

Interoffice Communication

To R. H. Gerlach

From P. L. Fetzner

Date July 29, 1974

Subject Ambient Air Analysis - Niels Henrik Abel Loading 7-28,29-74

The Niels Henrik Abel loading was monitored using the personnel dosimeters and the Century total hydrocarbon analyzer on specific operations. An abbreviated survey of the dock area was taken but the complete area grid analysis was omitted during the loading operation.

The dock operators requested that we monitor the area at the base of the dock because they could smell vinyl chloride. A fifteen minute survey of the dock area was taken using the Century hydrocarbon analyzer. Readings obtained during the survey ranged between 20 and 400 ppm. The higher readings were found in the area at the base of the dock between the vent recovery and hydroquinone addition units. An attempt was made to locate the emission source but without success. This investigation did reveal the liquid loading line connection aboard ship was leaking. Hydrocarbon readings reached 1.0% at the connection but dissipated to less than 50 ppm a few feet away.

The eductor on the sampling apparatus was again back pressured during cargo samplings due to venting of the ship cargo tanks. High dosimeter results were obtained on both the heel and finished cargo samplings, 38.5 and 42.3 ppm VCM respectively. In order to minimize this exposure, it is recommended that both loading and venting operations be shutdown while sampling cargo on all future ships.

Valve packings in the vent recovery and hydroquinone addition units continue to leak. This is reflected in high dosimeters results from the vent recovery operation, 32.4 and 40.0 ppm VCM. Several of the valve packings which cannot be tightened further should be replaced.

It was noted that the liquid and vent hoses were blinded on the dock at the manifold block valves prior to disconnecting from the ship. This operation was not monitored with a personnel dosimeter and the Century hydrocarbon readings ranged between 15 and 300 ppm.

Additional blinds of proper sizes are needed to eliminate the current practice of changing spool pieces in order to blind the liquid loading and vent hoses.

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

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bc

CC:
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CCR 000082167

SUMMARY OF RESULTS

Niels Henrik Abel Loading 7-28, 29-74

Removing Flanges and Connecting Hoses: Century hydrocarbon readings remained below 30 ppm the entire period. The charcoal dosimeter result only showed 1.80 ppm VCM.

Heel Samples: Due to the venting of the cargo tanks, the eductor system was back pressured. This resulted in instantaneous exposure up to 1.0% on each of the five tanks sampled. The charcoal dosimeter data also showed a higher exposure level, 38.46 ppm VCM.

Hydroquinone Addition: Century hydrocarbon readings of the hydroquinone addition procedure remained below 25 ppm. Several valves were leaking around the packing and gave high readings (1.0%) at the valve stem. The packing on all valves need checking to determine if replacement is needed.

Loading Operation: A survey was made at the request of the dock operators when they smelled vinyl fumes. The area at the base of the dock between the vent recovery and hydroquinone addition unit was monitored. Hydrocarbon readings were obtained ranging between 20 and 400 ppm and verified to be vinyl chloride by column mode operation. An investigation to locate the emission source was unsuccessful although it did reveal the liquid loading hose connection aboard ship was leaking. Vinyl fumes were dissipating to less than 50 ppm a few feet distance (3 to 5) from the flange.

Finish Cargo Sampling: The loading was shut down during sampling but the ship continued to vent. The venting again caused the eductor system on the sampling apparatus to back pressure. A higher than normal personnel dosimeter result was obtained during the sampling, 39.9 ppm VCM. The swagelock fitting connections for the sample cylinder on the sampling apparatus needs replacing as they leak. The Century hydrocarbon readings were also high when the eductor was back pressured.

Hose Disconnection
and
Flange Insertion

The flanges were inserted to blind the lines at the dock side valves prior to disconnecting from the ship. No dosimeter data was taken of the operation due to the change in the disconnect routine. Century hydrocarbon readings were obtained and ranged from 15 to 300 ppm. The higher values were instantaneous and the readings quickly dropped to less than 20 ppm. Hydrocarbon readings during the hose disconnecting aboard ship remained below 25 ppm. However when the spool pieces were changed to blind the hoses, the hydrocarbon readings reached 1.0% and were near 200 ppm in breathing zone.

TABLE I
PERSONNEL EXPOSURE
NIELS HENRIK ABEL LOADING 7-28,29-74

<u>JOB</u>	<u>POSITION</u>	<u>TIME INTERVAL</u> <u>HR</u>	<u>TWA - PPM - VCM</u> <u>FROM DOSIMETERS</u>
Vent Hose Connection	Dockman	0.30	1.80 *
Switching Lines on Ship and Unblinding Liquid Line	Dockman	1.12	0.18 *
Heel Sample	Shift Foreman	1.20	38.46 *
Hydroquinone Addition	Dockman	1.50	0.21 *
Ship Loading	Dockman (A)	2.63	5.64 *
	Dockman (B)	2.22	39.89 *
	Dockman (A)	2.00	1.56 *
	Dockman (B)	2.41	32.44 *
Finish Cargo Sampling	Shift Foreman	0.60	42.25 *

* Protected with Fresh Air Mask
(A) Dock Shack Area
(B) Vent Recovery Area