

VEN VLT → RAF
DLM



Interoffice Communication

To A. J. Lundeen
From J. H. McCulley, Jr.
Date September 12, 1983
Subject Air Products Emergency Kill System

Mr. Larry Allen of Air Products called to offer an exchange of information on PVC reactor emergency kill systems. Larry participates in the Vinyl Chloride Safety Association and has shared plant safety and fluid bed dryer performance information with us in the past. With your and Ed Kieschnick's approval I exchanged emergency kill information with Larry over the phone on August 26, 1983. I was surprised to find that Air Products' system is similar to Conoco's.

Air Products Emergency Kill System

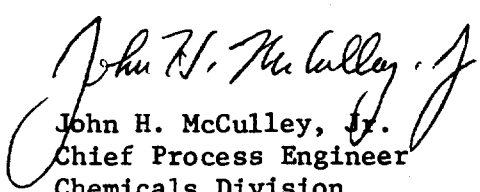
1. AMS is injected in the vapor space of the reactor to kill polymerization in an emergency. As far as Larry knew, Air Products has killed this way for some time (6+ years). They did not conduct an extensive pilot plant study to develop and prove this kill method. Their kill system has successfully killed reactors in a power failure.
2. The Pensacola plant has one AMS emergency kill pot of roughly a 100-gallon volume for seven reactors. The pot is pressurized to approximately 250 psig with nitrogen. It is connected to each reactor via a pipe header. There is a manual valve in the line at the reactor head and a control panel operated valve just upstream. A manual valve is used on the reactor because they are concerned that reactor fouling might prevent a remote operated valve from opening. The AMS pot has a control panel mounted level indicator. The Calvert City plant has the same system serving four reactors. It also has an AMS injection pump to be used if the pot is accidentally depressured in an emergency.
3. When killing a reactor, the outside operator first opens the reactor manual valve and then radios the panel operator to open the other valve. At the Pensacola plant the panel operated valve is held open until the AMS pot level drops the desired amount. The amount injected is determined by the panel operator based on past experience and the batch conversion. If the reactor panel instruments indicate reaction is continuing, additional AMS is added. In a power failure the reactors are killed as quickly as possible. The Calvert City plant has specified how much AMS should be injected in an emergency. In part this is a response to their EPA problems at that plant.
4. Larry mentioned that a recent power failure emergency kill in the Pensacola plant resulted in so much AMS being injected that it took them a day to get the reactor operation back to normal due to AMS in the recovered monomer.

DTH 000104376

A. J. Lundeen

Page 2

5. The Calvert City plant's EPA consent decree requires that the emergency kill system be tested after every 20 or so batches. This is done by injecting a small amount of AMS into a reactor and confirming that the polymerization rate was reduced. Both the manual and panel operated valves are opened.
6. The Pensacola plant uses the emergency AMS system during normal operation to stop conversion at a specified point for a particular resin's quality requirement or occasionally to stop reaction to maintain feed rates to the downstream processes. Larry estimated each reactor was killed with the system once per week.
7. Neither plant has emergency power or cooling. The Calvert City plant has a very reliable power source and they do not think it requires back-up power or cooling. However, the Pensacola plant does not have a reliable power source and they are investigating back-up power for the cooling water pumps and reactor agitators. The plant originally had back-up power for the PVC reactors but other complex users have been given priority access to the emergency power.
8. Their reactors do not have two separate control panel mounted pressure indicator/recorders. Both plants are computer controlled although the Calvert City plant is much more automated than the Pensacola plant.
9. Process hazards reviews are made at each plant every year and a half. The last review at the Calvert City plant indicated that automatic emergency kill should be used. Larry has requested that a production person from that plant call me to discuss their emergency kill guidelines and thoughts on automatic kill. That person will also discuss their experiences with rupture discs.
10. They plan to resume operation of the Calvert City plant in October.


John H. McCulley, Jr.
Chief Process Engineer
Chemicals Division
Process Engineering Department

pjc
CC:
ELK:HGH:AWS:JCT:JPW:JF:CRM:PEM:
RAF:GJH:DAB:KJF:RBQ:DRW:PAS:
PVC Group

DTH 000104377

File A-120.3