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GEN 55 (REV.6/

Interoffice Memorandum

TO (Name and Location)	DATE
As Listed*	May 22, 1979
FROM (Name and Location)	**REFERENCE NO.**
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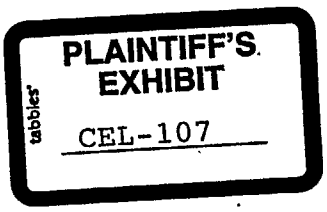

SUBJECT: Vinyl Acetate Monitoring Survey - Interpretative Statement

An Industrial Hygiene Monitoring Survey for vinyl acetate was recently conducted at the Bay City Plant. Monitoring centered around the Vinyl Acetate Unit and Tank Car Loading Facility where there exists a potential for VA exposure to Operations Personnel on a daily basis. Eleven (11) 8-hour time-weighted-average personal samples were obtained in the Vinyl Acetate Unit. Nineteen (19) time-weighted-average personal samples were obtained at the Tank Car Loading Facility. These samples ranged from 2 hours to 5.3 hours in duration because of daily variation in the number of VA tank cars loaded. The data follows:

Vinyl Acetate Unit

A-Operator (outside)	B Operator
1. 1.4 mg/M^3	1. >7.0 mg/M^3*
2. 1.4	2. 4.2
3. 1.4	3. 5.3
4. 0.7	4. >14.8*
5. 0.7	5. 1.0
	6. 2.0
Average ($\overline{X}$) = 1.1 mg/M^3	Average ($\overline{X}$) = 5.8 mg/M^3

*Sample breakthrough occurred. Conversation with the Operator revealed that strapping of acetic acid tanks on these days may have caused the breakthrough. Subsequent samples (#5 & 6) showed minimal exposure.

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Tank Car Loading Facility

A and B Operators

1.	4.5 mg/M^3	6.	9.0	11.	18.0	16.	<0.1
2.	>4.0**	7.	1.0	12.	11.0	17.	2.0
3.	>16.0**	8.	<1.0	13.	4.0	18.	1.0
4.	11.5	9.	>16.0**	14.	7.0	19.	12.0
5.	>6.0**	10.	5.0	15.	7.0		

Average ($\bar{X}$) = 7.2 mg/M^3

**Sample breakthrough occurred on samples reported as greater than (>). Breakthrough was alleviated by reducing pump flow rate and by changing the sampling tubes at two (2) hour intervals beginning with sample # 11.

The Occupational Safety and Health Administration (OSHA) has not established a permissible exposure limit (PEL) for vinyl acetate. The Americal Conference of Governmental Industrial Hygienist (ACGIH) recommends an 8 hour TWA exposure limit of 30 mg/M^3 and a short term exposure limit (STEL) of 60 mg/M^3 for 15 minutes.

The monitoring results do not indicate a health hazard. The average ($\bar{X}$) exposure (1.1, 5.8, and 7.2 mg/M^3) are well below the recommended 8 hour TWA exposure limit for vinyl acetate. As previously stated the personal samples taken at the Tank Car Loading Facility represented exposures of 2 hours to 5.3 hours. Since additional exposure to VA during the shift is unlikely, actual 8 hour TWA exposures will normally be less than those reported.

The National Institute for Occupational Safety and Health (NIOSH) recently recommended a ceiling limit for VA of 15 mg/M^3 measured over a 15 minute period. The recommended standard is based on data indicating that VA vapor at concentrations below 250 mg/M^3 is a primary irritant to the upper respiratory trach and eyes and that the liquid may irritate the skin to the point of blistering. The irritations reported have been reversible and there are no known residual systemic effects. The NIOSH recommendation apparently incorporates a significant safety factor since there is a wide margin between the ceiling limit of 15 mg/M^3 and the concentrations (less than 250 mg/M^3) observed to cause irritation.

As previously mentioned the monitoring data does not indicate a health hazard, however, the data does indicate VA exposure could exceed the NIOSH recommended ceiling limit both in the Vinyl Acetate Unit and at the Tank Car Loading Facility. If any employee should experience

irritation while performing these jobs, his/her Supervisor and the Plant Industrial Hygienist should be notified. Corrective action will be taken to reduce the short term exposures. Visual observation made during the monitoring survey indicate that the "stingers" used on tank cars for level indication and sampling are a prime source of exposure potential. Investigation into alternate methods of sampling and level indication is recommended.

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