



DOW CHEMICAL U.S.A.

Building B-101

OCCUPATIONAL HEALTH  
TEXAS OPERATIONS  
FREEPORT TEXAS 77541Accredited by  
Accreditation Association  
for Ambulatory  
Health Care, Inc.

## OCCUPATIONAL HEALTH SUMMARY REPORT

LOCATION: UNIT I (VINYL CHLORIDE PRODUCTION)

PERIOD COVERED: April 17 - August 28, 1990

MEDICAL:

C. K. Browdy M.D. 9-25-90  
C. K. Browdy, M.D. Date  
Occupational Health Associate

INDUSTRIAL HYGIENE:

Melissa Blue 9/25/90  
M. Blue Date  
Industrial Hygienist

APPROVED:

R. J. Cranston D.O. 27 Sept 90  
R. J. Cranston, D.O. Date  
Occupational Health Physician

REVIEWED:

L. J. Burmeier 10/8/90  
L. J. Burmeier Date  
Superintendent

xc: D. Cragar  
R. Ededahl, M.D.  
J. H. Lippman  
Summary File

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## OCCUPATIONAL HEALTH SUMMARY REPORT

This is a voluntary participation program. The group population is 82. Nine individuals have current information and were not examined at this time. One individual is in the management examination program. Seventy individuals were examined between April 17, 1990 and August 28, 1990 for a 97% participation rate.

The Chemical and Physical Agent Inventory (CPAI) for Unit I, the vinyl chloride monomer production plant, shows that the chemical and physical agents of greatest concern are vinyl chloride, hydrogen chloride, ethylene dichloride, sodium hydroxide, and noise. At present the Process and Unit Technician job classifications are followed on the Vinyl Chloride Medical Surveillance Requirement (MSR). This MSR conforms with the OSHA Vinyl Chloride Standard. All Process Technicians are followed on the Noise MSR.

The 1989 Industrial Hygiene monitoring data is summarized in I. H. Report No. OC-3138-89C. Eight-hour time-weighted average (TWA) and short-term monitoring for vinyl chloride, ethylene dichloride, ethyl chloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, and carbon tetrachloride was conducted. All eight-hour TWA potential exposures to vinyl chloride were below the action level of 0.5 ppm except for the Loading Technician which was 0.94 ppm. The OSHA Permissible Exposure Limit is 1.0 ppm. Short-term monitoring for the Loading Technician showed potential exposures ranging from 0.17 to 11 ppm. The higher concentrations occurred during tank car sampling. In addition, the Process Technicians in the vinyl distillation area exceeded the Short-Term Exposure Limit (STEL) for vinyl chloride. Process Technicians in the direct chlorination and repair areas exceeded the STEL for ethylene dichloride. New sampling systems have been implemented in the loading and direct chlorination areas to reduce exposures. Employees wear full face airline respirators whenever there is a significant potential for exposure. Exposures to the other five chemicals listed above were less than 5% of their respective Industrial Hygiene Guides.

Noise monitoring was done for eight different job tasks. Exposures for Process Technicians in oxychlorination and vinyl distillation as well as Contractor/Pipefitters and Contractor/Utility Men exceeded 85 decibels on the A-scale as an eight-hour TWA. These job classifications must be included in the Hearing Conservation Program. Because of job rotation all Process Technicians are included in the Hearing Conservation Program.

There are fourteen TSCA 8(d) chemicals present. They are: ethylene dichloride, asbestos, 1,1,1-trichloroethane, 1,1,2,2-tetrachloroethane, 1,1,1,2-tetrachloroethane, chloroform, perchloroethylene, pyridine, methylene chloride, ethyl chloride, hexachlorobutadiene, 1,1,2-trichloroethane, chloroprene, and 1,1-dichloroethane. There is monitoring

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data as described above for ethylene dichloride, ethyl chloride, 1,1,1-trichloroethane, and 1,1,2-trichloroethane. Hexachlorobutadiene, 1,1,2,2-tetrachloroethane, 1,1,1,2-tetrachloroethane, chloroprene, and 1,1-dichloroethane are by-products. Perchloroethylene, chloroform, methylene chloride, and pyridine are used as laboratory chemicals. Asbestos is used as a miscellaneous chemical.

There were sixty-four audiograms done. There were two standard threshold shifts as defined by the OSHA Noise Standard. One of these individuals is in the Hearing Conservation Program and has been reported to Safety for appropriate documentation.

Nine individuals have limitation of respirator usage based on initial screening of the medical examination data. Please see the attached list for medical limitation of respirator usage. If these medical restrictions interfere with an employee's job requirements, further evaluation at the Occupational Health Department should be arranged to fully assess the need for medical limitation of respirator usage.

The liver is considered the main target organ for vinyl chloride. Four individuals of the 67 tested had minimal elevations of their liver enzymes. Two additional individuals have moderate elevations of their liver enzymes. These two individuals have been restricted from exposure to chlorinated hydrocarbons pending further medical evaluation.

Individuals with life-style factors amenable to medical or dietary intervention include the following: sixteen smokers, 48 individuals who are overweight, five individuals with hypertension, and 32 individuals with elevated cholesterol levels. Please contact the Up-With-Life Program (X-4334) for assistance in modification of these life-style risk factors.

Attachment

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ATTACHMENT

September 25, 1990

MEDICAL LIMITATION OF RESPIRATOR USAGE

The following eight individuals may wear respirators for escape only:

may wear a positive-pressure supplied air respirator or a negative-pressure respirator. He may not use a self-contained breathing apparatus (SCBA) for other than escape.

The following 73 individuals have no medical limitation of respirator usage:

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