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O'Brien
9/22/74*

Interoffice Communication

To J. H. McCulley, Jr.
From P. L. Fetzner
Date September 13, 1974
Subject Ambient Air Analysis - Gamma Gas Loading 9-11,12

Concurrent testing was conducted on all loading operations using the Century Hydrocarbon Analyzer and personnel dosimeters. The grid survey of the dock area was omitted due to the short loading time for the Gamma Gas.

Our vent recovery unit was not operated during the loading although, according to ship personnel, the ship vented through our vent stack during the loading. The ship's recovery unit was operating during the loading which indicates that the revision had been made on their vent piping to permit operation in series with our recovery unit although we were not notified of this change. No pressure build up on the vent line was indicated by the pressure gauge on the dock vent line. This lack of pressure on the vent line during loading substantiates the observations made during the loading of the Irene.

Two questions remain unanswered in my mind: Will our vent recovery unit operate with low pressure on the vent line? Does the lack of pressure build up indicate the vent recovery unit is being bypassed?

Problems were encountered during cargo sampling. The braided hose sampling line leaked at the braid on the end that connects to the sampler. High hydrocarbon readings, > 1%, were obtained at the leak on the sampling hose. Suggested improvements on the sampling apparatus include a larger sampling line and insulating this and all other lines in some manner.

High hydrocarbon analysis were obtained while disconnecting the hoses aboard ship. Both the liquid and vapor valves on the ship leak quite badly. The leak being so bad that it could be heard and felt while passing a hand over the opening. Personnel dosimeter data for this operation was quite high, 326.77 ppm TWA for a one hour exposure. A small amount of liquid vinyl was observed while inserting the flange in the liquid line on dockside. This occurred even though the purging and evacuation procedure had been followed.

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AMBIENT AIR ANALYSIS

The data from the last few loadings indicates that a review of our loading procedures should be made by the people monitoring the ships. These procedures could then be revised if needed and would also reveal if shortcuts are presently being taken.

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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SUMMARY OF RESULTS

GAMMA GAS LOADING 9-11.12

CONNECTING HOSES

Connection of both liquid and vapor line aboard ship went well. Total hydrocarbon readings remained 25 ppm in the breathing zone. High readings were obtained briefly when checking to determine if the eductor was working by opening the nitrogen purge valve on spool piece. High hydrocarbon readings were obtained while removing the flange on the vapor line on the dock when the eductor was turned off to permit removal of the flange. Personnel dosimeter result during the time for both operation was 3.75 ppm.

FLANGE REMOVAL

While removing the flange from the liquid line, total hydrocarbon reading in the breathing zone ranged between 8 and 100 ppm. The higher reading occurred when the flange was first broken loose and the eductor is turned off to permit removal of the flange. The valves on the liquid loading line are leaking indicated by the pressure increase once the eductor is turned off. Removing the blind permitted a cloud of vinyl vapor to disperse before the eductor could be turned on again. Personnel dosimeter data showed 28.64 ppm vinyl exposure for this operation.

HEEL SAMPLING

Leaks around the end of the braided hose sample line caused high total hydrocarbon readings in the breathing zone, up to 500 ppm. Hydrocarbon readings at the leak source exceeded 1.0%. Personnel dosimeter result for this operation was 56.99.

HYDROQUINONE ADDITION

High hydrocarbon readings were obtained around the valve packings for the the unit even though recent maintenance had been performed on the packings. Readings in the breathing zone remained below 20 ppm. Personnel dosimeter result for this operation was 0.99 ppm.

LOADING

No area grid surveys were attempted during the loading due to shortage of time. Two personnel dosimeter testings were completed on the personnel in the dock shack. Results showed very little exposure 0.29 and 0.0 ppm.

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SUMMARY OF RESULTS

FINISH CARGO
SAMPLING

High total hydrocarbon readings were obtained at the leak on the braided hoses sampling line. Readings in the breathing zone generally remained below 20 ppm. Personnel dosimeter result showed 3.85 ppm vinyl chloride exposure.

HOSE DISCONNECT
and
FLANGE INSERTION

High total hydrocarbon readings were obtained in the breathing zone while removing both the vent and liquid loading lines aboard ship. The ship valves leak badly and the eductor system could not remove the fumes once the hoses were disconnected. Hydrocarbon readings range between 10 ppm and 1.0%, limit of instrument readings, during this procedure. Hydrocarbon readings taken while inserting the flange on the liquid line at dockside remained below 20 ppm in the breathing zone. High readings, 1.0%, were of found momentarily at the connection once the line was broken to insert the flange. Personnel dosimeter testing during these operation showed very high results 326.77 ppm.

TABLE I

PERSONNEL EXPOSURE
GAMMA GAS LOADING 9-11,12

<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	0.65	3.75
Flange Removal	Dockman	0.367	28.64 *
Heel Sample	Shift Foreman	0.833	56.99 *
Hydroquinone Addition	Dockman	0.467	0.99 *
Loading	Dockman	2.80	0.29 *
	Dockman	2.65	0.0 *
Finish Cargo Sampling	Shift Foreman	0.583	3.85 *
Hose Disconnect and Flange Insertion	Dockman	1.03	326.77 *

* Protected with fresh air equipment

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