

CHEMICALS

INDUSTRIES

INTEROFFICE / LAKE CHARLES

CONFIDENTIAL

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

FROM W.E. Cleary *WEC*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 Livingston 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 system 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. (411) Vessel grounding protection needs to be reviewed.

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

3. (413) 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. (414) Not all glass sight glasses are protected from accidental breakage.

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

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REACTOR AND VENT SYSTEM

- COMPLETE 1. ⁴¹⁶ A standleg is needed on top entry nozzle to organics recycle tank.
- COMPLETE 2. ⁴¹⁷ Organics vaporizer reboiler shells do not have SRVs and can be subjected to steam pressures higher than the shell working pressure.
- [3. ⁴¹⁸ All FCVs on chlorine vaporizer shutdown system are bypassed - need close control on bypass sealing practices.
- [4. ⁴¹⁹ Can organics back into the chlorine surge drum? If so, what are consequences?
- NOTED 5. ⁴²⁰ Organics vaporizer drum SRVs relieving capacity should be checked for backing chlorine into the vapor drum.
- [6. ⁴²¹ 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.
- NOTED 7. ⁴²² Some redundancy may be needed on degasser level control loops.
- COMPLETE 8. ⁴²³ Per-Tri Startup Scrubber C-115 probably needs a methane addition line.
- NOTE 9. ⁴²⁴ Condensate level loss in dowtherm steam drums leads to a crash shutdown. An auxiliary makeup line or flow meter is probably needed.
- NOTED 10. ⁴²⁵ Snuffing steam valve to dowtherm heater should have operation checked on regular schedule.
- COMPLETE 11. ⁴²⁶ Some piping should be replaced on natural gas bleed line between two Maxon valves to dowtherm furnace.
- NOTED 12. ⁴²⁷ Is a pressure controller needed between TCV 5034 and the dowtherm furnace burner to prevent flame flash back?

STILL LINE

- [1. ⁴²⁸ Valving revision is necessary to use E-184 cooler with both drying still feed tank headers.
- NOTED 2. ⁴²⁹ Drying Still Reboilers (E-33 and E-125) are not protected against steam line pressure and need to have working pressure ratings checked.
- NOTED 3. ⁴³⁰ Per-Tri Still Bottoms Economizer (E-159) needs overpressure protection.

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

CANCELLED

5. ⁴³² 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)

COMPLETE

6. ⁴³³ 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

CANCELLED

1. ⁴³⁴ Five crude Per-Tri storage tanks in the process area have no visible grounds.

COMPLETE

2. ⁴²⁵ Batch stabilizing sheets need to be revised.

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3. ⁴²⁶ There are no visible grounds on No. 1 and No. 3 Per-Tri Dock Storage Tanks.

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

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

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