Conoco Chemicals Company
Conoco Inc.
P. O. Box 91, New Highway 25
Aberdeen, Mississippi 39730
(601) 369-8111

RECEIVED
JUN 15 '84
Route:

June 11, 1984

CONFIDENTIAL

Copy:

File: Aberdeen

X-F:

Mr. Jerry B. Banks, P.E.
Mississippi Department of
Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39205

Dear Mr. Banks:

This letter will inform you that Conoco Chemicals Company will remove all nitric oxide emergency kill equipment on all polyvinyl chloride (PVC) reactors at the Aberdeen, MS facility. The reasons for the removal of this equipment are: 1) installation and operating experience of a proven emergency kill system that uses alpha methyl styrene (AMS) as a kill agent and 2) concern for the health and safety of our employees as nitric oxide is an extremely toxic gas.

Initially the plant's nitric oxide emergency kill system was installed to stop the polymerization reaction in a PVC reactor during an emergency in order to reduce the possibility of an uncontrolled pressure buildup in a reactor and subsequent relief valve discharge of VCM. However, since these original installations, the plant has installed a superior emergency kill system that uses AMS as a kill agent. The emergency AMS kill system can be activated either remotely from the control panel or manually in the field, even during a power failure. A description of this system is attached. This type system was tested extensively by Conoco R & D and then installed in Conoco's Oklahoma City PVC plant in early 1980. The Oklahoma City PVC Plant does not have a nitric oxide emergency kill system because of the reliability of the emergency AMS kill system and concerns over the safety of nitric oxide. The Oklahoma City facility has not had an emergency relief valve discharge of VCM to the atmosphere from a runaway PVC reactor since the emergency AMS kill system was installed. The Aberdeen Plant completed installation of the emergency AMS kill system in mid 1982. Since this installation the Aberdeen plant has successfully used the emergency AMS kill system and has not had occasion to use the nitric oxide system. Our experience has shown the emergency AMS kill system to be effective in stopping the polymerization reaction in almost all types of emergency situations.

With the operating experience that we have on the emergency AMS kill system and concern for the health and safety of our employees, the appropriate action is to remove the emergency nitric oxide kill system. Removal of this system will begin in late June.

CONFIDENTIAL

Since some of the information contained in this communication discusses certain aspects of our proprietary technology, the letter and attachments have been claimed confidential. We trust that the Bureau of Pollution Control will protect this information as confidential and will not divulge it to any other party.

If you have any questions, please call me at (601) 369-8111, extension 2331.

Veldon E. Messick
Senior Process Engineer

bls

EMERGENCY AMS KILL SYSTEM

DESCRIPTION

CONFIDENTIAL

The emergency AMS kill system consists of a pressurized pot filled with AMS for each reactor with piping and valves to inject the AMS into the reactor. The pressurized pot is maintained at 300 PSIG with bottled nitrogen. Piping runs from the bottom of the AMS kill pot to the top of the reactors. AMS can be injected into the reactor by either of two nozzles. One nozzle has remote operated valves that can be operated from the vinyl control room panel. The other nozzle has manual valves that can be operated manually from the platform at the top of the reactor. Both nozzles inject the AMS into the reactor vapor space. Bottled nitrogen is used to pressurize the injection pot. The pressure in the injection pot and in the nitrogen bottle is checked before each reactor charge. If the pressure in either the bottle or the pot is low, the problems must be corrected before the reactor is charged. The remote operated valves are also operated with bottled nitrogen. This not only assures that these valves can be activated during a power failure, but also eliminates possible freezing problems that might occur with instrument air. The pressure in this nitrogen bottle is also checked before each charge to insure enough pressure is available to operate the valves. If the pressure in the nitrogen cylinder is too low, the cylinder must be changed before the reactor is charged. The remote operated valve switches also are connected to the plant's emergency power to insure their operability during a power failure.

Each AMS injection pot is equipped with a local level gauge to monitor the amount of AMS available for stopping polymerization. This level is checked before each charge. Each pot also has a low level alarm that will sound in the vinyl control room and light a beacon on top of the reactor if the level in the pot is below a certain point. This level alarm system serves several functions. If the vinyl panel alarm is activated before charge, AMS must be added to the pot before the reactor can be charged. During AMS injection, the low level switch will close the automatic valves. If AMS is injected into the reactor with the manual valves, the beacon on the reactor will alert the operator to close the valves so that nitrogen will not be injected into the reactor. In either the manual or automatic AMS addition, the level alarms are evidence that AMS has actually been injected into the reactor.

There are also several other items that insure the operability of the emergency AMS kill system in almost any conceivable situation. 1) Each injection pot is equipped with a low pressure alarm that is activated when the pressure in the pot is below 250 PSIG. If the alarm should sound, the low pressure problem must be immediately corrected. 2) There is also a low pressure alarm on the nitrogen supply to the automatic valve actuators. This alarm will sound if the pressure in the cylinder is below 600 PSIG and the cylinder must then be changed. 3) All the AMS

CONFIDENTIAL

kill pots in each reactor module are connected with a flexible hose in such a manner as to allow AMS to be injected manually to any reactor from any injection pot. For example, AMS can be injected into new module reactor D-741 with AMS from the injection pots for reactors D-742, D-743, D-744, or D-745. 4) The AMS injection nozzles on each reactor are cleaned out weekly. This frequency is often enough to insure that AMS be added to the reactor when required. 5) In addition to the checks made by the operator before each reactor batch, an independent audit of the emergency AMS kill system is conducted weekly by the Engineering Department. Among the items checked weekly are AMS pot pressure, nitrogen bottle pressure, AMS level, and if the proper valves are open.