



Conoco Chemicals Company
Conoco Inc.
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Aberdeen, Mississippi 39730
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March 1, 1983

CONFIDENTIAL

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 it is the intention of the Aberdeen Mississippi facility of Conoco Chemicals Company to remove all nitric oxide emergency kill equipment on all polyvinyl chloride (PVC) reactors at the facility. The overriding reasons for the removal of this equipment are:

1) concern for the health and safety of our employees as nitric oxide is an extremely toxic gas, 2) the recent installation of a proven emergency kill system that uses alpha methyl styrene (AMS) as a kill agent, 3) concern of the effectiveness of the nitric oxide kill system at initiator loadings used for the reactors installed with the recent Expansion Project.

The manufacture of PVC resin at Conoco's Aberdeen Mississippi facility uses a batch suspension process to produce PVC in 10 reactors. The reaction is exothermic in nature and uses cooling water to control the polymerization temperature and pressure. Because of the exothermic nature of the reaction, loss of cooling water supply and/or agitation results in an increase in reactor temperature and pressure. Conoco has taken many measures to prevent build-up of reactor pressure due to loss of cooling and/or agitation. However, it is the operating philosophy of Conoco that the polymerization reaction in a reactor must be stopped during an upset in order to reduce the possibility of uncontrolled pressure build-up in the reactor and subsequent relief valve discharge. When the polymerization reaction is stopped during an upset condition, there is no pressure build-up in the reactors from the exothermic nature of the reaction. For this reason, Conoco has designed and installed a proven emergency AMS kill system to stop the polymerization reaction in an upset condition.

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A description of the extensive research efforts on this system as well as a detailed description of the operation of the system is included. This information shows that the recently installed emergency AMS kill system is capable of stopping the polymerization reaction in almost any conceivable situation short of plant disaster. Also included is information concerning research that has been conducted that shows nitric oxide to be ineffective in stopping reactor pressure build-up during an upset condition with an initiator loading equal to that used in the reactors installed with the recent Expansion Project. Data which shows the emergency AMS kill system to be effective in stopping polymerization at this initiator loading is also attached.

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Conoco's Oklahoma City PVC Plant installed a similar emergency AMS kill system in early 1980. This system has proven to be effective in several emergency situations since its installation. A brief description of these events is attached. It should also be noted that the Oklahoma City PVC Plant does not have a nitric oxide emergency kill system. A nitric oxide system has never been installed at that plant because of the reliability of the emergency AMS kill system and concerns over the safety and effectiveness of nitric oxide.

The information presented in this letter has lead Conoco to the conclusion that the Emergency nitric oxide kill system is not required because of the reliability of the emergency AMS kill system. There is also reasonable doubt that the nitric oxide kill system will work in all emergency conditions. With this conclusion and the concern for the health and safety of our employees, the appropriate action is to remove the nitric oxide system. Our plan is to remove this system beginning in May, 1983.

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 369-8111, extension 2331.

Veldon E. Messick
Senior Process Engineer

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Attachments

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