT. 36.46

SUPERSEDES SPEC OF

12/1/66

SAMPLE FOR ANALYSIS

Not Applicable

PROPERTY

SPECIFICATION

TEST METHOD

Min.

Max.

HCl, Anhydrous, Wt. %

99.3

G. L. C.

Ethylene Dichloride, ppm)

Vinyl Chloride Monomer, ppm))

5000

cetylene, ppm)

Propylene, ppm)

300

Isopropyl Chloride)

Carbon Monoxide, ppm

100

Aromatics

non-detectable

Phosgene, ppm

5

Chlorine, ppm

5

Iron, ppm

5

RSV 0019919

11/13/70