



Dow U.S.A.

The Dow Chemical Company
Midland, Michigan 48667

January 29, 1991

Mr. Jack Novak
Michigan Department of Public Health
3500 North Logan
P.O. Box 30035
Lansing, MI 48909

Dear Mr. Novak:

This letter will detail an incident involving potential exposures to airborne Vinyl Chloride Monomer (VCM) that was reported via telephone to Mr. Flint Watt of your office by Mr. Fred Sabel on January 15, 1991.

SUMMARY

On January 15, 1991, at approximately 4:00 AM, VCM leak detectors in the 591 Building of the SARAN* Polymer Plant of the Michigan Division, Dow Chemical U.S.A., indicated that VCM gas was leaking from a reactor agitator seal. The personnel operating the facility investigated the situation and took action to minimize the leak by greasing the seal. It was decided that the safest way to resolve the situation, with a minimum release of VCM, was to allow the reaction to proceed to completion. By 8:00 AM the leak had stopped and the building was free of airborne VCM. Approximately 35 pounds of VCM were released. Access to the building was strictly controlled during the incident. Only assigned operating personnel were in the facility during this leak. These personnel wore supplied air respiratory protection to detect and stop the leak. Since respirators were not consistently worn by personnel in the control room exposures to airborne VCM may have occurred. As a result, the two operators involved were given medical examinations at the Dow Medical facility as a precautionary measure. No ill effects were found nor was any medical treatment found to be necessary.

At approximately 10:30 AM that same morning, leak detectors again indicated an airborne VCM leak at 591 Building. The reactor seal was re-checked by operators wearing supplied air equipment and found to be leak free. With leak detectors indicating the presence of airborne VCM, the building was evacuated and access to the building was strictly controlled. Four (4) employees wearing full-face Scott Air Paks re-entered the facility to find and stop the leak. By 12:05 PM the leak was stopped and shortly thereafter, the building was free from released materials. Approximately 880 pounds of VCM and 1120 pounds of Vinylidene Chloride were released. As a precautionary measure, facilities immediately adjacent to and downwind of

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Jack Novak
January 29, 1991
Page 2

591 Building were evacuated to avoid potential personnel exposure to any VCM gas that might have escaped from 591 Building. Measurements taken downwind during the release indicated potential airborne VCM exposures to other personnel that were well below the current action level of 0.5 ppm. Five (5) employees were determined to be in 591 Building at the onset of the 10:30 AM release. These employees were given medical examinations at the Dow Medical facility as a precautionary measure. No ill effects were found, nor was any medical treatment required. Four (4) employees who responded to the 10:30 AM release wearing supplied air respiratory protection were also examined at the Dow Medical Department as a precautionary measure.

CAUSES OF THE INCIDENTS

4:00 AM Occurrence:

Mechanical failure of the reactor sealing mechanism.

10:30 AM Occurrence:

A manually operated valve connecting process equipment to an evacuation system was inadvertently left open after the evacuation system had been used to remove air from the process prior to start-up. Upon start-up, airborne VCM moved through this open valve, through a vacuum pump, and to the building environs.

CORRECTIVE ACTIONS

The following corrective actions have been or will be taken to avoid a reoccurrence of these incidents.

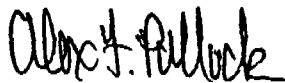
1. The mechanical seal was repaired and maintenance history continues to be collected to determine if additional preventative maintenance could improve seal performance.
2. Install vane switches on the manual valve on the evacuation system so that a computer alarm will sound when the valve is in the open position. In addition, computer interlocks will be installed to minimize the potential for releases of VCM.
3. Evaluate the need for computer alarms and interlocks to be associated with evacuation system piping tie-ins to process equipment.

Jack Novak
January 29, 1991
Page 3

4. Evaluate all VCM handling equipment in 591 Building to minimize back flow potential to non-VCM handling equipment.

Implementation of these process improvements has begun. Actions 1 and 2 have been completed, with the remaining action items scheduled to be completed by mid-March 1991.

If I can be of further assistance, please contact me.



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