Criticality in Coke Drum Repair

End to End solution...

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REFCOMM
MUMBAI
11–14 November 2019
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- Coke drum Repair
- In-situ Dry Slot cutting
- Site & Shop Fabrication
- Modification & Upgradation of associated systems
Bulge Overlay,
Base Metal Repair
&
Clad Repair
- Resource arrangement for bulge overlay/crack repair at various elevation & orientation
- Temper bead technique for weld overlay & crack repair
- Confined space working with climate control
Bulge Overlay

Arrangement of Resources during shutdown...
Bulge Overlay

Clad Stripping by Gouging

1. 1.2Cr–0.5Mo PLATE
2. Clad Stripping

Mockup

Surface finish after Gouging
Inhouse developed Fully Automatic Weld overlay Systems

- Multiple systems for higher productivity
- Temper bead technique for better mechanical properties & to avoid PWHT
- Optimized weld parameters to minimize HAZ width
- Inhouse pool of experienced welders
- Prompt response for emergency shutdown
Surface finish after Weld Overlay

- Offer as weld bead finish
Precise gouging for avoiding damage to base metal
Temper bead technique for better mechanical properties & to avoid PWHT
- Controlled depth gouging to avoid base metal damage
- Clad restoration by fully automatic Welding
InSitu Dry Slot Cutting
- Space constraint: 200 mm between Skirt # Steam pipe
- In-housed developed InSitu machine for safe working
Site & Shop Fabrication
Field Fabrication @ IOCL-Gujarat & IOCL Panipat

- Site fabrication meeting all stringent quality norms
- Stringent delivery & site installation in working refinery
- Critical Heat treatment & Hydrotest at site

Total 08 nos Coke Drums manufactured at site
Workshop Fabrication:

- State-of-the-art manufacturing facility
- Meeting all stringent customer/process licensor requirements
- Largest Coke Drum manufactured; Dia. 10 m, Length 35 m
- Timely delivery

Total 72 nos Coke Drums manufactured
Workshop Fabrication:

- Largest order executed: 8 nos. of Coke drum delivered in single dispatch
Modification & Upgradation of associated systems
- Critical set-up & fabrication at site
- PWHT with +/- 5 deg. Temperature control

Source: Delta Valve, USA
- Critical Rigging of valves at larger radius distance & height
- Design & fabrication of a dedicated fixture for safe handling
- Critical Rigging of spools at various elevations
- Critical Heat Treatment & NDT
- Working in congested area for modification / replacement
**Coke Drum: Capabilities**

### Field Repair
1. Bulge Overlay
2. Clad Repair
3. Base Metal/Seam Repair
4. In-situ Dry Slot Cutting – Skirt
5. Slot Crack Repair - Skirt

### Digital Solution
1. Life Cycle Assessment using IoT

### Manufacturing
1. Field Fabrication
2. Workshop Fabrication

### Other Services
1. Center Feed Nozzle
2. Delta Valve Handling (BUD, TUD)
3. Vapor Line Revamp
4. FEA Services
5. Bottom Flange Machining
Thank You

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