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Monsanto Company
Sauget, Illinois

cc: Supervisory Mailing List

April 19, 1972

To: Mr. G. L. Bratsch

SERIOUS AIR EMISSION INVESTIGATION

Date of Incident:	April 7, 1972
Time:	6:10 p.m.
Nature of Incident:	Phosphorus trichloride spill causing dense fumes on 19th Street and at Sterling Steel Castings Co.
Consequences:	Four men from Sterling Steel, and one Monsanto employee required treatment for fume inhalation. One motorist hurt his foot running from his car and another motorist ran into the ditch and had to be towed out. A passenger in this car became sick from fumes.
Cause:	Improper Operation. Trailer was overfilled.

Investigating Committee: J. Boehm
G. Davis
O. Mertzweiller
C. Buckley, Chairman

/ghw

DSW 345413

The Incident:

Instructions left for the middle shift tank farm operator on Friday, April 7, were to:

(a) Load a trailer for Dept. 282 with PCl_3.

(b) Transfer a damaged leverpak of TPP to a good lever pak.

(c) Load a tank car with TCP.

He started to load the TCP car first as this would take 2-3 hours. The PCl_3 truck loading was started at approx. 5:30 p.m. and at about 6 p.m. as he was on his way to check the trailer, the operator was called to the phone. He took the call, which he estimated lasted 2 minutes, then started off for the dock and saw the trailer overflowing. He shut off the pump and the valve at the tank and started to wash up the spill, helped by the other operators in the department.

At 6:10 p.m. Night Superintendent received a call from the Sauget Police Dispatcher and came to the scene. He arranged for Fire Department equipment to be used to wash up the spill and at 6:45 p.m. fumes were under control. The Police Dispatcher was informed that the situation was under control.

Both motorists, a passenger in one of the cars and four people from Sterling Steel Castings Company reported to the plant dispensary for treatment, as did the operator.

Discussion

After a field inspection of the equipment, the Investigating Committee concluded that the incident would not have occurred if normal procedure had been correctly followed. This trailer can be filled in about 30 minutes, which means that there is little time available when it is safe to leave the area. There are pump controls at both the pump and the loading dock and there is a fume control system to pull fumes from the manway of the truck during loading. It is possible to prolong the fill time by circulating material back to the storage tank. However, the purpose of the circulating line is to provide a pressure relief if the valves are closed rather than to control the rate. Although it was obvious that some improvements could be made to the facilities, there was nothing which prevented the operation from being carried out in accordance with the operating instructions.

The committee then considered the serious consequences of this incident which are:

a. At least seven people outside the Krummrich Plant were harmed by this incident and may therefore file claims against the company.

b. Reports of vegetation damage in the area have also been received and claims may result.

Discussion:(cont'd)

c. Discharge of PCl_3 or its decomposition products into the environment could constitute a violation of the Illinois Environmental Protection Act.

d. The penalty for violating the Environmental Protection Act is a fine of up to $10,000 or up to six months imprisonment or both such imprisonment and fine.

It should be noted that a spill of material which is allowed to reach the river is as serious as an emission to the atmosphere. However in this case safety considerations were the overriding factor and the correct course of action was to flush the material to the sewer. In different circumstances flushing to the sewer may not be acceptable even though it may be the safest course.

Related Observations

a. Leakage from $POCl_3$ pumps had tripped the smoke detectors in the drumming area at 1:55 p.m. and again at 5:30 p.m. that day. This is not directly related to the incident, but the importance attached to fume emissions is lessened when incidents are frequent.

b. The PCl_3 pump control at the loading dock was once made portable to facilitate loading but operators prefer a permanent installation. The switch had therefore been wired to the handrail.

SPECIFIC RECOMMENDATIONS:

a. Production department must review the Operating Instructions for the loading operations conducted in this department and take appropriate steps to insure that they are followed.

Responsibility: Production
EDC: 4/21/72

b. The PCl_3 pump control at the loading dock should be permanently located. The type of control should be such that it is easily distinguishable from the $POCl_3$ pump control.

Responsibility: Maintenance
EDC: 5/1/72

DSW 345415

GENERAL RECOMMENDATIONS:

1. All departments should consider the consequences of this incident and develop answers to the following questions:

   a. Do the Operating Instructions adequately cover the precautions needed to avoid spills?

   b. Are the Operating Instructions being followed? If not what action is called for?

   c. Are all personnel aware of their responsibility to warn others who may be harmed when material is released to the environment?

   Responsibility: Production Dept.
   EDC: 5/15/72

2. Procedures S-2 and S-3 will be revised to emphasize the need to warn others when air emissions or spills occur.

   Responsibility: Environmental Control Dept.
   EDC: 5/1/72

DSW 345416