Monsanto Chemical Company
Texas City, Texas

September 2, 1959

To: W. E. Repschleger

cc: Chief Operators (5)
Extra (3)
H. M. Keating

Subject: Process Spill, Department 3, August 31, 1959

DESCRIPTION

On Monday, August 31, 1959, at about 0900 a liquid vapor spill occurred from the 3V4 aluminum reactor in the department 3 catalyst manufacturing system. Approximately 5 to 10 gallons of liquid catalyst spilled from the reactor and was recovered in the department 3 sewer trap. In addition a large uncontrolled vapor spill from the reactor continued for approximately two hours before it was brought under control and stopped. There was no damage to equipment or personnel other than possible corrosive attack on steel structures and equipment from HCl vapors.

EVENTS LEADING UP TO SPILL

1. The belts on the catalyst building ventilator fan failed during the week end.

2. The department 3 catalyst manufacturing system was shut down on August 30, at 1700 because of a broken RM line on the reactor inlet. At the time the unit was shut down the system had not been circulated a sufficient length of time to completely react out all unreacted aluminum.

3. At 0800 an attempt was made to stop the excessive volume of vapor from the 3V4 reactor by closing the off-gas valve on the common off-gas line between department 2 and 3 reactors. The vapor spill continued to increase and liquid began to spill over. The liquid spill was stopped by starting the pump and lowering the level in the reactor which was done from the outside of the catalyst building. At the same time an attempt was made to circulate material through the system to remove the excessive heat with the 3E16 catalyst system exchanger. This was not successful as the recycle inlet line was plugged near the reactor.

At 0905 as the reactor temperature continued to rise out of control, a spill alarm was turned in and fire water was used to cool the reactor down and bring the vapor spill under control. At 0927 the all-clear was sounded, however, part of the fire crew was held on standby for another hour or longer.

4. The 3V4 reactor vessel was then pumped out and further investigation indicated a small HCl leak into the reactor.

ACTION

Block valves on HCl inlet feed line were replaced.

Inlet recycle line was unplugged and the system was put back in service.

All operators and chief operators will be re-instructed in the correct shutdown procedure for the catalyst manufacturing system.

A request will be submitted for the installation of a water spray system or other method of controlling reactor temperature in the event of power failure, plugged lines, etc.

A request will be made for the installation of a temperature indicator in the reactor.

A. P. Wilcox

djl
9-2-59

SC 16748