INDUSTRIAL CHEMICALS DIVISION

MEMORANDUM

April 4, 1974

To: Mr. W. S. Ferguson

Subject: VCM - Industrial Hygiene

The following is in response to your memorandum of February 25, 1974 requesting monthly progress reports concerning worker exposure to VCM.

I. Current Situation

1. Monitoring

A. Ambient Air - Daily sampling of ambient air quality commenced on January 31, 1974 utilizing a Century Organic Vapor Analyzer (Model A). Sixteen (16) areas within the VCM facility are sampled including cracking, purification, storage and loading. During the period 2/1 through 2/28, VCM concentrations in the foregoing areas were in the range of <10 PPM - 500 PPM. Background concentration was less than 10 PPM during periods when tank car loading was not in progress. Concentrations in the 50-500 PPM were encountered on five (5) days during the 2/1 - 2/28 period and were specific to the loading area. Specific VCM sources associated with tank car loading include:

1. Purging of inerts (nitrogen) returned in empty cars.

2. Vaporization of retained liquid in flexible loading hoses when disconnected.

3. Discharge of VCM (vapor and liquid) from "tell-tale" volumetric level gauge.

Note: As outlined in previous correspondence the background concentrations which range from 2 - 10 PPM are attributable to the non-specificity of the Century Model A vaporizer. The proximity to surrounding chemical plant complexes results in the presence of ambient hydrocarbons in the 2 - 10 PPM range dependent upon wind direction and sample location.

B. Medical Surveillance

The SMA-12 blood test has been scheduled at six (6) month intervals for all VCM operating and maintenance personnel (salaried and hourly) prior to 1/1/74. Effective 1/1/74, all VCM loaders and laboratory personnel were included in the SMA-12 surveillance program.

II. Programs

1. Short Term

A. A Century Organic Vapor Analyzer (Model B) has been ordered (3/31) which is specific to ambient concentrations of VCM. Delivery is expected by May 15.

B. A single MSA Personal Monitor has been obtained and delivery of three (3) additional units including carbon adsorbent is projected by mid-May. Preliminary TWA exposure data will be accumulated for loaders, maintenance and operating personnel during the latter half of May. Note: Analytical method to be followed will parallel that of Ethyl Corp. using bromo-benzene as a solvent.

C. Engineering studies are underway to finalize design, location and quantity of sample points for a stationary Bendix Gas Chromatograph. Final design should incorporate 8 - 12 sample points providing a continuous process area ambient air quality scan over a period of 32 - 48 minutes. Placement of a purchase order for this equipment is projected by May 1, 1974. Delivery: 60 days.

The foregoing stationary unit will be interlocked with an alarm which will alert operating personnel of excursions beyond permissable ceiling valves.

D. A trial run has been initiated (2 cars) whereby inerts present, subsequent to car discharge, have been purged by Robin-Tech at Painesville.

The necessity to further vent these cars at Baton Rouge during loading will be determined during the week of April 8.

E. Displacement of residual liquid VCM present in flexible loading hoses prior to disconnecting these lines will be accomplished via introduction of nitrogen. Hose lines will vent nitrogen only upon disassembly. Completion target: May 15.

2. Long Term

Engineering design work is now complete for a VCM vent recovery system to serve selective process equipment (quench columns, scrubbers, storage tanks, tank car vents). Preparation of a "58" capital request ($270 M) is in progress. Operation of this system is expected during the 1st quarter of 1975.

3. Work Practices

All loading personnel have been equipped with organic vapor cartridge type respirators and have been instructed to use same while connecting and disconnecting loading lines.

For each of the five (5) loading stations, installation of a fresh air system (cylinder fed) is planned. Fresh air respirators will be provided at each loading station and use of same mandated effective mid May upon system completion. Posting of this area as a restricted respirator area will also be complete by May 15.

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Director Environmental Services

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JMQ/sm
cc: See Attached

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