

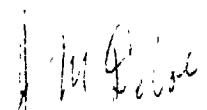
COMPANY CORRESPONDENCE

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39

TO DIV: Corporate
FROM DIV: Industrial Chemicals
LOCATION: Env. Svcs., SOL-1
W. C. F.
LOCATION: Mfg., DAB-G
ATT'N OF: Mr. W. S. Ferguson
SEP 9 1974
DATE: September 6, 1974
SUBJECT: VCM - HYGIENE
F

The status of VCM ambient monitoring and emission abatement program follows:

1. Ambient air sampling for vinyl chloride and EDC on a grid point basis continues. Limited personnel monitoring has been started using two Sipin pumps on loan to the Works. A separate report on sampling results (7/6/74-8/6/74) is attached.
2. The installation of protective masks in the loading area air supplied respirator system was completed. ✓
The unit will be pressure tested and placed in service ✓
the week of September 9, 1974.


J. M. DeVoe
Manager
Air & Water Control

LMF/lmh

cc: E. E. James
P. B. Cornell
R. J. Curtis
A. J. Lavine
J. M. Quinn
W. C. Koch
R. J. Nelepovitz
R. E. Gribben
B. E. Kurtz
A. J. von Frank

Attachment:

BATON ROUGE NORTH WORKS

AMBIENT AIR AND PERSONNEL MONITORING

VCI MONOMER

7/6/74 - 8/6/74

August 16, 1974

ASI 00004534

AMBIENT AIR AND PERSONNEL MONITORING FOR VCL MONOMER

I. GENERAL

The purpose of these tests was to determine general exposure of vinyl chloride in the ambient air at varying plant operating conditions and to determine the exposure of vinyl chloride to various persons working in the VCM Complex.

II. CONCLUSIONS FROM VINYL TESTING

- A. Personnel monitoring for the VCM loaders showed the greatest exposure of the sections tested. The highest concentration determined was 7.9 ppm for a 1-3/4 hour sample.
- B. Personnel monitoring for maintenance, operation, supervision, laboratory and technical had concentrations of 0.3 ppm or less VCl.
- C. The maximum concentration for a one-hour mobile grid bag sample was found to be 29.9 ppm. The analyst carrying the bag stood with a VCM operator while he ran a routine test with VCl.
- D. In the stationary grid studies, using the Bendix pump with activated carbon, the highest concentration of vinyl chloride was 4.8 ppm in Grid-15. The pump was placed on the bank of the ditch where the lights condensate runs into the caustic/chlorine stream. However, the lights condensate was moved to the EDC sump in Grid-9 and the concentration of VCl was found to be 0.2 ppm.
- E. The grab samples taken with the Bendix Corporation representative, on contract with NOISH, showed the greatest concentration of vinyl in the scrubber area (Grid-7). This concentration was found to be 0.8 ppm.

III. ANALYSIS

A. Sampling Equipment

1) Two types of sampling equipment were used.

- a. Six liter Anspec plastic bags were connected to the positive side of a MSA model S personnel monitoring pump. A continuous one-hour sample was taken in various grids in the VCM Complex at a rate of .15 cu. ft/hr. The sampler was continuously walking around all portions of the grid.
- b. A MSA model G pump and a Bendix, type C110, personnel pump was used to run personnel monitoring and 4 to 8 hour stationary grid studies by carbon desorption.

B. Chromatograph

- 1) All samples were run on a Model 2200 Bendix Chromatograph using a hydrogen flame ionization detector.
- 2) Two columns used for the testing were as follows:
 - a. 1/8" x 21' SS column of 25% Pluronic P-84 on chromosorb P 60/80 mesh.
 - b. 1/8" x 20' SS column with 10% FFAP stationary phase on 80/100 mesh acid washed DNCS chromosorb W solid support. (NIOSH column).

The majority of the samples were analyzed on the 10% FFAP columns since it had the least tendency to bleed and kept a steady base line.

3) Operating conditions

- a. Oven temperature - 100°C
- b. Injection port temperature - 200°C
- c. Detector temperature - 150°C
- d. Helium flow 80 ml per minute

C. Gas Sampling

- 1) All samples were removed from either glass bombs or bags through rubber septums using a 2½ ml Hamilton gas tight sampling syringe.

D. Carbon Desorption Sampling

- 1) Two personnel monitoring pumps with activated carbon were desorbed in carbon disulfide with 5 ml being injected into the gas chromatograph. Two volumes of CS₂ were used as follows:
 - a. The MSA model G pump used 10 ml of CS₂/10g carbon
 - b. The Bendix, type C110, used 25 ml of CS₂/25g carbon

E. Standardization

- 1) Standardization was made by using two standards prepared by Gas Analytical Services, Department of Airco Industrial Gases, Baton Rouge, La. One standard contained 40.5 ppm (V/V) of vinyl chloride in nitrogen, the other cylinder contained 1.5 ppm (V/V) vinyl chloride in nitrogen.

F. Detection Limits

At present we are using a 2 ml gas sample and are able to detect a peak size of 50 ppb. When carbon adsorption tubes are used, a large volume of air is pulled through the tube and the vinyl chloride present in the air is adsorbed by the carbon. For example, a 1 liter per minute sample

*Sampled by hand,
recovered 200*

rate over a 3½ hr. period will pull a total volume of 210 liters of air. When the carbon is treated to remove the vinyl chloride, only 10 or 25 ml of carbon disulfide is used in the analysis. This results in a much higher concentration of vinyl chloride in the carbon disulfide than was present in the original air. The peak area and concentration of the vinyl chloride in the carbon disulfide is calculated and then divided by the total volume of air pulled through the sample. It is not unusual to be dividing by factor in the 1,000,000 range. Therefore, it is possible to report actual exposures in the parts per trillion range even though our detection limit in only air is 50 ppb.

IV. A. Personnel Monitoring - VCM Employees

See Attachment A.

B. Ambient Air Monitoring - VCM Grids

1. One-hour bag samples were taken within various grids in the VCM Complex. An analyst moved around within a grid as to get a complete ambient air quality for VCl.

	<u>Area</u>	<u>Date</u>	<u>ppm VCl</u>
a.	Grid #1	7/24/74	0.6
b.	Grid #2	7/24/74	0.1
* c.	Grid #3	8/6/74	29.9

* The analyst carrying the bag stood with an operator running a routine test with VCl.

2. A Bendix, Type C110, monitoring pump was placed in a grid for four to eight hours. The sample was run for VCl by carbon desorption with CS₂.

	<u>Location</u>	<u>Date</u>	<u>Hrs. Sampled</u>	<u>ppm VCl</u>
a.	Grid-15 (Bank of ditch where lights run into Cs/Cl ₂ ditch)	7/30/74	7 1.8	4.8
b.	Grid-17 (~20' downwind of Neut. Pond)	8/1/74	7 1.07	0.07
c.	Grid-14 (Downwind of cracking furnace)	8/2/74	8 0.7	0.7
d.	Grid-9 (Downwind of sump with lights rerouted to sump outfall)	8/5/74	4 0.2	0.2

3. Evacuated glass collection tubes were used to take samples with a representative from Bendix Corporation under contract with NIOSH. These samples were all grabs taken 8/7/74 between 10:45 and 11:15 a.m. The wind was from the south at 8 mph.

<u>Location</u>	<u>ppm VCl</u>
a. VCM control room - Grid 5	0.7
b. East of vinyl column in purification Grid 6	0.2
c. West of vinyl column in purification Grid 10	<50 ppb
d. North of cracking furnace - Grid 13	0.3
e. North of scrubbers - Grid 7	0.8
f. Under west VCl sphere - Grid 8	0.1
g. Loading area, foot of north stairs Grid 18	<50 ppb

4. Weater Data - Ambient Air

<u>Date</u>	<u>Time Began</u>	<u>Time Stopped</u>	<u>Wind Direction</u>	<u>Wind Speed</u>	<u>°F Temperature</u>
7/24/74	8:30 am	10:30 am	NW	4 - 6	80
7/30	8:30 am	3:30 pm	WNW*	6 - 20	78°
8/1	7:30 am	2:30 pm	W	0 - 1	92°
8/2	6:30 am	2:30 pm	W-NW	0 - 5	92°
8/5	10:00 am	2:00 pm	NE	10	86°

* Switched to NE

5. Attachment B (Showing location of VCM Complex Grids)

ATTACHMENT APERSONNEL MONITORING - VCM EMPLOYEES

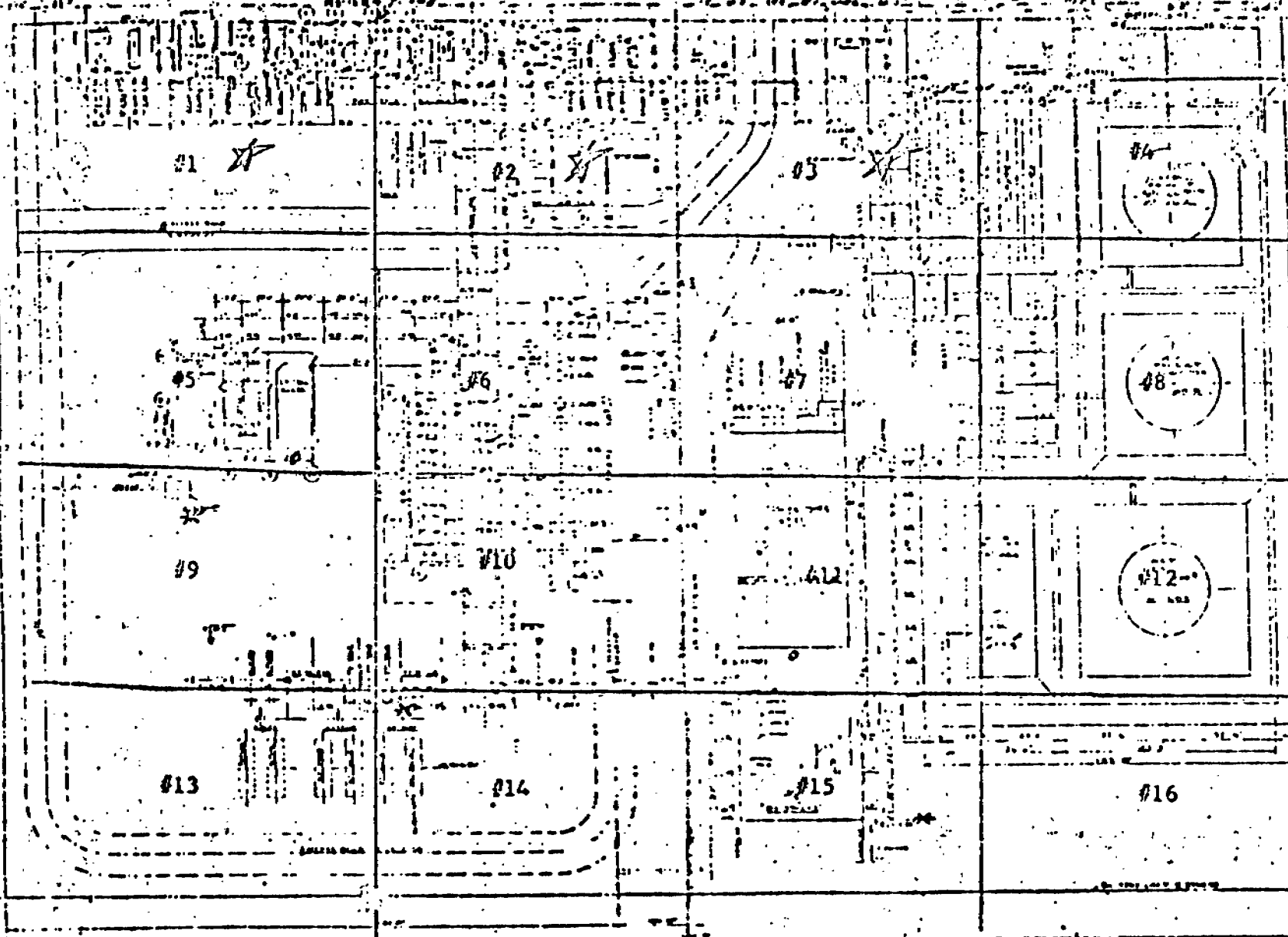
Employee	Section	Date 1974	Flow Rate /Min.	Hours Exposed	ppm VCl
1. Fred Raiford	Loader	7/11	1	4	0.00008
2. E. D. Abhrams	Outside Operator	7/11	2	1½	0.00007
*3. Howard Wright	Loader	7/12	2	1-3/4	7.9
4. Joseph McLin	Panel Board Operator	7/12	1	4	0.008
5. Randolph Shaffer	Outside Operator	7/15	1	4	0.01
6. Murphy Chustz	Loader	7/15	2	4	1.4
7. M. C. Roe	Special Maintenance	7/16	2	3½	0.2
8. Jack Alford	Special Maintenance	7/16	1	3½	0.03
9. Tommy Lebeau	VCM Foreman	7/17	2	3½	0.2
10. Henry Piper	Utility Operator	7/17	1	3½	0.03
11. R. Comeaux	General Maintenance	7/18	2	3½	0.03
12. C. R. Powell	General Maintenance	7/18	1	3½	0.02
13. J. D. Gordon	VCM Lab	7/22	2	4	0.2
14. D. Green	VCM Lab Field Man	7/23	2	4	0.3
15. Gerald Ganey	VCM-Technical	8/1	2	4	0.0001

All samples were taken on the 6-2 shift.

* Turned pump off after 1-3/4 hours.

Weather Data

Date	Time Began	Time Stopped	Wind Direction	Wind Speed	Temp. °F
7/11/74	6:05 AM	10:05 AM	W-NW	0-3	83
7/12/74	7:00 AM	8:45 AM	W-NW	0-7	83
7/15/74	7:00 AM	11:00 AM	E-NE	3	85
7/16/74	7:00 AM	11:00 AM	E-NE	4	85
7/17/74	7:00 AM	10:30 AM	E-NE	4	85
7/18/74	7:00 AM	10:30 AM	E	6-8	85
7/22/74	10:00 AM	2:00 PM	NW	6-8	85
7/23/74	7:00 AM	11:00 AM	NW	4-6	85
8/1/74	8:30 AM	12:30 PM	W	0-1	82



★ Stationary grids using Bendix Pump.

★ Mobile bag sample in grid (one hour).

Neutralization
Ponds #17