Monsanto

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FROM (NAME & LOCATION) W. B. Howard - St. Louis

DATE August 28, 1967

SUBJECT PROJECT LOSS PREVENTION REPORT 67-65

REFERENCE CEA-1800

TO R. S. Yates (Project Manager)

cc: R. E. Doerr
R. E. Howard
J. L. Mathews
H. B. Patrick - WGK
S&PP Project File
S&PP Location File

COPIES TO THOSE PRESENT

J. R. Fullgraf
H. D. Gabelman
R. J. Green
W. B. Howard
J. MacPherson - Anniston
M. J. Pistek - WGK
H. F. Ray - WGK
R. P. Stevens
R. S. Yates

DATE AND PLACE OF MEETING August 15, 1967, Creve Coeur, Missouri.

CEA-1800 Increase Liquid Aroclors' Capacity, WGK Plant, Sauget, Illinois.

This project is for installing a new aroclor manufacturing plant and a tank farm. The capacity will be 40M ppy. The capital is approximately $1.4M; completion target is approximately January, 1969.

The project includes installation of a 100M gallon biphenyl storage tank and extension of trackage for access to this tank. Two biphenyl unloading docks will be provided. The drainage from the 100M gallon biphenyl tank will be away from the process.

PROCESS

1. Biphenyl Storage Tank This storage tank will be air blanketed; it was stated that contact of the biphenyl with air will not result in deleterious effects on the biphenyl. The flash point of biphenyl is 235°F. It was therefore agreed that low pressure steam (5 psig max.) would be used for heating the large storage tank, the 25,000 gallon tank, and tank cars, in order to avoid heating above the flash point.

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2. Addition of Ferric Chloride to Biphenyl Mix Tanks The ferric chloride is added batchwise to the mix tanks by opening the tanks and dropping in the solid. It was agreed that, in order to prevent formation of any flammable mixtures above the biphenyl in these tanks (Nos. 403 and 404), the temperature of material in the mix tanks will be held below the flash point.

3. Chlorination System The chlorination proceeds at a temperature of about 150°C; approximately 550 BTU's are evolved per pound of chlorine added. Heat removal is accomplished by circulating batch material through an external air cooler and back into the chlorinator. Safety provisions include the following:

   (a) A high temperature sensing element in the chlorinator mass detects high temperature, shuts off chlorine, and alarms.

   (b) Circulating pump shutdown (motor circuit detection) shuts off chlorine feed.

   (c) A temperature detector in the circulating line is used for temperature control in the system. When this element detects low temperature it alarms and also shuts off the air cooler fan.

   (d) A temperature detector in the chlorinator mass (separate from No. a. above) alarms at a high temperature which is lower than the temperature at which the element in a. alarms and shuts off chlorine.

FIRE PROTECTION A new open type structure will be erected adjacent to Building CR.

No automatic sprinkler protection is required for this structure. It should be noted, however, that a spill of biphenyl at a temperature above its flash point (235°F) has resulted in fires.

The existing hydrant protection is considered adequate to extinguish such a fire.

LOSS EXPOSURE The therminol furnace consists primarily of a cylindrical combustion chamber containing finned tubes. Although an explosion in the combustion chamber is possible, the combustion chamber could in all probability contain the explosion pressure. There appears to be no major hazard from this source. The stack might of course be blown off.

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A more likely source of loss exposure would appear to be the burning of a tube in the therminol furnace. A tube could be replaced within about two days if one is in stock. On a sold-out basis the business interruption loss would be approximately $20M. The repair cost was approximated at $3M.

LOSS PREVENTION GUIDE Attached to R. S. Yates' copy of this report is a copy of Form G-1425, Loss Prevention Review Guide, which can be used as a safety checklist for this project.

LOSS PREVENTION REVIEW BY PLANT The S&PP Branch of CED does not plan a complete review of design prints for safety provisions. S&PP requests plant personnel, including plant safety personnel, to follow the development of design prints and to check the progress of construction with particular emphasis on personnel safety and loss prevention.

SAFETY MANAGER R. J. Green will be Safety Manager for this project. Please contact him for reviews during the design phase of this project.

R. J. Green

R. J. Green

W. B. Howard

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