CHEMICALS

INTEROFFICE / LAKE CHARLES

CONFIDENTIAL

TO G.K.Jordan/L.W.Carter/D.E.Wiley DATE August 16, 1977

FROM W.E.Cleary

SUBJECT Reliability Study - Overview of Per-Tri Plant

During July, an overview study of the Per-Tri operating unit was made by W. Cleary and A. Howerton. Study results were discussed with M. Clary, J. Gustin and D. Holliday on 8/4/77 and 8/5/77, and again with J. Gustin and D. Holliday on 8/10/77 and 8/11/77.

Even though the mechanical flowsheets used for the study had been recently updated, enough discrepancies were found to indicate that some graduated checking process by operating personnel in the future will be necessary to verify the updating drafting work done by Levingston Engineers.

Certain questions regarding entering and exit manifolds for the organics preheaters were discussed and the Operations personnel advised that this entire system was being revised under a current project.

The No. 1 Per Neutralizer system has not been operated in some time. It appears that some refurbishing will have to be done (around the C-6 and C-12 columns) to make this sytem operational.

It is recognized that once an in-depth study of the reactor chemistry of this unit is made, a number of significant potential hazards will surface that are not covered in this overview study.

GENERAL

1. Vessel grounding protection needs to be reviewed.

2. Steam user pressure ratings should be checked against air failure positions of 400 - 250 psig and 250 - 150 psig steam reducing stations.

3. Vessel overpressure protection design needs to be checked. One vessel (DH Still Feed Tank T-138) has already failed because of faulty piping design.

4. Not all glass sight glasses are protected from accidental breakage.

5. A better system for manifold labelling is needed as a deterrent to operator valving error.

REACTOR AND VENT SYSTEM

1. A standleg is needed on top entry nozzle to organics recycle tank.

2. Organics vaporizer reboiler shells do not have SRVs and can be subjected to steam pressures higher than the shell working pressure.

3. All FCVs on chlorine vaporizer shutdown system are bypassed - need close control on bypass sealing practices.

4. Can organics back into the chlorine surge drum? If so, what are consequences?

5. Organics vaporizer drum SRVs relieving capacity should be checked for backing chlorine into the vapor drum.

6. Automatic double block and bleed arrangement separates reactor oxygen feed lines and nitrogen header. A similar system should be used on the mixed feed headers.

7. Some redundancy may be needed on degasser level control loops.

8. Per-Tri Startup Scrubber C-115 probably needs a methane addition line.

9. Condensate level loss in dowtherm steam drums leads to a crash shutdown. An auxiliary makeup line or flow meter is probably needed.

10. Snuffing steam valve to dowtherm heater should have operation checked on regular schedule.

11. Some piping should be replaced on natural gas bleed line between two Maxon valves to dowtherm furnace.

12. Is a pressure controller needed between TCV 5034 and the dowtherm furnace burner to prevent flame flash back?

STILL LINE

1. Valving revision is necessary to use E-184 cooler with both drying still feed tank headers.

2. Drying Still Reboilers (E-33 and E-125) are not protected against steam line pressure and need to have working pressure ratings checked.

3. Per-Tri Still BottomsEconomizer (E-159) needs overpressure protection.

4. Per-Tri Still Condenser (E-127) may need overpressure protection.

5. Some on-the-run piping tie-ins have been made inside control loop block valves and should be changed on a scheduled shutdown. (Example - take off next to ILCV 8064 on Dwg. 63A-1172-6)

6. Tri Reflux filters may need overpressure protection. Equipment not currently protected in pump discharge lines should have working pressure checked against maximum shut off head now present in the system.

STABILIZER AND STORAGE AREA

1. Five crude Per-Tri storage tanks in the process area have no visible grounds.

2. Batch stabilizing sheets need to be revised.

3. There are no visible grounds on No. 1 and No. 3 Per-Tri Dock Storage Tanks.

4. There is inadequate grounding on Per-Tri Barge Loading Pump.

5. Steps should be taken to eliminate small line size connections directly to larger nozzles on the bottom of storage tanks.

WEC:fd