

For: Health Studies

UNIROYAL CHEMICAL

Division of UNIROYAL, Inc.

December 9, 1975

To: B. R. Leach

cc: J. E. Crim

Subjects: 1) Continued Vinyl Chloride Medical Surveillance
2) Medical Department Coverage for Paracril Operations

In regard to Dr. Forbes' letter of 12/5/75 regarding the above subjects, I am recommending the following:

Vinyl Chloride Medical Surveillance

1. Continued Testing - Per Harry Turk's and Dr. Forbes' recommendations, the plant will continue the vinyl chloride medical surveillance testing for employees who remain in the Paracril operations as well as those employees who retain a layoff status.

Test in 1-96 and 9-96. After that go to annual for every one.
2. Frequency of Testing - The vinyl chloride medical surveillance testing for the above employees will be continued as stated by the Vinyl Chloride Standard, that is, 6 months for those who have had 10 or more years of vinyl chloride exposure and annually for those who have been exposed for less than 10 years.

3. Medical Surveillance - The medical surveillance program provided by the plant will follow that which is recommended by the Vinyl Chloride Standard. This will include:

An annual complete (full) surveillance should provide the data needed and frequency to show any problems which develop.

a. General physical examination with specific attention to detecting enlargement of liver, spleen or kidneys, or disfunction of these organs and for abnormalities in skin, connective tissues and the pulmonary system.

b. A serum (blood) test for determination of

1. Total bilirubin
2. Alkaline phosphatase
3. SGOT (Serum glutamic oxalacetic transaminase)
4. SGPT (Serum glutamic pyruvic transaminase)
5. GGT (Gamma glutamyl transpeptidase)

*BR
12-18-75*

The full medical examination which the plant provided through the Mobile Health Unit, which includes the blood test as well as EKG's, pulmonary function analysis, chest X-rays and urinalysis, will not be offered to employees on leave of absence. We may again use the Mobile Health Unit and provide all of these tests for employees continuing in the Paracril operations.

4. Medical Records - All medical records of both former and active employees will be maintained in the plant for "duration of the employment of each employee plus 20 years or 30 years, whichever is longer."

The plant will continue to provide both active employees, employees on layoff and former employees access to examine monitoring and measuring

INTERCOMPANY CORRESPONDENCE

UNIROYAL003033

records reflecting their own exposure and will also continue to provide a copy of their individual medical record sent to the physician of their choice.

Medical Coverage - Paracril Operations

With the curtailment of Painesville Plant operations and the continuation of only our Paracril Plant, the following plant medical coverage will be provided:

1. Plant Nurse - A fulltime plant nurse, R. E. Rayer, will be retained for dispensary coverage, medical records, first aid treatment, and the scheduling of physicals and other examinations for the plant doctor. In addition the plant nurse will assume various clerical duties associated with safety and employee benefit programs.
2. Plant Physician - The plant will continue to retain a parttime plant physician, Wm. E. Fletcher, M.D., However, he will be contracted for only 2 hours per week instead of the current 3 hours per week. I feel this will provide adequate coverage in regards to the reduced plant manning. It will also provide adequate time for vinyl chloride medical surveillance review, preparation of necessary medical reports and follow-up on industry related medical problems. This reduction will also enable the plant to proportionately reduce medical costs.

Please review these recommendations in accordance with Dr. Forbes' letter and submit to me your approval or comments on recommended changes by December 17.


J. R. Douglas

JRD:mhh

John Benth Studies

W. D. Harris

RECEIVED BY BRL		
DEC 10 '75		
ROUTE.		
ORDER	TO	DATE RELEASED
	LEB	
	WEB	
4	JHC	
3	JRD	12/16/75
2	WFB	12/18/75
1	WMB	12/19/75
	WFB	12/19/75
	LKM	
S	BRL	X X
	F	

~~53/12/11/15~~

TABLE I (continued)

REPORTED CASES OF ANGIOSARCOMA OF THE LIVER AMONG
VINYL CHLORIDE POLYMERIZATION WORKERS

COUNTRY	CASE #	BIRTH DATE	1st VC or PVC EXPOSURE	DX ANGIO-SARCOMA	AGE AT DX	YRS 1st EXP TO DX	TOT YRS EXP	DATE OF DEATH
United States	01*	10-17-23	12-09-48	03-03-73	49	22	16	03-03-73
United States	02*	08-19-33	11-15-55	05-00-70	37	14	13	09-28-71
United States	03*	05-25-15	11-28-45	12-19-73	58	28	28	12-19-73
United States	04*	01-15-24	07-06-52	08-19-67	43	15	15	01-07-68
United States	05*	01-25-12	06-19-44	04-09-64	52	20	18	04-09-64
United States	06*	00-00-29	01-17-62	02-00-74	45	12	12	07-24-75
United States	07*	05-03-22	08-00-44	00-00-68	45	24	18	03-23-68
United States	08*	05-06-20	10-07-46	08-00-61	41	15	15	03-29-61
United States	09*	11-08-31	09-09-54	03-01-74	43	17	17	03-00-75
United States	10*	08-16-13	06-12-51	05-00-68	55	17	17	05-10-68
United States	11*	05-27-09	10-14-46	03-00-70	61	23	23	03-16-70
United States	12*	11-17-18	09-13-49	05-02-69	50	20	15	05-02-69
United States	13*	12-01-21	08-19-44	05-00-74	52	30	30	07-04-74
United States	16*	11-04-27	05-08-50	00-00-69	41	17	4	03-27-69
United States	17*	05-06-31	06-23-55	10-11-74	43	19	19	ALIVE
United States	18*	04-22-28	00-00-54	00-00-75	46	21	13	11-02-75
United States	19	00-00-15	00-00-43	06-19-75	60	32	32	ALIVE
Yugoslavia	01*	04-05-14	00-00-53	04-08-73	59	20	20	04-08-73
Yugoslavia	02*	11-15-31	00-00-50	07-12-73	42	23	18	07-12-73

Total Reported Cases = 45

Median Values:

17 U.S. Cases

17 Non-U.S. Cases

34 Total Cases

46.0	20.0	17.0
43.0	17.0	15.0
45.0	18.0	16.0

* Indicates microscopically confirmed angiosarcoma of the liver.

"00" Indicates unknown data.

COPIED BY MCA 11/26/75

14 = GE Building - new covering
15 = Accountant

UNIROYAL CHEMICAL

Division of UNIROYAL, Inc.

June 21, 1974

To: B. R. Leach

From: A. B. Fritinger

Subject: PVC Vessel Cleaning with Air Masks

Commencing June 14, 1974, all PVC vessel cleaners have been issued MSA type constant flow air line respirators Model 457161. At this time, they were trained in the installation, operation, and maintenance of the respirators. Area 1, Building 203 and Area 4, Building 402 stations were established for the sanitizing and storage of the respirators.

Problems Encountered

1. Personnel who wear eyeglasses for their normal vision cannot wear the full face mask and their eyeglasses at the same time and maintain an adequate seal on the face piece.
2. The purified plant air is too dry and causes throat problems. (In the process of removing carbon monoxide from the plant air, the air is completely dried to protect the chemical that converts the carbon monoxide to carbon dioxide.)
3. Excessive air. Some of the personnel complained that the air creates pressure on their lungs. There is more air than is necessary for breathing.
4. The flexible hose from the face piece to the control valve is easily pinched which cuts off the air supply. The poly cleaners run into this problem during the jet lancing operation if they lean up against the flange lip of the poly manhole cover nozzle.
5. There has been a loss in effectiveness of the workers in the range of 10 - 15%. The reason appears to be the handling of the air equipment.

INTERCOMPANY CORRESPONDENCE

UNIRO003062

To: B. R. Leach

From: A. B. Fritinger

Date: June 21, 1974

Page: 2

Currently, we are reviewing these problems with suppliers and will be corrected as follows:

1. The prescription eyeglasses are being fitted to the face pieces for each individual and should be available to all personnel by early July.
2. We are evaluating the possibility of adding water to the purified air downstream from the purifying unit. As yet, we do not have a technique for handling this problem.
3. The excessive air supply, we feel, is a psychological problem more than a real problem and additional training and familiarization will resolve this problem.
4. The flexible hose to the face piece has been reviewed and discussed with MSA with two (2) possible solutions; either a wire reinforced tube or a more rigid hose.

A. B. Fritinger/ams
A. B. Fritinger

ABF:bap

cc: WMI

*BP
6-24-74*

*RF, A
JRD*

FL-VC BK

UNIRO003063

Vinyl chloride

MANUFACTURING CHEMISTS ASSOCIATION

1825 CONNECTICUT AVENUE, N. W. WASHINGTON, D. C. 20009 (202) 483-6126

RECEIVED

AUG 12 1974

MEDICAL
DEPARTMENT

8/12/74

August 8, 1974

RECEIVED BY ERL		
SEP 11 '74		
ROUTE		
ORDER	TO	DATE RELEASED
	LEG	
	WFB	
	JMC	
	WFB	9/20
	WBI	9/10
	CHK	
	LFM	
	HRL	XX
	F	

To: Technical Task Group on Vinyl Chloride Research

Subject: Odor Threshold for Vinyl Chloride

Gentlemen:

Mr. T. N. Wheeler has kindly provided us with the attached report from their plant laboratory on its determination of the odor threshold for vinyl chloride monomer. He suggests that prior estimates of employee exposure based upon odor intensity judgments be reevaluated in the light of these new data.

Sincerely,

Kenneth D. Johnson

Kenneth D. Johnson, Ph.D.
Secretary
Technical Task Group on
Vinyl Chloride Research

KDJ/mb

Enclosure

cc: Dr. D. P. Duffield
Mr. A. W. Barnes
Dr. Tiziano Garlanda

UNIRO003065



1) Copies To
 WMI-
 REL- 8/8/74
 CHK-
 JRD-
 2) FAX: VC BR

CERTIFIED MAIL - RRR

UNIROYAL CHEMICAL
 Division of UNIROYAL, Inc.
 Elm Street
 Naugatuck, Connecticut 06770
 203-729-5241

August 5, 1974

RECEIVED BY GRL

AUG 7 '74

Mr. David R. Bell
 Office of Standards Development
 Room 500
 1726 M Street, N.W.
 Washington, D.C. 20210

ROUTE		
ORDER	TO	DATE RELEASED
	LEB	
	WFB	
	JHC	
	JRD	
	REM	
	WMI	
	CHK	
	LFM	
	RRL	XX
	F	

Re: OSHA Hearing on Vinyl Chloride Exposure Standards.
 Addendum to Uniroyal, Inc. Testimony.

Dear Mr. Bell:

We are submitting herewith an internal memorandum outlining some current difficulties being experienced with respirators.

We have been using air breathing respirators on a full time basis for all of our vessel cleaners for a little more than one month. For approximately one month prior to that, these respirators were used on an intermittent basis. Last week the Area Foreman in our Area 1 PVC plant made a survey of the people who are using these respirators. A copy is attached.

Obviously there are great personal differences in the adaptation of men who require eye glasses. The next greatest problem appears to be the dry throat, running nose effect. Beyond that there are miscellaneous personal problems.

We believe that the comments of those who have had to use the respirators under actual working conditions are more valuable than the predominantly theoretical and/or second hand comments which were presented at the hearing. We hope it will be of help in your considerations.

Very truly yours,

M. J. Kleinfeld
 M. J. Kleinfeld, Director
 Commercial Planning

MJK:lads
 Encl.

CC: BRLeach,
 Painesville
 RJDowling
 MJK-file

UNIRO003066

UNIROYAL CHEMICAL
Division of UNIROYAL, Inc.

June 19, 1974

TO: D. E. Dudrow (2)
OxfordFROM: B. R. Leach
Painesville

SUBJECT: OSHA Citation

As I indicated to you yesterday, I feel we should contest the citation made against this plant by OSHA as a result of their visit on May 15 and 16. Our reasoning is outlined below:

1. The basic objection to the two citations is that there was insufficient time between the publishing of the temporary standard in the Federal Register on April 5 and the plant visit on May 15 and 16 to achieve complete compliance with the regulation. Perhaps the legal response to this objection is that we have the alternative of shutting down the operation if we could not come into literal compliance with the requirements. This alternative is invalid considering the lack of certainty of the 50 ppm ceiling.
2. A more specific objection applies to citation number two. During the plant visitation there was no attempt to determine the degree to which we had formulated plans for engineering and operational controls. The questionnaire used during the visit and the discussions focused mainly upon past and present conditions not exploring methods and time tables by which ambient levels of VCM could be reduced.
3. We had anticipated the requirement for air supplied respirators based upon our reading of the NIOSH recommended standard dated March 11, 1974. We had no way of knowing however, what specific requirements would be made by OSHA until the emergency standard was substituted on April 5. Our preliminary investigations had determined the various type of masks available from suppliers. On April 5, the day the standard appeared, we placed an order for 300 full faced masks as follows:

INTERCOMPANY CORRESPONDENCE

UNIRO003074

DATE	NO.
4/11/74	38
4/16/74	50
5/28/74	108
Back Ordered	104

Evaluation of possible methods to supply air to personnel in locations where the ambient VCM level exceeded the maximum considered various approaches. Cannisters were rejected as unreliable (and were subsequently not allowed in the OSHA standard). Self-contained breathing apparatus (Scott Air-Paks) were rejected as being too short duration and too cumbersome for many operations. This left the only alternative as being a distribution system utilizing compressors as a source of air. Adequate air scrubbing equipment for our existing plant air was not uncovered for several weeks. An order was placed for 6 Del-Monox units on April 29. Delivery was made on May 6 at which time we began to fabricate the necessary portable assemblies so that 4 air supplied respirators could operate off each one of the Del-Monox units. The prototype was completed on May 15, 1974 and tested in the plant. Since this was successful, we proceeded with the fabrication of the additional units so that we were ready by June 6 to supply some 24 air supplied full face masks per shift, and specifically require their use for vessel entry. This means that 24 men on each of 4 crews have their own personal face mask. When additional air cleaners are delivered about July 1 we will add additional units to our total available and extend the requirement for their use to other areas.

4. Soon after we received the NIOSH recommendations we determined that an intensive effort would be required by the plant to begin engineering and operational changes to accomodate to the sense of the NIOSH recommendations. Toward that end, on April 1, we appointed one of our plant chemical engineers, Mr. G. E. Brumbaugh, to the position of Vinyl Chloride Monomer "VCM" Safety Coordinator. Eight working groups were set up to evaluate the NIOSH recommendation and the OSHA temporary standard in terms of how it would apply to our plant and how we should accomodate to the requirements as written.

The eight groups were:

1. Monitoring and Testing
C. B. Westerhoff - Chairman
2. Procedures, Practices and Equipment Changes to Reduce VC Leaks and Exposures, and Provide Breathable Air
M. C. Jasman - Chairman

3. Regulated Areas, Coveralls, and Protective Clothing, Hygiene Facilities, Practices, and Signs
G. J. Higgins - Chairman
4. Medical Surveillance
J. R. Douglas - Chairman
5. Waste Resins
J. D. Porter - Chairman
6. Personnel Regulations - Rosters and Training
R. T. Shearer - Chairman
7. Ventilation of Regulated Areas
E. B. Bezzeg - Chairman
8. Control Plan and Report
G. E. Brumbaugh - Chairman

During April and May these groups met frequently to formalize their recommendations. Most of the current plans for personnel monitoring, area monitoring, leak control, personal protective equipment, testing methods, and engineering changes required were a product of these groups. Their recommendations were also incorporated into the plant objections to the OSHA proposed permanent standard.

While the citation implies that we have not determined what should be done, in fact, considerable has been accomplished within the past three months. As a result of engineering and procedural changes the ambient air levels in our processing areas have been reduced by a factor of two.

5. It is most obscure as to why penalties of the magnitude assessed are applied to citations rated "non-serious". While the magnitude of the penalty is no basis for contesting these penalties as compared with what has been assessed in the OSHA citations to other manufacturing locations causes grave concern as to their basis in this case.


B. R. Leach

BRL:nak
cc: GAA - Naug.
BCC: WHI - CHK - JRD - REH - GAB

VC PK

UNIROYAL CHEMICAL
Division of UNIROYAL, Inc.

June 17, 1974

cc w/Att: G. A. Anderson - Naugatuck
N. F. McLeod - Naugatuck
HRD REH, CHK, JRD

To: R. J. Dowling
EMEC
Naugatuck

From: W. M. Iliff
Painesville

Subject: Input to UNIROYAL Objections to Proposed VCM
OSHA Regulation No. 1910.93a

Attached is the original copy of documentation, requested in your memo of May 29, 1974, from Bowshot, Cooper & O'Donnell stating non-feasibility of approaching 1 ppm VCM in the working atmosphere based on their work to date as engineering consultants at the Painesville plant.

A copy was transmitted to you today by telecopier.

W. M. Iliff
W. M. Iliff

WMI:bap

Attachment

INTERCOMPANY CORRESPONDENCE

UNIRO003077

19571 ROSELAND AVE.
CLEVELAND, OHIO 44117
PHONE 692-0460

Bowshot, Cooper & O'Donnell

ENGINEERS

June 14, 1974

H. L. COOPER 18570
J. F. O'DONNELL 16732
R. K. FIELD 24378
R. E. SCHAEFFER 23085

Uniroyal, Inc.
P.O. Box 460
Painesville, Ohio 44077

Attention: Mr. W. M. Iliff
Plant Engineer

Subject: To reduce the concentration of
Vinyl Chloride Monomer in the
working areas of your Painesville
Plant to a level of one part per
million (1PPM)

Dear Sir:

Our study has indicated that from an engineering standpoint, reducing the concentration to this level is impractical to the point of being impossible. In reaching this conclusion we gave careful consideration to the following factors.

1. The "state of the art" at the present time does not permit the measurement of 1PPM of VCM in your area. All of the methods used for detecting VCM to some extent either respond to other hydrocarbons or are reduced in sensitivity by their presence. The use of alcohols and acetates etc. around and in the Uniroyal Plant plus marsh gas and automobile contaminants serve to produce a variable "background" that would make calibration of any continuously monitoring instrument almost impossible to a level of one part in a million of VCM only.

During our investigation of this problem we have examined most of the instruments used to measure the quantity of VCM present.

All these instruments have had a poor history for serviceability. It is unlikely that immediate improvements will be made to increase their reliability beyond what is now being experienced.

19571 ROSELAND AVE.
CLEVELAND, OHIO 44117
PHONE 692-0460

Bowshot, Cooper & O'Donnell

ENGINEERS

H. L. COOPER 16570
J. F. O'DONNELL 16732
R. K. FIELD 24378
R. E. SCHAEFFER 23065

Uniroyal, Inc.

June 14, 1974

Page #2

2. Due to the batch process of making PVC, some VCM must be lost during cleaning and recharging of the vessels.
3. The polymerization or conversion of the monomer is less than 100% so that even with current stripping technology some of the monomer is included in the final product. Some monomer will be discharged from resin drying systems as well as in the finished product.
4. VCM must be stored, transported, and pumped at a pressure greater than atmospheric. The most assiduous maintenance program will not prevent some leaks.
5. Vinyl Chloride Monomer is a volatile explosive gas at normal ambient conditions and relatively low concentrations. The only safe method to eliminate the explosive danger after it has been exposed to air is dilution by ventilation.
6. The amount of ventilation required to approach 1PPM would result in air speeds through the buildings that would cause excessive noise, unsafe working conditions, and unacceptable structural changes to the walls for explosion release. The heat required to temper this volume of air would be an impractical waste of energy.
7. It is our opinion that the most practical way to significantly reduce VCM levels in a PVC resin plant is through the application of known engineering principles in the design of an entirely new facility. To bring a plant built within the last ten years to such a standard appears to be impractical.

Very truly yours,

BOWSHOT, COOPER & O'DONNELL
ENGINEERS

James F. O'Donnell
James F. O'Donnell
Partner & Chief Engineer

Howard L. Cooper
Howard L. Cooper
Partner



UNIROYAL CHEMICAL
Division of UNIROYAL, Inc.
Painesville, Ohio 44077
216-357-7574

June 13, 1974

TO: MEMORANDUM

FROM: B. R. LEACH

SUBJECT: OSHA CITATION

The attached OSHA citation is a result of the plant visits of OSHA Industrial Hygienists on May 15 and 16, 1974. During that visit inspections were made in both the Area 1 and Area 4 Marvinol Plants. From tests made during this visit the OSHA inspectors determined that this plant was in violation of the Emergency Temporary Standard for VC which is a part of the Occupational Safety and Health Standard. It is required that this citation be posted in our plant.

The particular references shown relate to specific paragraphs of the standard. Briefly these paragraphs say that we must require air supplied respirators to be worn any time the VCM concentration exceeds 50 ppm and that methods to reduce the VC concentration be implemented so that there is never a level above 50 ppm in our operations.

We have now issued 82 air supplied respirators for use in our highest exposure areas and have additional respirators on order. We have been making engineering and procedural changes continuously over the last four months which have significantly reduced the VCM levels in our buildings. There is a continuous program to further reduce the VCM level in each Marvinol area. The continued cooperation of all plant employees is required to achieve the maximum success in this program.

B. R. Leach
B. R. Leach
Plant Manager

BRL:nak
Att:

UNIRO003080

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

CSHO NO.	OSHA-1 NO.	FY.
K-3284	100	74
AREA	REGION	
1680	V	

CITATION Occupational Safety and Health Administration, USDL
1240 East 9th Street, Room 847
Cleveland, Ohio 44199

TO:2.

Uniroyal, Incorporated
Fairport Nursery Road
Painesville, Ohio 44077

3. Citation Number 1

4. Page 1 of 5. 1

6. TYPE OF ALLEGED VIOLATION(S): NONSERIOUS

An inspection was made on 7 May 16, 1974, of a place of employment located at:

8. Fairport Nursery Road, Painesville, Ohio, and described as follows:
9. a manufacturer of polyvinyl chloride.

On the basis of the inspection it is alleged that you have violated the Occupational Safety and Health Act of 1970, 29 U.S.C. 651 et seq., in the following respects:

10. Item number	11. Standard, regulation or section of the Act allegedly violated.	12. Description of alleged violation	13. Date by which alleged violation must be corrected
1.	29 CFR 1910.93q (d)(2)	Employer failed to require the wearing of continuous flow or pressure demand air supplied regulators or self contained breathing apparatus when the work area may be expected to exceed concentrations in excess of 50 p.p.m. of vinyl chloride.	June 28, 1974
2.	29 CFR 1910.93q (d)(1) and (d)(3)	Employer shall be required to determine feasible engineering or operational controls to reduce the airborne contaminants to the permissible level.	September 5, 1974

The law requires that a copy of this citation shall be prominently posted in a conspicuous place at or near each place that an alleged violation referred to in the citation occurred. The citation must remain posted until all alleged violations cited therein are corrected, or for 3 working days*, whichever period is longer.

RIGHTS OF EMPLOYEES

Any employee or representative of employees who believes that any period of time fixed in this citation for the correction of a violation is unreasonable has the right to contest such time for correction by submitting a letter to the U.S. Department of Labor at the address shown above within 15 working days* of the issuance of this citation.

"No person shall discharge or in any manner discriminate against any employee because such employee has filed any complaint or instituted or caused to be instituted any proceeding under or related to this Act or has testified or is about to testify in such proceeding or because of the exercise by such employee on behalf of himself or others of any right afforded by this Act." Sec. 11(c) (1) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 651, 660(c)(1).

*Under the Occupational Safety and Health Act, the term "Working Day" means Mondays through Fridays but does not include Saturdays, Sundays, Federal Holidays.

Area Director's Signature Kenneth B. Berman Issuance Date June 6, 1974

(NOTICE: Additional Important Information On Reverse Side)

Form OSHA-2

UNIRO003081

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

11.

Occupational Safety and Health Administration, USDL
1240 East 9th Street, Room 847
Cleveland, Ohio 44199

CSHO NO.	OSHA-1 NO.	FY
K-3284	100	74
AREA	REGION	
1680	V	

TO:

2.

Uniroyal, Incorporated
Fairport Nursery Road
Painesville, Ohio 44077

3.
Date

June 6, 1974

THERE IS NO REQUIREMENT THAT
THIS NOTIFICATION BE POSTED.

NOTIFICATION OF PROPOSED PENALTY

This notification and the penalty(ies) proposed by the Secretary of Labor shall be deemed to be the final order of the Occupational Safety and Health Review Commission (an independent agency with authority to issue decisions respecting citations and proposed penalties) and not subject to review by any court or agency unless, within 15 working days from the date of receipt of this notification, you submit a letter of contest. The letter of contest should be mailed or otherwise delivered to the Area Director named below at the address shown at the top of this notification. If no notice of contest is filed within the 15 working day period the proposed penalty(ies) becomes final and is immediately payable.

Payment of all penalties shown is to be made by check or money order payable to the order of "Occupational Safety and Health-Labor". Payment of penalties should be remitted to the Area Director at the address shown above.

Section 17(1) of the Act states: "Civil penalties owed under this Act shall be paid into the Treasury of the United States and shall accrue to the United States and may be recovered in a civil action in the name of the United States brought in the United States district court for the district where the violation is alleged to have occurred or where the employer has its principal office."

4. On the 6th day of June, 1974, a citation(s) was issued to you in accordance with the provisions of Section 9(a) of the Occupational Safety and Health Act of 1970 (84 Stat. 1601; 29 U.S.C. 651, et seq.) hereinafter referred to as the Act. You were thus notified of certain alleged violations of the Act, as specified in that citation(s).

YOU ARE HEREBY NOTIFIED that pursuant to the provisions of Section 10(a) of the Act, the penalty(ies) set forth below is/ are being proposed, based on the citation(s).

5. VIOLATIONS			6. NONSERIOUS VIOLATIONS		
5A. Citation No.	5B. Item No.	5C. Proposed Penalty	6A. Citation No.	6B. Item No.	6C. Proposed Penalty
			1.	1.	\$240.00
				2.	\$60.00
7. Total Proposed Penalty for All Alleged Violations					\$ 300.00
Area Director					Date
<i>James H. Bowman</i>					June 6, 19 74

The proposed penalty for Nonserious Violations of safety and health standards reflects a 50 percent adjustment factor for corrective action be taken within the period prescribed in the citation. If a particular alleged violation is not corrected within this period, the 50 percent adjustment will be added to such other penalty as may subsequently be proposed for failure to correct a violation within the abatement period. No abatement credit is allowed for violations of recordkeeping or posting requirements.

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Occupational Safety and Health Administration, USDL
1240 East 57th Street, Room 847
Cleveland, Ohio 44199

CSHO NO.	OSHA NO.
K-3284	100
AREA	RELIGION
1680	V

CITATION COVER LETTER

TO: Uniroyal, Incorporated
Fairport Nursery Road
Painesville, Ohio 44077

Date June 6, 1974

Subject: Citation for Alleged Occupational Safety and Health Violation(s)

An inspection of a workplace under your operation, ownership, or control has revealed conditions which we believe do not comply with the provisions of the Occupational Safety and Health Act of 1970, 29 U.S.C. 651. The nature of such alleged violation(s) is described in the enclosed citation with references to applicable standards, rules, regulations, and provisions of the said Act. These conditions must be corrected on or before the date shown to the right of each violation therein.

The Act requires that a copy of the enclosed citation(s) be prominently posted "in a conspicuous place upon receipt" at or near each place a violation referred to in the citation occurred. It must remain posted until all violations cited therein are corrected, or for 3 working days, whichever period is longer. A sufficient number of copies of the attached citation(s) should be prepared to permit posting in accordance with the requirements of the Act.

If you contest the citation you may post a notice to this effect near the citation contested. The Act contains penalties for violation of the posting requirements.

You will soon be notified by certified mail whether or not a proposed penalty will be assessed as a result of the cited violation(s). You have the right to contest the citation(s), the proposed penalties, or both, before the Occupational Safety and Health Review Commission. The Review Commission is an independent quasi-judicial agency with authority to issue decisions regarding citations and proposed penalties. If you do contest, you must so notify the Area Director within 15 working days after receipt of the certified mail notice regarding proposed penalties. If you fail to contest within the 15 working day period, the citation and the proposed assessment of penalties shall be deemed to be a final order not subject to review by any court or agency.

An employee or representative of employees may file a notice to contest the time stated in the citation for the abatement of the alleged violation(s).

Alleged violations that are not contested shall be corrected within the abatement period specified in the citation. Failure to correct an alleged violation within the abatement period may result in a further proposed assessment of penalties.

As to alleged violations with an abatement period of 30 days or less, you are directed to promptly advise the Area Director as to the specific corrective action on each such violation and the date of such action.

Alleged violations having a longer abatement period will require a progress report at the end of each 30-day period. The progress report should detail what has been done, what remains to be done, and the time needed to fully abate each such violation. When the alleged violation is fully abated, the Area Director shall be so advised.

A followup inspection may be made for the purpose of ascertaining that you have posted the citations as required by the Act and corrected the alleged violations as you have reported. The Act provides that whoever knowingly gives false information is subject to a fine up to \$10,000, imprisonment up to 6 months, or both.

If you wish additional information, you may direct such request to the undersigned at the address listed above.

U. S. Department of Labor

By Area Director Yvonne A. Bouma

Monsanto

VCR

MONSANTO POLYMERS & PETROCHEMICALS CO.
800 N. Lindbergh Boulevard
St. Louis, Missouri 63186
Phone: (314) 694-1000

June 12, 1974

Mr. Robert Holman
Uniroyal Chemical Co.
P. O. Box 460
Painesville, Ohio 44077

Dear Mr. Holman:

Confirming earlier communications, you will be representing Uniroyal Chemical Co. at the Industry PVC/VCM Problem Analysis Conference scheduled for June 17, 18, and 19 at Springfield, Mass.

The conference will be held at the Bay State West Hotel, 1500 Main St., in Springfield. It is located just off of Interstate 91 and is readily visible from this highway, whether traveling north from Hartford-Springfield airport or south on Interstate 91.

The meeting will begin at 8:00 A.M., Monday morning, however, you are invited to get acquainted with some of the other group members at a Monsanto hospitality room at the hotel, Sunday night, June 16. The hospitality room will be open from 6:00 P.M. until 10:00 P.M. Attendance is optional and intended only to allow group members to have a chance to talk to each other before the meeting begins. Further details will be given to you when you check in.

The problem analysis itself will be under the direction of Art Smith, Monsanto's Training Manager, who has been performing this kind of activity in a consulting role for many years. The approach is based on work originally developed by Kepner-Tregoe, modified by Monsanto's own experience. We anticipate that the effort will require a full three days, plus, perhaps, some evening work. It is expected that results of the analysis will be in a form suitable for submission to SPI within a day or so after the meeting ends.

At this stage it is impossible to guarantee that results of this analysis session will be useful for presentation to OSHA at the June 25 public hearing. Results will be given to SPI as soon as they are available, and that the decision concerning inclusion with other SPI testimony will be made by SPI representatives.

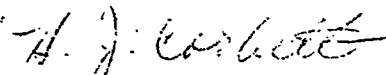
In order to make this meeting productive, it is expected that each participant will have knowledge of or access to his company's experience in PVC operations, including employee health records. He should have authority to present this data and to actively participate in the group analysis, with an understanding that individual confidentiality will be maintained. Since it is almost impossible for any person to bring all of his company's relevant experience with him, it is highly desirable that he make arrangements to have a contact man available at his home location to quickly obtain any specific data which might prove to be important during the analysis. Secretaries and telephones will be provided to permit quick access to other locations without delaying the analysis effort. *R. Douglas*

Reservations have been made for you, as requested, for the nights of June 16, 17, and 18. Monsanto will handle details of meeting room facilities and will provide secretarial services as necessary. Meals and transportation will be handled on a personal basis by each participant.

If you have any questions concerning the meeting, please get in touch directly with R. L. (Bob) Bourget at (413) 788-6911. Bob is in charge of Monsanto's PVC production operation and will be our representative at the analysis.

The cooperative attitude of all participating companies has been most helpful in setting up this meeting on such short notice. Please accept our thanks for adding this effort to an already overloaded schedule.

Sincerely,



Harold J. Corbett
Director, Manufacturing & PT

/drd

cc: Mr. R. L. Bourget, Monsanto-Springfield
Mr. A. G. Smith, Monsanto-St. Louis

UNIROYAL CHEMICAL

Division of UNIROYAL, Inc.

June 12, 1974

cc: REE, CHK, GEB, JRD,
 G. A. Anderson - Naugatuck
 R. J. Dowling - Naugatuck
 W. D. Harris - Oxford

To: B. R. Leach

From: W. M. Iliff

Subject: Rubber Manufacturers Association Meeting
Objections to OSHA, Proposed Permanent Standards for
Vinyl Chloride
June 10, 1974, Holiday Inn/Cascade, Akron, Ohio

1. The subject meeting was attended by representatives, principally Industrial Hygienists, of the following PVC producers or converters of PVC who are members of RMA:

Goodyear Tire & Rubber Company
 B. F. Goodrich
 General Tire & Rubber
 UNIROYAL, Incorporated
 DAYCO
 (And Staff Members of RMA)

2. The Goodyear representative recommended that the RMA go on record as supporting the proposal of the Society of Plastics Industries (SPI) since all companies in attendance were members of SPI. UNIROYAL encouraged the group to submit an independent objection to be read at the hearing on the basis of the more voices heard in support of industry would have more bearing on a final decision than a mere piggy-back action. The group agreed to prepare a separate proposal.
3. Firestone (Mr. W. B. Connolly, Jr. - Legal Department) stated that they would not support the position of SPI voted by member companies at the Wednesday, June 5, 1974 meeting of SPI and would not be a party to the SPI proposal. He felt that the B. F. Goodrich step-wise proposal of 15 ppm TWA; 30 ppm ceiling by October, 1974 and a three year improvement to 5 ppm TWA; 10 ceiling was completely out of line and could not be supported or promised, particularly by the small producer. Firestone felt such proposal was discriminatory to the majority of producers and would eventually lead to anti-trust suits between the large and small producers, or small producers against the Federal Government.

INTERCOMPANY CORRESPONDENCE

UNIROYAL003086

UNIROYAL CHEMICAL

Division of UNIROYAL, Inc.

July 10, 1974

cc: MJK - Haug.

DED - Oxford

TO: G. A. Anderson
Naugatuck

FROM: B. R. Leach
Painesville

SUBJECT: Letter from State Representative McCormack

The attached letter from Mr. John Timothy McCormack, Representative to the Ohio Legislature from Euclid, suggests that we may soon be involved in a round of investigations of the VCM problem by the Ohio EPA. Mr. McCormack does not represent voters in Painesville Township or in any part of Lake County so far as we can determine. He is from Euclid which is in Cuyahoga County on the east side of Cleveland. Apparently he is up for re-election this year.

Whatever Mr. McCormack's motive, I do not see how Dr. Whitman can ignore what is being said to him in this letter.

So far as I can determine at this point, the U.S.EPA District Office has not released a report on their surveillance on the Painesville PVC plants.

B. R. Leach
B. R. Leach

BRL:nak

Att:

cc: CHK WMI JRD

*copy to J. Mudd - General Lee
N. Seyler - Robertech*

COPY
BRL

July 3, 1974

Dr. Ira Whitman, Director
Ohio Environmental Protection Agency
Columbus, Ohio

Dear Dir. Whitman,

I respectfully request that the Ohio Environmental Protection Agency conduct an official and thorough investigation of vinyl chloride gas emissions from Uniroyal Inc. and Robintech Inc., both in Painesville Twp., Lake County.

As I know you are aware, there have been numerous reports linking exposure to vinyl chloride gas to a rare form of liver cancer.

The Federal EPA recently reported detectable vinyl chloride emissions from the Painesville plants. However, the federal study was preliminary and shed little light on the extent of the health hazard.

The local residents have contacted me and have expressed great concern over the possible threat to workers and residents in the immediate neighborhoods.

I believe that it is vitally important that we in State Government undertake a thorough investigation of those chemical elements which are released into the air and water and to make an assessment regarding the possible toxic nature of these chemicals.

I fear that many substances of as yet unknown character are being released into the air and water on a regular basis. Vinyl chloride diffusion serves as a first instance and warning of the danger in not having, as nearly as is possible, full knowledge and control over these substances.

I feel it is incumbent upon the Ohio EPA to play a leadership role and make a definitive study of the effects of vinyl chloride and other substances found in our air and water

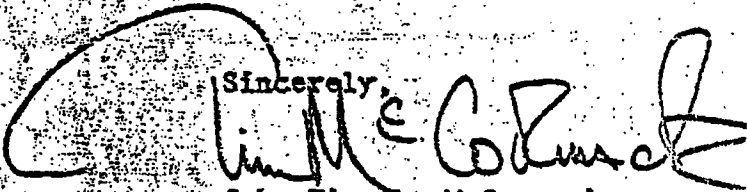
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page 2

on behalf of the people of Ohio.

I would appreciate it if you would keep me informed at all steps of the investigation and let me know if I can be of any help to you in this area.

Sincerely,


John Timothy McCormack

cc. Painesville Twp. Board of Trustees
Lake County Board of Commissioners

JTM/ndd

UNIRO003089

*copy to RYH
3/22/74*

B. R. Leach

UNIROYAL CHEMICAL
Division of UNIROYAL, Inc.

March 1, 1974

To: G. A. Anderson
Naugatuck

From: B. R. Leach
Painesville

Subject: NIOSH Recommendations for PVC Plants

Attached are the minutes of our second review meeting of our attempts to apply our interpretation of the NIOSH recommendations.

We will not have Building 108 overheads cleaned prior to the NIOSH visit on Tuesday.


B. R. Leach

BRL:bap

Attachment

cc: D. E. Dudrow - Oxford
J. E. Crim - Naugatuck

MINUTES OF MEETING
VC/PVC PRECAUTIONARY MEASURES
FEBRUARY 25, 1974

ATTENDEES:

B. R. Leach
W. M. Iliff
R. E. Holman
C. H. Kim
J. H. Carter
J. R. Douglas

L. F. Marous
J. D. Porter
G. M. Beatty
R. W. Starkey
C. E. Subrick
N. C. Walter

C. B. Westerhoff
M. C. Jasman
G. E. Brumbaugh
R. T. Shearer
A. B. Fritinger

SUMMARY:

C. H. Kim presented a summary of the U. S. Dept. of Labor Internal Fact Finding Hearing on February 15, 1974 and the Manufacturing Chemists Association Task Group on VC, meeting on February 20, 1974. (separate report issued)

Critical question to be decided is whether further controls on VC/PVC exposure is to be set by regular rule making procedure or by use of an emergency temporary standard.

Painesville plant is cooperating with Tabershaw-Cooper Associates in a detailed industry-wide study on the causes of death of both current and past employees.

Painesville has been selected as one of the PVC plants to be studied on a preliminary basis by NIOSH. Visit to be made Monday, March 4, 1974. (Note: changed to Tuesday, March 5, 1974)

The seriousness of the VC exposure problem was stressed. Problem areas must be taken care of on a priority basis. Actions taken must be relevant, and any mandatory requirements must be thoroughly reviewed and weighed as to their necessity.

Operating personnel have been encouraged and requested to adopt certain precautionary measures to minimize exposure. Wherever new approved type equipment has been recommended by NIOSH and is not currently available in the plant, use of the currently Stores stocked equipment has been recommended. In the meantime the recommended equipment has either been placed on order or its applicability is being investigated.

Specific Item discussion follows: (Note: Item references are to those in "NIOSH Recommended Precautionary Monitoring and Control Procedures for Polymerization Processes Involving Vinyl Chloride.")

ITEM

I-A

POLY CLEANOUT:

PLANTWIDE: Approximately 350 drums of scrap stored in open drums was sold last week.

S.D.:

Being dumped into Dumpsters each shift by vessel cleaners.

AREA I:

Drum liners being used - tied closed when full - dumped once per day by yard personnel.

BLDG. 402:

All but 4 drums removed from building by vendor.

(NOTE: remaining 4 drums have been dumped to scrap)

BLDG. 415:

Finishing scrap from vacuum system being dumped into drums with liners then taped closed when full.

BLDG. 108:

Derrick Screener Floc being collected in drums with liners, closed when full. (NOTE: Liners will be used in all drums)

PLANTWIDE:

Collecting of poly cleanout in drums has been discontinued pending workable system of collecting and transporting in open bulk Dumpster type containers. Now being dumped into current Dumpsters and hauled away.

I-B

Marvinol in-process inventories are being taken and reported on a weekly basis. Actual reporting on weekly basis needs to be refined. Emphasis to be placed on efficiency rather than yield since efficiency takes scrap into account.

I-C

S.D.:

Active cleanup program continuing - "flashing" being installed around holes in floors to prevent spills from falling through and dusting area below.

AREA IV:

Representatives of Chemical Fireproofing Corp. and the ABC Service Corp. to visit A. B. Fritinger on Tuesday, February 26, 1974, to discuss commercial cleaning of Building 108. The former company just last week submitted a quotation to "clean" 4 buildings for the B. F. Goodrich Co. in Avon Lake, Ohio.

The necessity for using outside contractors for this job needs to be resolved with the Union. Type of equipment needed and scope of job needs to be detailed.

Past practices of "blowing off" bags needs to be revised in favor of "vacuuming" to alleviate dusting conditions.

ITEM

Procurement of suitable vacuum system for Building 108 needs to be resolved.

I-D

AREA I:

All operators have been requested to use Bldg. 108 lunch room for eating purposes. Some resistance encountered. Eating continuing in Area I Maintenance Shops. Coffee pots still evident in Control Rooms. Coveralls are not being removed before entering lunchroom.

II-A

~~The present supply of 575 coveralls has been increased~~ to 975 by obtaining 100 new pairs from Buckeye Garment Rental and pressing into service 300 pairs from a Stores supply.

Poly cleaners have been requested to change coveralls daily. Weekend supply of 3 pairs/person made available Friday, February 18, 1974, but was not taken advantage of.

Cost of having every employee change coveralls on a daily basis estimated at \$70,000/yr. Methods investigating in-plant laundering facilities vs commercial laundering cost of \$1/pr.

Purchasing investigating "Change-A-Matic" dual self service locker system for more suitable and readily available dispensing system. Lockers are available but cotton coveralls are in short supply and will not be available till August.

II-B

Purchasing and Methods to resolve availability of impervious gloves for use wherever skin contact exists.

In the meantime use of "Grab-It" type gloves recommended.

Operating personnel requested to leave work shoes at work and not take home.

II-C

Safety Department continuing to investigate availability and suitability of Durafab hair coverings.

II-D

Safety Department continuing to investigate safe disposable coveralls. N. C. Walter has obtained literature on "Durafab" polyolefin fiber type protective clothing.

W. M. Iliff to check with B. F. Goodrich in their resolution of the NIOSH protective clothing requirements.

ITEM

III Vessel cleaners have been requested to take daily shower - two have refused. Some operating personnel taking showers voluntarily.

IV Technical Dept. has obtained the following vinyl chloride concentration data by use of the Wilks-Miran infrared continuous analyzer. Data represents average for 24 hour period taken at fixed locations five feet off-floor. Except exhaust fan at 1 ft. level.

<u>BLDG.</u>	<u>FLOOR</u>	<u>LOCATION</u>	<u>PPM</u>	<u>RANGE-ppm</u>
117	2	VC Charging Station	52	-
117	1	Between Strippers	36	-
117	1	@ #7 Compressor	528	-
117	2	2nd Exhaust Fan from SW Corner	148	-
107	2	Weighing Bench	52	-
107	2	Between A & B Strippers	25 ⁽¹⁾	-
107	1	Catwalk under #17 Poly	120	2-1100
107	2	2nd Exhaust Fan from NE Corner	120 (4 hr.ave.)	26-1000
414	2	NE Exhaust Fan	88	20-1050
414	2	#11 Poly	88	0-1640
414	1	NW Exhaust Fan	100	3-1600

(1) Two instances at polys opened for cleaning contributed to this value - otherwise average would have been 15 ppm.

RESULTS OF ON-THE-SPOT CHECKS ARE AS FOLLOWS:

#24 Poly	a)	at manhole while jetting average 90 ppm range	32-230 ppm
	b)	over 4 minute period.	
	b)	at manhole-after jetting - during airing -	
		before man entered	26 ppm
	c)	during manual cleaning value decreased to 5 ppm	
		then rose to	42 ppm
	d)	drum being filled with cleanout - 2/3 full -	
		6" above drum	40 ppm
	e)	same drum - inside - 6" below top	75 ppm
#15 Poly	-	after jetting and airing out - after 3-4 hr.	
	-	delay in entering-off scale	>1000 ppm
	-	sample checked by chromatograph	1630 ppm

ITEM

RESULTS OF ON-THE-SPOT CHECKS - CONT.

- it was determined that hose length was inadequate to reach to outside air source and was "kinked" and throttled against inside wall (NOTE: additional hose now in use to correct problem).
- Vessel cleaner's clothes after emerging from inside above #15 poly 5-10 ppm

Additional 24-hour monitoring data will be obtained in the Centrifuge and bagging operating areas using the Wilks-Mira infrared analyzer.

The two Bacharach TLV "sniffers" are promised delivery the end of March. Delivery of a unit on loan basis has been delayed as unit is currently at Columbus Coated Fabrics whose plant is on strike.

The two portable Century Systems Flame Ionization Organic Vapor Analyzer are due by March 8, 1974.

IV-A-5 Program for monitoring PVC particulate matter needs to be established. Suggestion made to seek help from Environmental Lab at Naugatuck as problem and needed equipment is more complex than would seem at first glance.

IV-B Two Personal Sampler Analyzers are due March 6, 1974.
1 & 2 Two additional units ordered.

V-A Safety Department continuing to investigate "air conditioned" suits for use by vessel cleaners. W. M. Iliff to contact B. F. Goodrich to find out how they have resolved problem.

Universal Plastics at Painesville reportedly has used an atmosphere-supplied respirator for vessel cleaners for past three years. This is a Scott Air Line Breathing high pressure system feeding from a breathing type air compressor to a cascade cylinder system which provides reserve air supply. NOTE: Now found that this designed system was not put into use.

S. D. PLANT HAS

1. Discontinued opening polys while dropping unless poly has to be "rodded" while dropping.
2. Discontinued hosing down poly walls while dropping.
3. Conducted experiment to determine possibility of not cleaning between runs - initial tests indicate drastic adverse effect on gels - ratings increased from 5 to 7 to 9 to 11 in four successive runs where no cleaning was done (NOTE: After 4th run poly opened and jetted - gel count dropped to 8 minutes.)

To help reduce VC exposure, new type GAF basket type filters ordered to replace present string type filters in use for VC charging in Area I and recovered VC transfer from Area IV.

ITEM

Better method to evacuate polys and reduce VC concentrations in and around polymerizing vessels still needs to be worked out.

V-B A total of 300 NIOSH approved TC-23c-40 Comfo 11 Respirators have been ordered. In the meantime all available masks have been supplied to operating personnel.

Plastisol baggers are wearing masks while bagging.

V-C Available types of Breathing Air Supply has been investigated. Cost data is being obtained on an explosion-proof low-pressure 250 psi outdoor use type with an unlimited air supply which is made available by a small compressor. Each operator would be provided with their own mask.

C. J. U.
CJU
2/28/74

Page 5

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BRL

APPENDIX E

MONITORING EQUIPMENT

This appendix details the elements of monitoring equipment currently available to industry for the detection of vinyl chloride monomer (VCM) including their costs and availability. The appendix also reviews relevant material from the public hearings and lists the monitoring equipment purchased by VCM and polyvinyl chloride (PVC) producers. All exhibits appear sequentially at the end of the appendix.

1. A REVIEW OF THE TEMPORARY AND PROPOSED REGULATORY REQUIREMENTS FOR THE MONITORING OF VCM AND PVC PLANTS FOLLOWS

This section summarizes the monitoring required under the Emergency Temporary Standard for exposure to VCM (50 ppm) and the monitoring required under the proposed permanent standard (no-detectable limit).

(1) 50 ppm Emergency Temporary Standard (ETS) (1)

The ETS required that as soon as possible but not later than April 22, 1974, every employer of an employee working in an area or operation in which VCM is

- manufactured
- reacted
- handled
- processed
- released
- repacked
- stored

should begin monitoring the ambient air of the area to determine whether it contains VCM in concentrations in excess of 50 ppm.

(1) 29 CFR 1910, Occupational Safety and Health Standards, Emergency Temporary Standard for Exposure to VCM

E-1

The monitoring should be of the nature that a sufficient number of employees be monitored so that a representative sample of exposure to the gas may be determined.

- monitoring should be accomplished not less frequently than weekly until all results from three consecutive weeks are at a level below 50 ppm
- after achievement of the 50 ppm level, the monitoring should be conducted not less frequently than monthly as long as the concentration of VCM does not exceed 50 ppm
- if a monitoring sample reveals VCM in concentrations in excess of 50 ppm, weekly monitoring should be resumed until all monitoring results for three consecutive weeks are at or below 50 ppm

Monitoring should be accomplished through personnel monitoring by collecting samples by suitable device worn by the employee.

- the samples should be analyzed by gas chromatography or by any other method which is of equivalent sensitivity
- the analytical procedure shall be sensitive to 5 ppm of VCM in air with an accuracy of $\pm 20\%$ for a ten minute air sample

Employees working in an area of operation whose ambient air is monitored, or their representative, should be given a reasonable opportunity to observe the personal monitoring described by the emergency temporary standard.

Periodic tests should be conducted for equipment leaks and for emission of VCM which may result from work practices.

(2) Proposed Permanent "No-Detectable" VCM Level Standard (PPS) (1)

A program of monitoring would be required to establish whether there are detectable levels in regulated areas and to permit determination of employee exposures on an individual basis. A regulated area is where

- **VCM is**

- .. manufactured
- .. reacted
- .. released
- .. repackaged
- .. stored
- .. used

- **PVC capable of releasing detectable levels of VCM is**

- .. manufactured
- .. reacted
- .. released
- .. repackaged
- .. stored
- .. used

Provision is also made for an employee to observe monitoring by them or their designated representative. The monitoring will assume that any exposure may be determined for each authorized employee with a confidence level of 95%. An authorized employee is one

- whose duties require him to be in the regulated area and who has been specifically assigned by the employer

(1) 29 CFR 1910, Occupational Safety and Health Standards, Proposed Standard

- any employee who enters such an area as designated representative of employee to exercise an opportunity to observe monitoring and measuring of VCM

The PPS requires that monitoring be accomplished by a sampling and analytical method capable of detecting vinyl chloride at concentrations of 1 ppm with an accuracy of 1 ppm $\pm$ 50%.

The PPS is, in part, based on the NIOSH recommended Standard for VCM Exposure as transmitted to OSHA on March 11, 1974. The NIOSH recommendations are presented in their entirety in Appendix H.

2. SNELL PERFORMED AN INDEPENDENT SURVEY OF AVAILABLE MONITORING EQUIPMENT AND DETERMINED AVAILABILITY AND COSTS

Exhibit E-1 and E-2 present a summary of highlights of the testimony dealing with monitoring systems.

Exhibit E-3 presents the proposed NIOSH procedures for VCM monitoring.

Exhibit E-4 presents a summary of the Snell survey of VCM monitoring devices currently available; the survey sample included 9 manufacturers.

Exhibit E-5 presents a summary of the availability and costs of VCM monitoring devices.

Exhibit E-6 presents the results of the Snell interviews of VCM and PVC manufacturers relating to current monitoring procedures and equipment.