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Mr. C. M. Tien
Project Manager - Sulfolane and Tatoray Units
Chinese Petroleum Corporation – Lin Yuan, Taiwan, R.O.C.

Dear Mr. Tien:

SUBJECT: Meeting Discussion - UOP Responses to CPC Questions

1. The entire Reaction Circuit is designed for operation under high temperature and H₂ environment. Does the design consider operation under various temperature / pressure range (e.g. temperature / pressure rise during normal startup, temperature / pressure during normal operation, and temperature / pressure lowering during shut down, handling of emergency procedure, catalyst reduction and catalyst regeneration, etc)? Equipment and piping selection all can prevent H₂ attack?

UOP Response: Yes, all equipment in the reactor section is designed to prevent hydrogen attack. *material select.*

2. Regarding the design pressure for Tatoray reactor section and safety valves: The design pressures through out the reaction circuit are not consistent. What is the basis for these design pressure selection? Safety valve at low pressure setting is easy to pop.

UOP Response: The design pressures are set typically at 25 psi or 10% above the maximum operating pressure of the equipment. The PSV located at the Tatoray Separator will be set at the design pressure of the Separator.

3. The current mandatory inspection is every two years. To apply for extension of mandatory inspection to a longer period, government regulation requires the operation pressure to 110% of normal design, will be the current design of the unit allow such operation? If not, how can the design pressure and safety valve pressure be adjusted?

UOP Response: UOP assumes the question to be: Can the equipment be operated at 110% of the normal(or max.) operating pressure and the answer is, "no." The design pressures of the equipment are set at 25 psi or 10% above the maximum operating pressure and thus we cannot operate within 10% of the design pressure with spring loaded relief valves or within 5% of the design pressure with pilot-operated relief valves.

4. Revamping P-V47 (Reformate Splitter) and P-V11 Sulfolane Revamp- There are two feed streams to (Reformate Splitter) one is 5/6PLATFORMING UNIT REFORMAT the other is NO.4 PLATFORMING UNIT REFORMAT in the future if only one stream from NO.4 PLATFORMING UNIT is available i.e. 60%TURNDOWN RATIO would it be an operational problem for P-V47 ?

UOP Response: On the P&ID UOP had retained the lines for reverting the operation back to No. 4 Platforming Unit reformat feed only and it would go directly to Rerun Column P-V11 bypassing the Reformate Splitter P-V47. UOP had stated the original operation for P-V11 would work if the blanking off strips were removed. In regard to the Reformate Splitter being able to handle the single feed case, UOP did not look at this case and further work would be required to determine how this column would operate.

5. Sulfolane Revamp – Extraction and distillation equipment have been revamped for BT extraction only. If we would also like to operate for BTX extraction, can the extraction and distillation equipment handle the load? Particularly, there are two trays less in the extractor. How would the BTX extraction be affected?

UOP Response: BTX feed would need to be fed at the upper (original) feed nozzle but aromatics recovery should be the same as the extraction stages have not changed.

Best regards,



Kevin Arms

Project Manager

Aromatics Technology Center