

Interoffice Communication

To G. A. O'Brien
From R. H. Gerlach
Date July 12, 1974
Subject VCM Ship Loading Data

Attached are two reports by Paul Fetzer summarizing the results of the ambient air sampling conducted during the loading of the Hoegh Shield on June 13, 14 and 15 and the Irene on June 21, 22 and 23.

Heel and finished cargo sampling still are the main problem areas, and we are continuing to try to tighten up the system. The dock vent recovery unit was not operated during the Irene loading. The ship's refrigeration unit and vent were used instead. We have contacted the ship owners and requested that piping modifications be made to their ships which will permit operation of their vent recovery in series with ours.

RH Gerlach
R. H. Gerlach

is
Enc
CC + enc:
REL-LNV-DVP

VVC 000002380

Interoffice Communication

To R. H. Gerlach
From P. L. Fetzer
Date July 3, 1974
Subject Ship Loading Data - Irene - June 21, 22, and 23, 1974

The intensive sampling program used on the two previous ships, Alpha Gas and Hoegh Shield, was reduced. Only one Century instrument was used to gather data throughout the loading. Charcoal dosimeter data was obtained for each operational step throughout the loading sequence. Three partial downwind grids were taken during the loading operation. This program required two men per 12-hour shift instead of four and does not sacrifice any pertinent information. On future ship loadings I would recommend this reduced sampling operation for monitoring purposes.

All the analytical data pertaining to the loading of the Irene are shown in the attached tables.

The main source of vinyl emission during the loading operation, excluding the vent stack, appears to be during sampling. Five additional 2-liter sample cylinders have been ordered with a 2-week delivery. Additional valves have been ordered to replace those on the one liter sample cylinders. These items should be available for the next ship loading around July 15.

P. L. Fetzer
P. L. Fetzer

is
Enc

VVC 000002381

SUMMARY OF RESULTS

Ireme Loading - June 22 - 23

Loading Line Flange
Removal:

Century reading went to 50 ppm momentarily then dropped to background reading of 7. The personnel data from the charcoal dosimeter only showed 3.03 ppm TWA for 0.20 hr.

Heel Samples:

Century readings were high, up to 1,000 ppm. Sample cylinders had leaking valves and the eductor system was again back pressured. To obtain the heel samples, the loading was shut down. The sampling system also leaked badly. The charcoal dosimeter result for the operation was 69.1 ppm VCM.

Hydroquinone Addition:

No change from the background reading on the Century instrument was observed during the hydroquinone addition operation. However, a 10" valve at the hydroquinone station leaked very badly around the packing which was pulled down tight. The charcoal dosimeter result showed 10.7 ppm VCM during the entire hydroquinone addition procedure.

Ship Loadings:

Three partial grids were completed during the ship loading (Table II). The vent recovery unit was not operated during the ship loading as the ship's refrigeration and vent system was used. Century readings were generally below 40 ppm. Occasionally the readings would reach 70 ppm; once reaching 1,700 ppm. Most of these higher readings were near the base of the dock and hydroquinone station. Roadway samples from both the Century and glass bomb samples showed VCM at grid points 36 through 44.

Charcoal dosimeter results for the dockman near the dock shack were 6.4, 3.3, and 1.8 ppm VCM.

Finish Cargo Sampling:

Century readings ranged between 30 and 700 ppm mainly due to leaking valves. A new type of bomb valve has been ordered for replacement. The vent vacuum hose connection to the sampling system leaked several times during the sampling operation.

VVC 000002382

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Loading and Vent Line
Flange Insertion:

Century readings showed most readings
below 40 ppm. Column made operation showed
immediately after hose disconnect showed an
estimated 52 ppm VCM.

VVC 000002383

TABLE I
PERSONNEL EXPOSURE
IRENE LOADING - JUNE 21, 22, AND 23, 1974

<u>Job</u>	<u>Position</u>	<u>Time Interval Hr.</u>	<u>TWA - ppm VCM (a) From Dosimeters</u>
Unblinding Hose Flanges	Dockman	0.20	3.03
VCM Heel Samples	Shift Foreman	2.75	69.11
Hydroquinone Addition	Dockman	1.50	10.71
Ship Loading	Dockman (b)	5.33	6.43
	Dockman (b)	3.83	3.30
	Dockman (b)	5.68	1.80
Finish Cargo Sampling	Manufacturing Chemist	2.55	5.55(c)
Hose Flange Blinding	Dockman	0.267	5.73
	Dockman	0.267	7.45

- (a) All employees protected with fresh air equipment.
(b) Dock Area
(c) Not protected with fresh air mask.

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TABLE III
GLASS BOMB SAMPLES FOR PARTICULAR JOBS

<u>Job</u>	<u>ppm VCM</u>
Sample of vent line going to our vent stack	96,806
20' North of guard shack at gate	1.8
Finish samples #2 Starboard	8.9

VVC 000002385

TABLE II

GRID RESULTSSEE ATTACHED PLOT FOR GRID POINT LOCATIONS

<u>Grid Point</u>	<u>Set I</u>		<u>Set II</u>		<u>Set III</u>	
	<u>THC</u>	<u>Bomb</u>	<u>THC</u>	<u>Bomb</u>	<u>THC</u>	<u>Bomb</u>
1			15		13	
2	1700	1043	15		30-40	12.3
3			20-33		30	
4			13-30		30	
5			25	278	30	
6			30-70		28	
7	10		15		18	
8	9		15-20		15	
9	9		14		18	
10			12			
11						
12						
13						
14			14		15	
15			15		15	
16			12		10	
17			11			
18			11			
19			20-70	35.1	27	
20			13-17		13	
21			10	39.9		
22			9			
23			10			
24						
25	9	2.2	9	5.4		
26						
27						
28						
29			11			
30			11	19.6		
31						
32			18-30	16.2		27.7
33						
34						
35	10	6.1				
36						
37						
38						
39						
40						
41	9	4.2				
42	15-22	7.5				
43	12-20	3.7				
44	10-22	8.5				
45						
46			14	3.5	18	5.8

VVC 000002386



Interoffice Communication

To R. H. Gerlach
From P. L. Fetzer
Date July 3, 1974
Subject VCM Ship Loading Data - Hoegh Shield 6-13, 14-1974

The same comprehensive sampling program used on the Alpha Gas 5-31, 6-1 was repeated on the Hoegh Shield Loading. Additional man power to sustain the program was supplied by the Lake Charles Refinery and Ponca City R & D, one man from each.

This loading was monitored randomly, eight times, by the OSHA inspector, Mr. Steve Herrin. Concurrent charcoal dosimeters samplings were made for seven of the eight samples. Our dosimeter results are shown in Table IV and chronologically in Table I.

All analytical data has been compiled excluding comparative Sippin pump samples. Method development work is underway and these samples may be completed by the end of the month.

A summary of the entire ship loading operation is attached with all pertinent data. Improvement in the hydroquinone addition operation through the recent apparatus modification essentially eliminates this operation as a vinyl emission source. Improvement was also noted in the vinyl chloride readings while using the two liter sample cylinders. Five additional cylinders will be ordered. These new sample cylinders will reduce both sampling time and potential personnel exposure.

Comparison of results from the previous loading of the Hoegh Shield (May 2, 1974) shows dramatic improvement in all areas of the loading operation.

P. L. Fetzer
P. L. Fetzer
Chief Chemist

bw

VVC 000002387

SUMMARY OF RESULTS
Hoegh Shield Loading 6-13, 14-1974

Removing flanges

Readings in excess of 1% were obtained when attempting to remove the flange in the liquid loading line. Liquid vinyl chloride had remained in the spool piece even though the system had been pressured and evacuated ten times. The liquid was finally drained through the vent line on the bottom of the spool piece (This procedure should be adopted as a first step on the next ship). Repeating the purging steps kept the vinyl readings by the Century instruments below 50 ppm. Personnel dosimeter results were 73.5, 55.2 and 28.1. These high values are due to the liquid vinyl chloride that remained in the spool piece after the initial purging operations were completed.

Heel Samples

Century readings varied between 18 to 1000 ppm. The higher readings were obtained near the vent hose connection on the sampling apparatus. Normally, the readings remained low in the breathing zones. Glass bomb sample data, Table III, and charcoal dosimeter data verifies the findings.

Hydroquinone Addition

The modified hydroquinone addition system worked quite well. Century readings were below 35 ppm during the entire procedure. Glass bomb sample data, Table III, verified these readings. Packing glands on the block valves in the hydroquinone addition area leaked slightly. Personnel dosimeter data also showed low results during the hydroquinone addition operation, Table I.

Ship Loading

Both Century instruments were used to monitor the dock area during loading operations. Six area grids profiles were taken (Table II) periodically throughout the loading. During loading, the wind remained quite calm. Occasionally, high readings were obtained for a few seconds at grid points 2 thru 9. This may account for the higher personnel dosimeter results (Table I) obtained during the loading of this ship as compared to previous ship (Alpha Gas dosimeter results during loading were below 2.0 ppm).

Finish Cargo Sampling

Using the new two liter sample bomb resulted in only background reading, 14 ppm, on Century instrument. Glass bomb sample showed 3 ppm. Generally low readings were obtained while disconnecting the bombs. Once

VVC 000002388

however, the eductor apparently was back pressure from the stack and Century readings increased to 300 ppm while disconnecting the sample cylinder. Gage taps on the ship were leaking and resulted in high readings, 100 ppm, several feet down wind. Glass bomb sampling also showed the vinyl chloride (32 ppm).

Loading Hose Disconnecter
and Flange Insertion

Century readings ranged to 110 ppm in the breathing zone while disconnecting the vapor line ship connection. Glass bomb samples showed relatively high results on vapor line disconnecting (101, 205). Century readings taken while disconnecting the liquid loading lines remained below 30 ppm. The lower readings were verified by glass bomb sample analyses (8, 6 ppm).

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TABLE I

Personnel Exposure - Hoegh Shield - June 13, 14, 1974

<u>JOB</u>	<u>POSITION</u>	<u>TIME INTERVAL (hr)</u>	<u>TWA - ppm VCM from Dosimeters</u>
Removing Flanges	Dockman	.416	.48(b)
	Dockman	.416	73.46
	Dockman	.416	55.21
	Chief Chemist	.334	28.84(c)
Heel Sampling	Shift Foreman	.867	3.67
	Manufacturing Chemist	.167	.9
	Shift Foreman	.25	10.81
Hydroquinone Addition	Dockman	.833	1.98
	Manufacturing Chemist	.167	3.13
Loading	Dockman (d)	4.00	.18
	Dockman (d)	4.85	.05
	Dockman (d)	4.22	.69
	Dockman (e)	4.33	9.47
	Dockman (d)	4.25	8.2
	Dockman (e)	2.50	14.81
	Dockman (e)	4.22	7.87
	Dockman (d)	4.00	2.83
	Guard(o)	.334	1.44
	Dockman (f) & (o)	.334	3.00
	Dockman (e) & (o)	.334	8.28
	Dockman (d)	4.08	7.64
	Dockman (e)	3.77	12.58
	Dockman (e)	3.92	14.90
	Dockman (d)	3.87	6.19
	Dockman (d)	5.30	.83
	Dockman (e)	3.07	4.34
	Dockman (f) & (o)	.334	5.49
	Dockman (e) & (o)	.334	11.55
	Dockman (d) & (o)	.334	1.87
	Dockman (e)	.917	9.01
Finish Sampling Hose Flange Blinding	Shift Foreman	1.10	7.75
	Dockman	2.12	2.39
	Dockman	1.13	1.11
	dockman (o)	.423	4.11

- (a) Personnel protected with fresh air mask
 (b) Dosimeter pump not turned on
 (c) Not wearing fresh air mask
 (d) Dockhand working in dock shack
 (e) Dockhand working in vent recovery unit
 (f) Dockhand on #2 dock
 (o) Concurrent OSHA Sampling

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TABLE II
GRID RESULTS
(See attached plot for
Grid point locations)

Point No on Grid	Set I 6-13-74		Set II 6-14-74		Set III 6-14-74		Set IV 6-14-74		Set V 6-14-74	
	THC	Bomb(a)	THC	Bomb(a)	THC	Bomb(a)	THC	Bomb(a)	THC	Bomb(a)
1	11		13		30	3.7	9		12	
2	11		13		16		9		10	
3	11		16		19		9		20-500	675
4	9		15		50-70	27	9		10-100	
5	9		15		25	6	8		10	
6	10	4.2	50-60	22	35-40	9	20	Tr	10-50	Nil
7	9		14	10	50-100	7	20-30		8	
8	9		14		20-50		12	411	10	
9	9		17		15		8		10	
10	8		16		16		7		10	
11	8		14		18		8		10	
12	8		14		25		8			
13	7		14		13		8			
14	10		15		40	4	15		10	
15	8		20	2	15		10		8	
16	8		18		16		9		8	
17	8		20		15		9		8	
18	8		18	2	15		8		8-10	
19	12	3.97	15		17		8		12	Tr
20	8		14		18		7		8	
21	8		13				8		10	
22	8		30-40				8		8	
23	8						8		8	
24	8						8		8	
25	8	4.2					8		8	Tr
26	8						7		8	
27	8						8		8	
28	8						8		8	
29	8						7		7	
30	-						7		-	
31	-						8		-	
32	7						-		7	
33	7						8		8	
34	7						7		-	
35	7	2.8	14	7			8		8	
36	7		4	3					8	
37	7								8-10	Tr
38	7								8-10	
39	7								8	
40	7								8	
41	7		5-30	4					8	
42	7		5						8	
43	7		14						8	
44			14	6					8	
45			13							
46			15	4	15	3	9			
	clear 85-90		Partly cloudy		clear 65-70		clear 65-70		clear 85-90	
	S-SW (5-10)		65-70 Variable (W NE)		N-NE 0-5		N-NE 0-5		N-NE 0-5	
			0-5							

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TABLE II
Continued

SET VI		
6-14-74		
	THC	Bomb (a)
1	15	13
2	15	
3	13	8
4	12	
5	13	
6	35	7
7	15	
8	15	
9		
10		
11		
12		
13		
14	30	
15	18	
16	20	
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35	18	
36	100	
37		
38		
39	30-100	38
40		
41	12	
42	10	14
43		
44		
45		
46	15	
clear 70-75		
S SW 0-5		

(a) Glass bomb samples taken and analyzed
in plant lab for ppm VCM.

VVC 000002392

TABLE III

Results of Glass Bomb Samples Taken During Execution of Particular Jobs

<u>HEEL SAMPLING</u>	<u>HYDROQUINONE ADDITION</u>	<u>FINISH SAMPLE</u>	<u>INSTALLING LOADING LINE BLINDS</u>
12	8	2	101 ^a
19	12	32	8
11	34	3	6
8			205 ^a

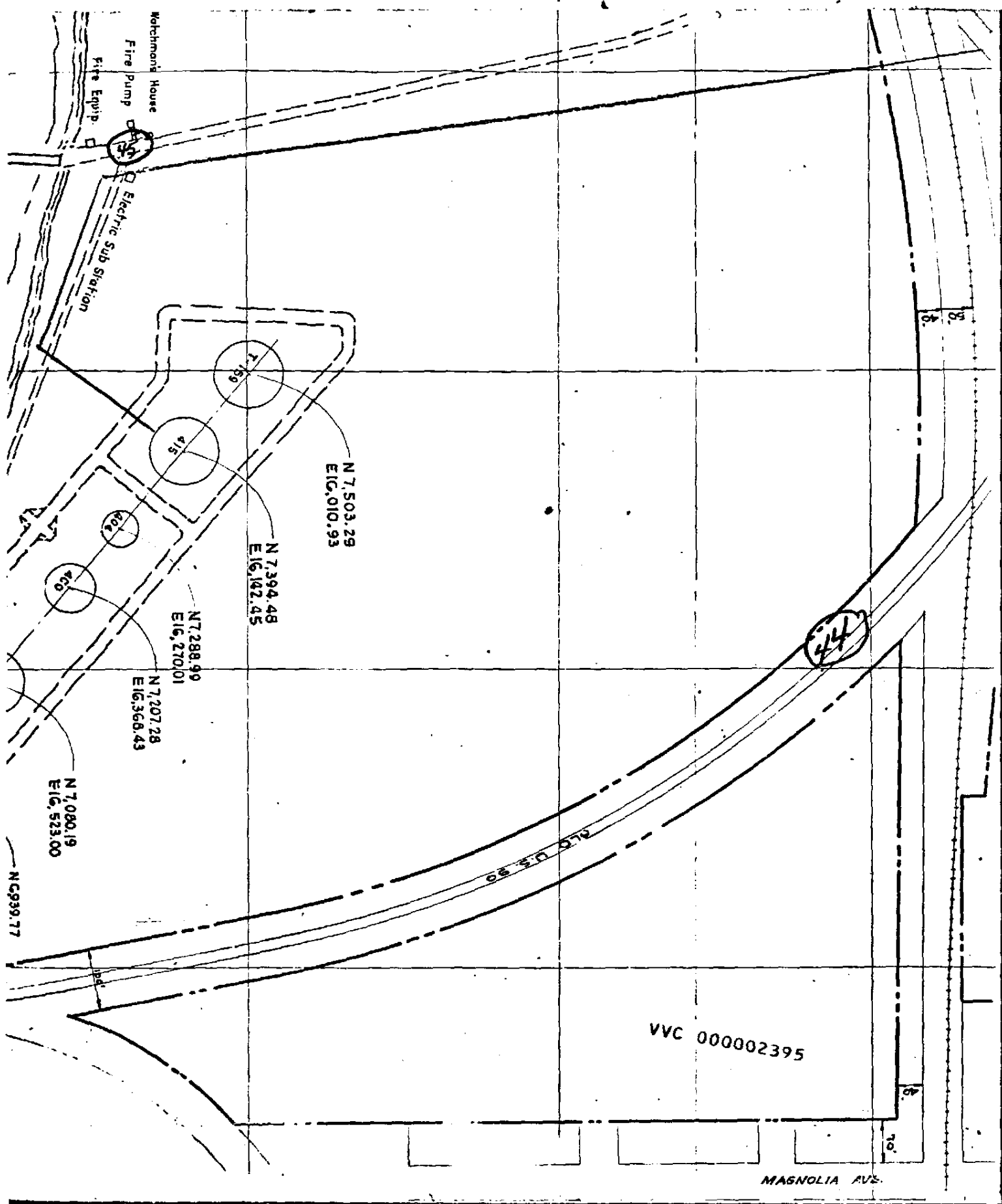
(a) vapor vent line

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TABLE IV
OSHA DATA

<u>DATE</u>	<u>NAME</u>	<u>LOCATION</u>	<u>TIME(Hr)</u>	<u>VCM(ppm)</u>
6-14-74	Busby, E. M.	Guard Shack	.333	1.44
6-14-74	Davenport, D.	Dock #2	.334	3.00
6-14-74	Johnson, A. J., Jr.	Vent Recovery	.334	8.28
6-14-74	Johnson, A. J., Jr.	Dock #2	.334	5.49
6-14-74	Brester, B. R.	Vent Recovery	.334	11.55
6-14-74	Pousson, L. B.	Dock Area	.334	1.87
6-14-74	Coffman, A. B.	Flange Disconnect	.423	4.11

VVC 000002394



Interoffice Communication

To All VCM Plant Employees

From C. E. Gremillion

Date July 10, 1974

Subject VCM Air Sampling

Continuation of the VCM Air Sampling using the Personal Monitoring Devices will resume. The schedule for July, 1974 is attached.

The schedule has been prepared with the name and/or the occupation of the employee to be monitored. Each employee should review the schedule and report to the lab to wear the personnel monitors on the date, time and shift assigned. You will not be contacted.

The same procedures specified in the earlier personnel monitor wearing instructions shall still apply.

Please direct any questions or comments to the undersigned.



C. E. Gremillion
Safety Director

bw

Distribution:
Supervisors
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