Dow U.S.A.

The Dow Chemical Company
P O Box 150
Plaquemine, Louisiana 70765-0150

January 2, 1992

Gerald Wagener, Chairman
Reactive Chemicals Committee

cc: Carl Mercer, 5301
Tom Perilloux, 3701
Art Royals, 3502W

GLYCOL II REACTIVE CHEMICALS REVIEW - OCTOBER 31, 1991 :

Response to Committee Concerns

Responses are numbered corresponding to committee concerns (Summary of review attached)

1. The concerns related to the Tri-Tetra reactor are being addressed as was recommended by the committee. A meeting has been scheduled to review worst case scenarios. In attendance will be John Monroe, Steve Milligan (both of the Reactive Chemicals Committee), and Tracey Downing. A full report of the outcome will be reported to Gerald Wagener when completed.

2. Placards for the ethyl chloride storage area have been purchased and installed. The reactive chemical concerns of ethyl chloride will be included in the HAZCOM training material and communicated yearly to Glycol II personnel.

3. Concerning the R-10 acetylene reactor and the opening of the strainer, Poly B and Englehard were both consulted in the development of a procedure to take the strainers out of service. This procedure has been reviewed by all Glycol II personnel and was executed successfully in the cleaning of the strainer, with no incident. Also, a procedure will be developed to deactivate and remove the spent catalyst from R-10. The committee also expressed a concern on the effect of a "worst case" scenario for temperature rise and heat generation for R-10 in case of an ethylene/acetylene slug. This will be readdressed by the plant as well as trip points and defense mechanisms. Glycol II is currently evaluating the installation of a process analyzer on the incoming methane and would use this as a trip device.

4. In an attempt to eliminate and better understand EO reactor incidents, Dan O'Shaughnessey and Bruce Powers were contacted and met with the Glycol II plant, EO Technology Center, and John Monroe. They have committed to review all existing maximum allowable oxygen concentration (MAOC) data and evaluate what additional information they would need and what the cost would be to generate the data. This review will be completed by the end of January 1992.

5. When the Ethylene Recovery system is isolated with the pumps still running, the C2H4 and CH4 can be absorbed out of T-300 leaving an oxygen enriched gas, unless N2 is manually added to the column. Based on this phenomenon we feel it is necessary to install an on-line oxygen analyzer on T-300 overheads and possibly automate the high pressure nitrogen valves to the column. Another alternative would be to modify the control logic so that once the system is isolated for more than 2-3 minutes the pumps automatically trip. This second alternative would tend to complicate start-ups and day to day operations of the Ethylene Recovery unit. Glycol II will evaluate these options and report back to the Reactive Chemicals Committee.

The Glycol II staff would like to thank you for your input, and if you have any other questions or concerns that you would like for us to address please feel free to give me a call.

Steve Milligan
Glycol II - B-5301
(504)-389-8100

Dow U.S.A.
The Dow Chemical Company
P.O. Box 150
Plaquemine, Louisiana 70765

November 4, 1991

Carl Mercer
5301 Bldg.

cc: Tom Perriloux, 3701
Art Royals, 3502W

REACTIVE CHEMICALS REVIEW - OCTOBER 31, 1991

Project: Glycol 2-- New Superintendent Review

Attendees: John Monroe, Steve Milligan, Brian Witt, Tom Perriloux, Dan Slezak, Tracy Downing, Buck Bailey, Don Jones, Steve Cook, Hal Martin, Wally Bounds, Romon Lopez, Mark Mitchell, Henry Vadnais, David Steele, Gerald Wagener

The Reactive Chemicals Committee is very appreciative of the effort you and your staff gave to this reactive chemicals review. Obviously there was a tremendous amount of work which went into the preparation. It was obvious to the Committee members that you are very knowledgeable of the Reactive Chemicals hazards and lines of defense which exist in your Plant.

Concerns:

1. Concerning the Tri-Tetra reactor: There is still a concern that the reactor operating temperature is too close to the decomposition temperature as measured by ARC analysis. Two exotherms were observed by ARC and the concern is whether or not the first exotherm could (under some set of credible conditions) lead to the second exotherm (decomposition). Reactive system relief design calculations should be performed to determine the extent of hazard. Credible worse case scenarios should be identified. John Monroe said he would be available to assist if needed.

2. The reactive chemicals hazards of using aluminum in the Ethyl Chloride area should be re-emphasized to Glycol 2 personnel as well as to maintenance/contract folks. This could perhaps be done in the HAZCOM training sessions. Placards could be strategically placed throughout the area to emphasize this hazard.

3. Concerning the R-10 Acetylene Hydrogenation reactor there were several suggestions:

--Since the strainers will be opened soon it would be appropriate (because of the recent Poly B hydrogenation strainer incident) to consult with Poly B personnel on how to avoid the problem they experienced. In addition, Mike Holbrook in R&D, a hydrogenation catalyst expert, should be contacted if technical expertise is needed in this area

--There was discussion of the effect of a worse case "slug" of ethylene from LHC. Perhaps a process analyzer should be installed to monitor the ethylene in this stream. Another possibility would be to transmit the output signal from instrumentation at LHC to Glycol 2 to warn of an impending slug of ethylene.

--Credible worse case scenarios should be established for this reactor system and the the current trip logic should be evaluated to insure that the lines of defense are appropriate.

--A system should be established for early warning of catalyst selectivity/efficiency problems.

--Procedures for de-activating and de-commissioning spent catalyst need to be established.

4. As an attempt to eliminate EO reactor incidents there has been several downward adjustments to the oxygen concentration in the inlet feed. The current practice is to limit the inlet oxygen at a level 0.75% below the calculated MAOC. The equation which is used for calculating the MAOC is based on extrapolated test data. It would be appropriate to validate this equation by conducting flammability tests on the actual composition of the inlet feed to the EO reactors. Bruce Powers and Dan O'Shaughnessey are the contacts in Midland for getting this work done.

5. CO2 Removal: The Reactive Chemicals Committee agrees with the need for an oxygen analyzer on T-300 OH.

Please respond in writing to the committee chairman within one month as to action taken or planned in regard to these concerns.

Gerald Wagener

Gerald Wagener, Chairman
Reactive Chemicals Committee

DO A 135789
CONFIDENTIAL

cg