



**UNION CARBIDE CORPORATION**

P. O. BOX 8004, SOUTH CHARLESTON, W. VA. 25303

Silicones and Urethane Intermediates

South Charleston Plant

December 18, 1986

**TO: All Employees and Retirees of  
the South Charleston Plant**

**SUBJECT: Kanawha Valley Epidemiology Study**

As you may know, NIOSH and Union Carbide researchers have, for several years, been studying the causes of death among Union Carbide employees at three facilities in the Kanawha Valley, namely the South Charleston plant, the Institute plant and the Technical Center. An overall mortality study of 29,139 employees has now been completed. This study involved the cooperation of NIOSH and Union Carbide epidemiologists, company management, and local officials of the International Association of Machinists and Aerospace Workers that represent workers at the plants.

The study population included all men who worked at least one day between January 1, 1940 and December 31, 1978. More than 96% of the employees were successfully traced through 1978 and identified as to being alive or deceased. Cause of death was obtained for 95% of the deceased former employees. To date, the mortality experience has been examined by cause of death, length of employment, time from first employment, and date of death; but not by facility, work areas or specific exposure agents.

Overall mortality observed in this large population of chemical workers was found to be similar to that seen for the United States white male population. There were 5,785 deaths observed during the study period compared to 6,148 expected deaths based on United States white male death rates. There were 1,083 observed cancer deaths compared to 1,159 expected cancer deaths.

Among the more than 80 causes of death studied, two have been identified as being in excess. One of these causes of death is liver cancer (including angiosarcoma of the liver). In follow-up of this finding a review of liver cancer deaths has been undertaken among long-term vinyl chloride polymerization workers in the South Charleston plant. This review suggests that past vinyl chloride exposures may explain the 10 excess liver cancer deaths seen in the total study population. The link between vinyl chloride exposure and liver cancer was first recognized during the mid 1970's. At that time employees were informed and steps were taken to control potential vinyl chloride exposures in the workplace. The liver cancer findings of the present study were also described in a January 1986 communication to Kanawha Valley employees.

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The second category of deaths found to be in excess was Lymphosarcoma and Reticulosarcoma. These are cancers of the lymphoreticular system, that is, cancers which arise in the lymph nodes. It is not presently known whether or not this observation is due to factors present in the work environment or due to chance. This question will be investigated by further study of the employment and exposure histories of men with and without these illnesses.

In addition to a more detailed examination of the two causes of death found to be in excess, several studies of employee subgroups are already being undertaken. As part of the original study plans, mortality data will be evaluated for men who worked in the coal hydrogenation unit and for those who worked in ethylene oxide production areas of the plants. Union Carbide and NIOSH have also agreed to examine mortality data for employees assigned to 1,3-butadiene production areas.

If you have any further questions we urge you to contact Dr. Teter in our Medical Department.

  
Plant Manager

  
Medical Director

**BULLETIN BOARDS:**

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