



Dow U.S.A.

MICHIGAN DIVISION
May 11, 1992

The Dow Chemical Company
Midland, Michigan 48667

Mr. William Cleary
Division of Occupational Health
Michigan Department of Public Health
3100 N. Logan State
Lansing, MI 48909

Dear Mr. Cleary:

This letter is in response to a request from Mr. Doug Kalinowski for additional information regarding an incident involving a release of vinyl chloride at the plant producing SARAN® polymer, Michigan Division, Dow Chemical U.S.A. This report is submitted under regulatory requirements for reporting under Rule 2260 and is a follow-up to a phone call to Mr. Kalinowski at 10:35 AM on May 5, 1992.

Incident:

On May 4, 1992, at 12:39 AM while dumping water from the K-1 recovery knockout tank to the trench, an LEL alarm sounded indicating a problem on the first floor of 591 Building. One of the operators on duty left the control room to confirm that there truly was a problem and to close the manual valve on the bottom of K-1. Twenty-seven seconds later a second LEL alarm was registered and a second operator left the control room to assist the first operator. The bottom dump valve was closed and the operators exited the building. Additional alarms for the Halogen Hydrocarbon Analyzer and the gas chromatograph were registered one minute and four minutes respectively into the event, after the operators had vacated the building. The foam deluge fire protection system was also tripped to knock down residual vapors. The operators returned to the facility wearing personal protective equipment and SCBA to place a water hose in the trench. Both operators went to Medical for the required medical evaluation as per Rule 2260. No effects were noted by the examining physician.

The initial evaluation indicated approximately 10 lbs. of vinyl chloride were released. However, final calculation based on material balance indicated 484 lbs. of vinyl chloride and 92 lbs. of vinylidene chloride were released.

Primary Cause

The K-1 knockout pot is nitrogen stripped for approximately two hours and then analyzed for vinyl chloride prior to dumping. The analysis indicated <0.1 ppm residual monomer in the water prior to dumping. After the incident occurred, the tank was resampled and the concentration of monomer in the water was found to

Mr. William Cleary
May 11, 1992
Page 2

be 450 ppm. Based on the volume of the tank and the level of water remaining, a calculation of 10 lbs. of monomer was initially calculated as being the amount released. Examination of the data plot indicated a large pressure spike and temperature decrease in the knockout pot at the end of the dump which indicated the presence of the monomer. At the time of the dump, a reactor was loading rerun monomer. A manual evacuation valve on the bottom of the monomer filter which also goes to the K-1 knockout pot was found partially open; however, the valves at the K-1 knockout pot were closed. It is surmised that the valves leaked monomer to the knockout pot.

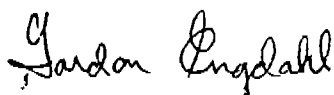
Secondary Cause

Both operators stated their first reaction was to close the bottom valve on K-1 as quickly as possible. At the point when they made the decision to go into the area, they stated that they had no evidence that there was vinyl chloride present in the area other than the LEL trip. The plant had previously experienced false trips of LELs due to water.

Corrective Actions

Valves on K-1 will be replaced (done) and vane switches will be installed on the valves. Additionally these valves will be fully automated in July. All operators will be retrained on the use of respiratory protection and response procedures.

If I can be of any further assistance or if you need further clarification of the incident, please call.



Gordon W. Engdahl
Michigan Division
Industrial Hygiene Services
258 Building