

Run Time Increased >100%**Multiple Benefits Stemming from Sieve Tray Revamp to High Capacity Fixed Valve Trays****PROBLEM:**

- Increased run time and capacity were desired for upstream column prone to severe fouling and instability.
- Column had to be shut down 3-4 times per year for tray cleaning. Decreasing performance as trays fouled.
- Existing sieve trays were limited by active area. Downcomer size was already minimized—no capacity improvement was available from downcomer reduction.

APPROACH:

- Koch-Glitsch recommended active area replacement of sieve tray panels with high capacity fixed valves.
- Horizontal vapor exit direction and "self-cleaning" feature of fixed valves would provide fouling resistance.
- The miniature fixed valves would provide additional capacity over the existing sieve holes, adding operational flexibility for future capacity expansions.

SOLUTION:

- Existing downcomers were reused, with no modifications required to tower attachments—no welding to vessel shell was required.
- Frequent fouling and cleaning of existing trays could mean damage or weakening of existing equipment. Koch-Glitsch provided some new downcomer panels in case downcomer damage was detected during installation.

RESULTS:

- Feed rate was increased 20%.

- No loss in tray efficiency.
- Pressure drop and bottoms temperature were reduced, slowing fouling.
- Increased column stability observed.
- Run time was increased over 100%.
- Improved column performance has benefited other areas of the unit.
- Replacement of active areas only, proactive supply of potentially damaged parts, and avoidance of welding resulted in reduced installation time (approximately 3 shifts saved).