

Reduced Maintenance Costs & Increased Uptime

Refinery outgassing bottleneck resolved via proper control valve sizing & selection.



Improved valve design avoids 15-month periodic repair & replacement



Improved reliability and increased throughput



Return on investment: less than 24 hours

APPLICATION

Hot, low-pressure, flash drum level control in Gas-Oil Hydro Treater (GOHT) producing light cycle gas oil (LCGO) in combined duty shared with distillate hydrotreater (DHT)

CUSTOMER

Large refinery processor

CHALLENGE

Customer was experiencing that, over time, its gas-oil hydrotreater capacity had grown to the point where two components of the high-pressure separator let-down service would occasionally be flagged as unit constraints.

Refinery operations are such that the gas-oil hydrotreater and distillate hydrotreater share the duty of Light Cycle Gas Oil production (LCGO). During unit shutdown, the GOHT was unable to handle LCGO production on its own, making it a further constraint. The two units became the bottleneck to achieving maximum LCGO production during a distillate hydrotreater turnaround.

Further, corrective repair work to these two valves was required every 15 months. This was due to valve and trim washout and excessive vibration causing packing problems and premature yoke failures. Improper valve sizing created choked flow conditions which resulted in unit constraints during normal and temporary feed slate conditions.

SOLUTION

Novaspect and Fisher collaborated with customer process engineers to understand the complete set of process conditions that were creating the outgassing conditions in both normal and temporary feed slate conditions. The Novaspect-Fisher experts used a “bracket” sizing technique to

understand the valve flow coefficient (Cv) requirements that could result from different outgassing phenomena.

The resulting solution was a customized Fisher 3” x 3” Type HPAS valve with 2-Stage DST-G outgassing trim designed specifically for this application. Its valve body was designed to meet customer piping and material specs with a contoured and expanded outlet to prevent choked flow and other problems such as vibration and erosion due to outgassing. The resulting trim was suitably customized to meet the Cv requirements of the customer.

OUTCOME

The project ROI was recorded at less than 24 hours, calculated during a temporary feed slate opportunity. After installing the Novaspect solution, these valves have not failed since (96 months) versus every 15 months before. Emerson Process Management provided by Novaspect offers an array of control system support services designed to help achieve business objectives, reduce or contain operating and service costs, and keep control systems running at peak performance. It is a partnership that understands your business and can help you operate your plant safely, reliably, and more efficiently.



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