

RDP



Interoffice Communication

Copy
O'Brien 9/20/74
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To J. H. McCulley, Jr.
From P. L. Fetzer
Date September 11, 1974
Subject Ambient Air Analysis - Irene Loading 8-25,26,28,29

The loading of the Irene was interrupted and stopped on August 26 by the Coast Guard as the safety certificate for the Irene had expired. Loading of the Irene resumed on August 28.

Complete monitoring was conducted on the Irene loading August 25,26,28,29. This included Century total hydrocarbon analysis and personnel dosimeter testing on all phases of the loading operation with one exception; testing around the flange removal prior to loading was not done. Four area grid surveys were attempted with occasional glass bomb sampling for laboratory analysis. Column mode operation of the Century instrument was done whenever a high total hydrocarbon reading was observed.

Piping connected with the recovery unit aboard the Irene was motified so that their system could be operated in series with our unit. Supposedly, the vent from their system would pass through our recovery unit. High readings on the dock area, greater than 50 ppm, were observed the evening of August 28. The vent line valve on the dock was closed causing the ship to vent through their stock. It is believed that this caused the high readings on the dock area as the readings returned to normal, less than 20 ppm, when the valve was opened.

Pressure did not build on our recovery unit to the extent that our unit operated. Either the pressure did not build so that the unit could run or the unit was by-passed entirely and the gas was vented directly. Perhaps an engineer should be present at the next loading of the Irene to resolve this question.

The hydroquinone addition procedure may need more attention. High total hydrocarbon readings, > 1.0%, were observed whenever the top ball valve was opened to add the next bag of hydroquinone. Reevaluation of our purging procedure should be made to determine if undesirable shortcuts are being taken.

The leak near the base of the dock in the nitrogen inductor vent line was repaired satisfactorily as no vinyl emission was found during the hydroquinone addition step as was experienced on earlier shipment.

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AMBIENT AIR ANALYSIS

Considerable difficult was experienced during the sampling of the heels due to a lack of pressure on the tanks to force the material through the sample apparatus.

A summary of the loading operation with all pertinent data is attached.

P. L. Fetzer

P. L. Fetzer

bc

CC: RDG, JAD
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VVC 000002285

SUMMARY OF RESULTS

IRENE LOADING AUGUST 25, 26, 28, 29

CONNECTING LIQUID and VAPOR LINES

Century hydrocarbon readings remained below 15. Personnel dosimeter result verified the lack of vinyl emission as it was 0.41 ppm.

REMOVING FLANGES

Not sampled.

HEEL SAMPLING

Considerable difficulty was experienced in sampling due to a lack pressure on the tank. Century hydrocarbon readings were low during the sampling period. Leaking did occur around the nitrogen eductor vent hose connection, reaching 1000 ppm. Charcoal dosimeter result, 1.62 ppm, also indicated low exposure levels.

HYDROQUINONE ADDITION

Century hydrocarbon readings exceed 1.0% whenever the top ball valve was opened to add the next bag of hydroquinone. This occurs even after the middle chamber is partially evacuated using the eductor system. Dosimeter result obtained during this operation was 3.11 ppm.

LOADING OPERATION

The piping associated with the ship's vent recovering unit was modified so that it would be possible to use it in series with our vent recovery unit. High total hydrocarbon readings were obtained on the dock area, up to 1000 ppm. The vent line was blocked at the dock side valve causing the ship to vent through their vent stack. It is believed that this caused the high readings on the dock near the ship. Dock personnel were exposed to vinyl emissions greater than 50 ppm as evidenced by the dosimeter result of 52.5 ppm. Once the valve was open the hydrocarbon readings dropped below 20 ppm and the personnel dosimeter results remained below 3.0 ppm for the remainder of the loading operation.

Our vent recovery unit did not operate during the loading either due to low pressure on the vent line or being completely bypassed permitting the vinyl to vent directly to the atmosphere through the vent stack.

VVC 000002286

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SUMMARY OF RESULTS

FINISHED CARGO
SAMPLING

Century hydrocarbon readings indicated some problem in disconnecting the sample cylinder as the reading reached 500 ppm at times. This emission was verified by the personnel dosimeter result of 28.8 ppm vinyl chloride. Other leaks were located around the top of the cargo holes where the readings exceeded 300 ppm.

HOSE DISCONNECTION

Century hydrocarbon readings reached 20 ppm during the vapor line disconnect and ranged between 20 and 1000 ppm for the liquid line disconnect aboard ship. Both the liquid line and flange insertion hydrocarbon readings remained below 30 ppm on dockside. Personnel dosimeter data for this operation showed 21.1 ppm VCM.

VVC 000002287

TABLE I

PERSONNEL EXPOSURE
IRENE LOADING 8-25,26,28,29

<u>JOB</u>	<u>POSITION</u>	<u>TIME INTERVAL</u> <u>HR.</u>	<u>TWA PPM VCM</u> <u>FROM DOSIMETERS</u>
Hose Connection	Dockman	0.42	0.41 *
Heel Sampling	Shift Foreman	1.82	1.62 *
Hydroquinone Addition	Dockman	1.98	3.11 *
Loading	Dockman (A)	2.42	0.25
	Dockman (A) (1)	2.50	0.13
	Dockman (A) (2)	3.58	52.53
	Dockman (A)	2.17	0.54
	Dockman (A)	1.63	15.02 *
	Dockman (A)	2.43	1.42 *(3)
	Dockman (A)	2.35	0.02 *
	Dockman (A)	3.05	1.64 *
	Dockman (A)	1.80	2.85 *
Finish Cargo Sampling	Shift Foreman	1.33	28.77 *
Hose Disconnect and Flange Insertion	Dockman	1.08	21.12 *

* Protected with Fresh Air Equipment

(A) Dock Shack

(1) Stopped loading on 8-26-74 for Coast Guard inspection of ship.

(2) Resumed loading on 8-28-74

(3) Valve on the vent line was opened prior to this sampling.

VVC 000002288

TABLE II

GRID RESULTS
(SEE ATTACHED PLOT FOR GRID POINTS LOCATIONS)

GRID POINT	Set I 8-26-74		Set II 8-28-74		Set III 8-29-74		Set IV 8-29-74	
	<u>Century Total Hydrocarbon</u>	<u>Glass Bomb</u>	<u>Century Total Hydrocarbon</u>	<u>Glass Bomb</u>	<u>Century Total Hydrocarbon</u>	<u>Glass Bomb</u>	<u>Century Total Hydrocarbon</u>	<u>Glass Bomb</u>
1	20	1.4	11		12			
2	9-11		9		12			
3	8-10		10-2000		12			
4	9-10		8		12			
5	9 (A)	0.8	8		15		15	3.4
6			8		70 *	3	11	
7			8		18		9	
8			8		10		7	
9			7		10		7	1.3
10			9		10			
11			9		10			
12			9		10			
13			9		12			
14			14		70 *	9	10-20	
15			25-150*		25 *		9	2.2
16			250 *		13		9	
17			18		12		8	
18			17		13		8	
19			17-20		10		6	
20			9		12		6	
21			9		10		7	
22			9		18	5	7	
23			9		25		7	
24			9				7	
25			9		30 *	8	9	2.5
26			9		18			
27			8				7-10	
28			8				6	
29					70	9	5	
30							6	
31					20			
32					12		5	
33					15			
35					8		5	2.2
36					12		6	
37					11			
38					10			
39					8			
40					8			
41					9		6	
42					10	TR	6	
43					10		5	1.4
44					8		5	
46			7-110 *		22		7	2.5

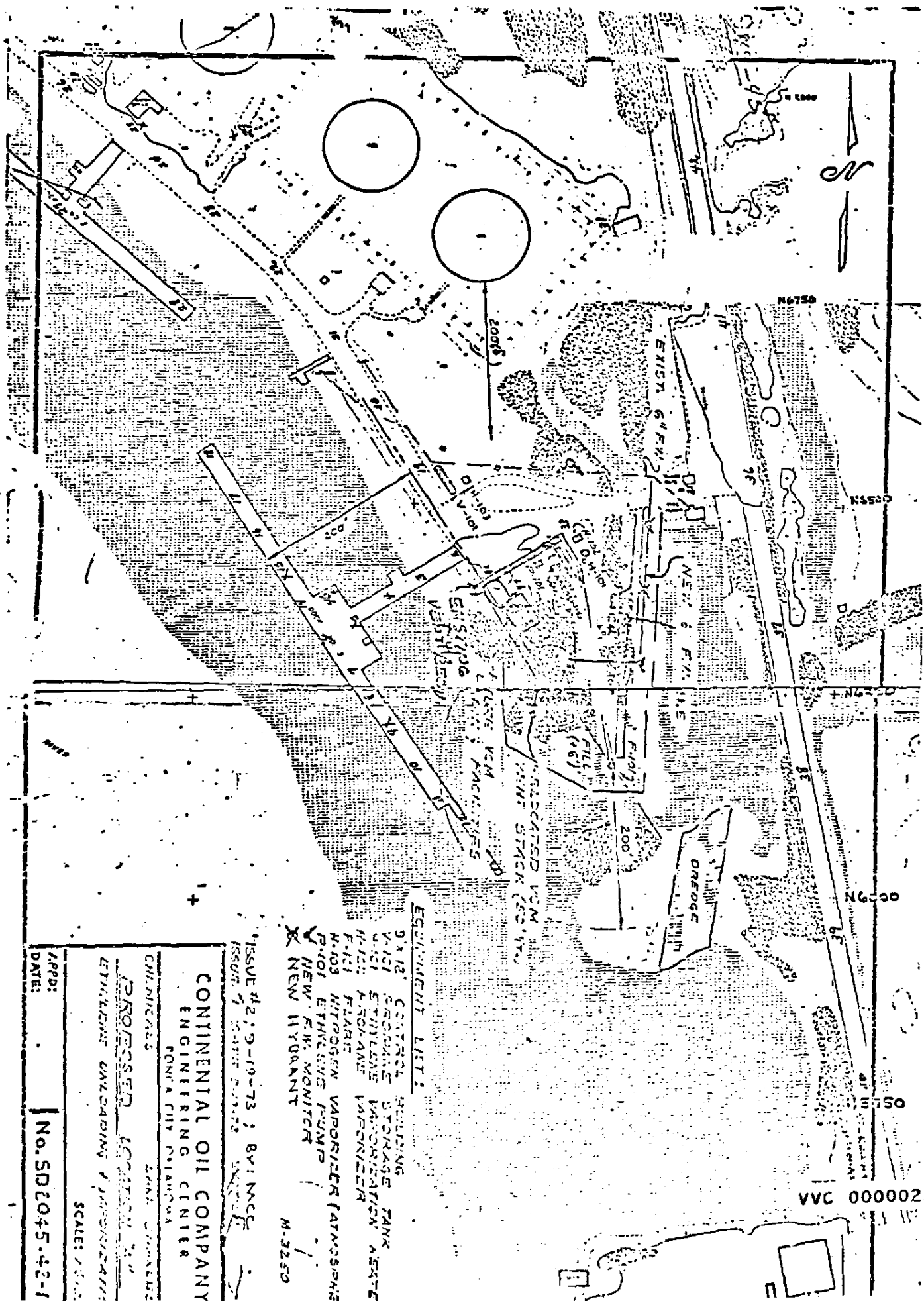
TABLE II CONT.

	<u>SET I</u>	<u>SET II</u>	<u>SET III</u>	<u>SET IV</u>
Wind Direction	S SE	SE	SW	SW
Wind Speed	5	5	5	5-15
Cloud Cover	----	Partly Cloudy	Cloudy	Partly Cloudy
Temperature	----	65-75°F	65	80-90°F

A Shut down loading for Coast Guard Inspection of the Irene.

* Verified presence of VCM by column mode operation of Century Hydrocarbon Analyzer.

AREA GRID SURVEY PLOT PLAN



VVC 000002291

EQUIPMENT LIST:

- 9' x 12' CONTACT BUILDING
- V-101 GASEOUS STORAGE TANK
- V-102 ETHYLENE VAPORIZATION HEATER
- H-101 ETHYLENE VAPORIZER
- H-102 ETHYLENE VAPORIZER
- H-103 NITROGEN VAPORIZER (ATMOSPHERIC)
- P-101 ETHYLENE PUMP
- NEW F.W. MONITOR
- NEW HYDRANT

ISSUE #2: 9-10-73 BY: MCG
ISSUE #1: 5-10-72 BY: MCG

CONTINENTAL OIL COMPANY
ENGINEERING CENTER
PONTIAC CITY, CALIFORNIA

PROPOSED LOCATION
ETHYLENE VAPORIZING PLANT

SCALE: 1" = 100'

APPD: [Signature]
DATE: [Signature]
No. SD0045-42-1