



Criticality in Coke Drum Repair

End to End solution...

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REFCOMM[®]
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L&T Heavy Engineering

Contents



Coke drum Repair

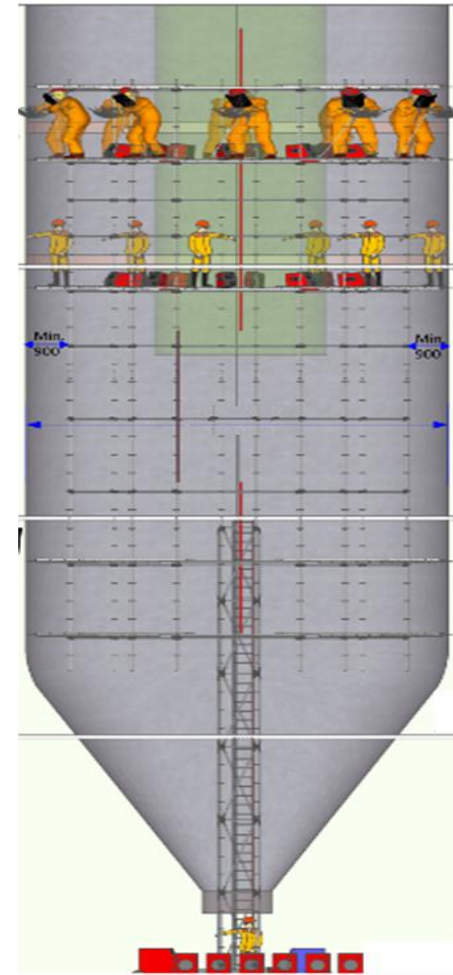
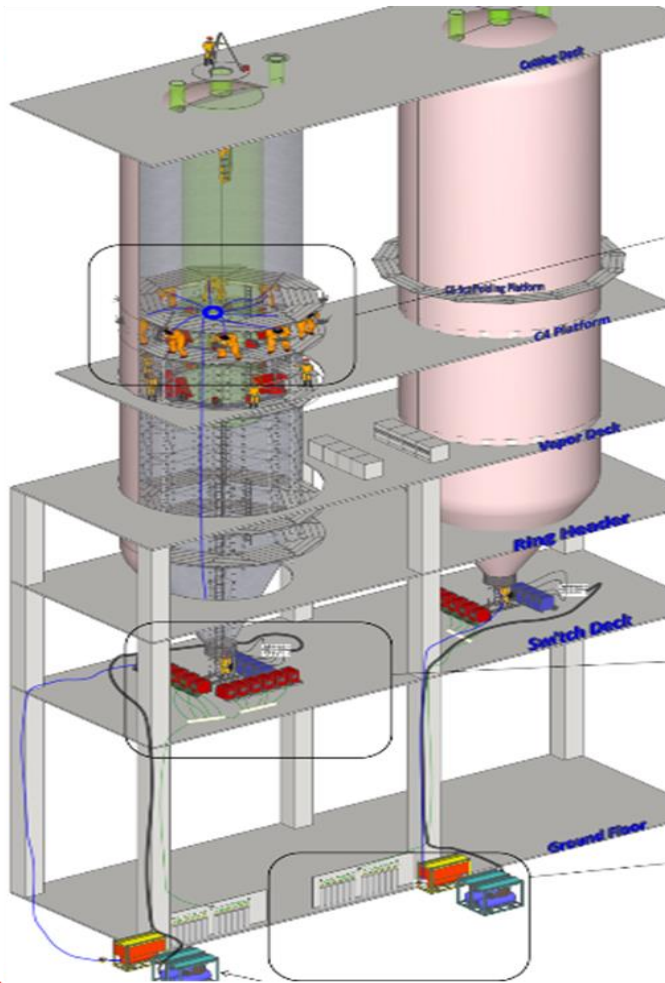
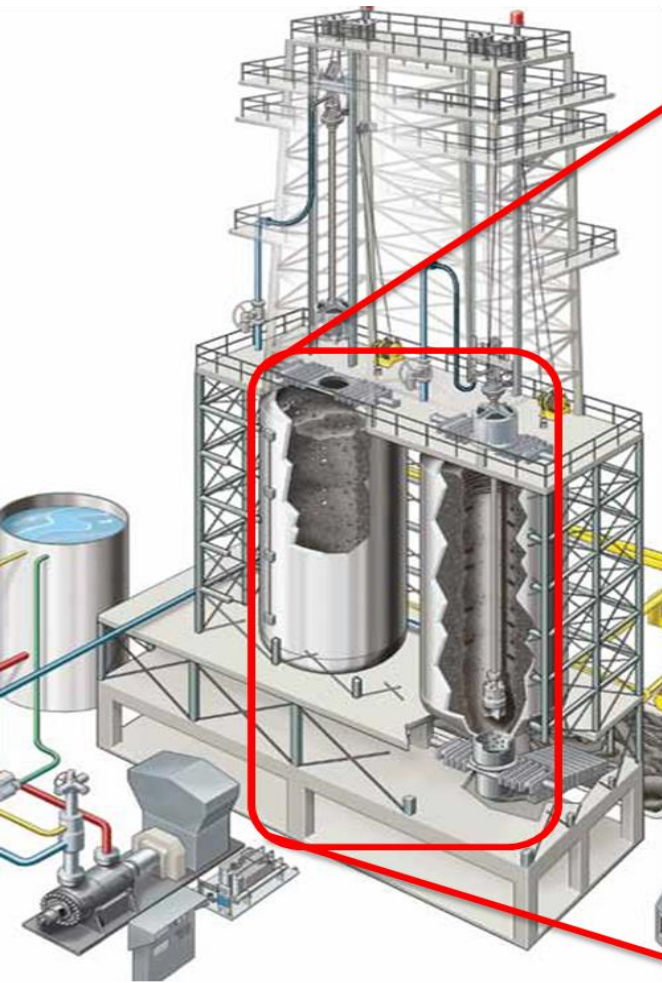
In-situ Dry Slot cutting

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

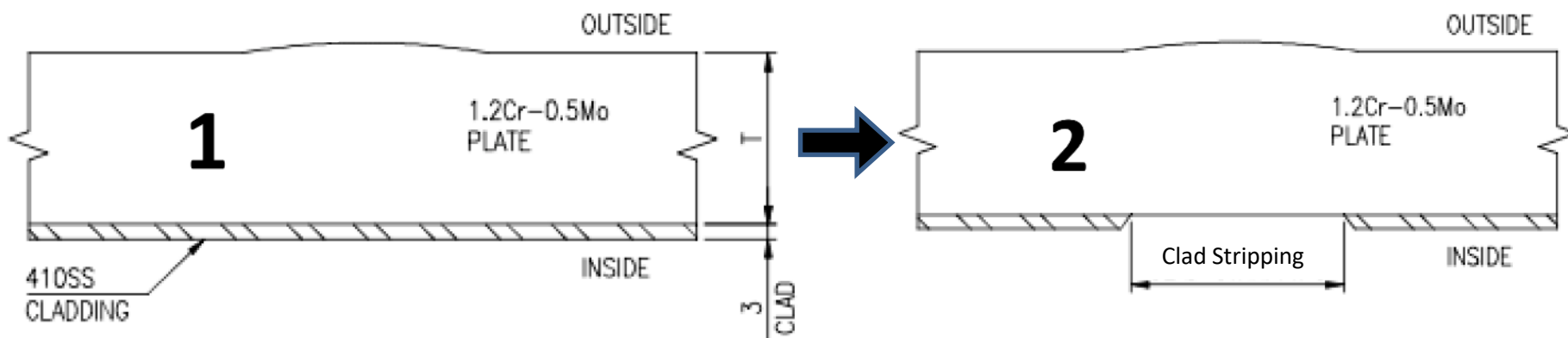


Arrangement of Resources during shutdown...

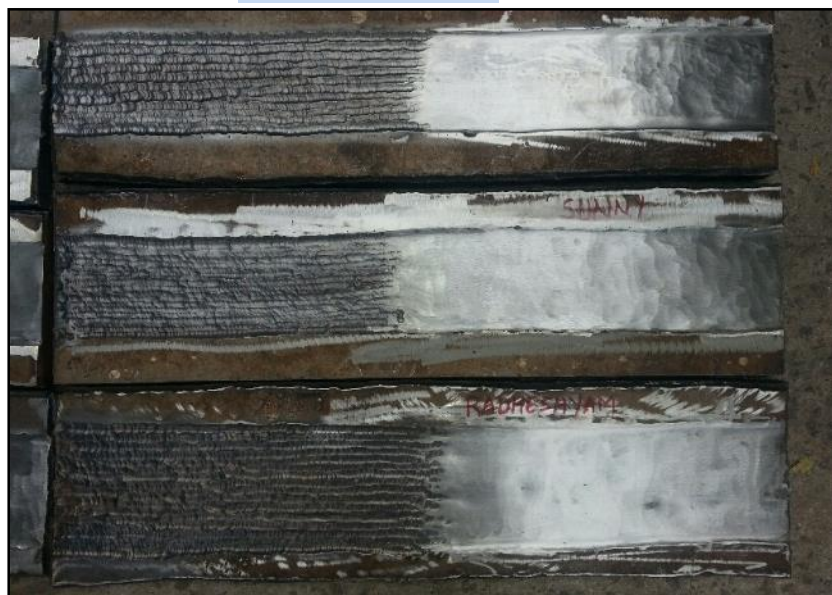




Clad Stripping by Gouging



Mockup



Surface finish after Gouging





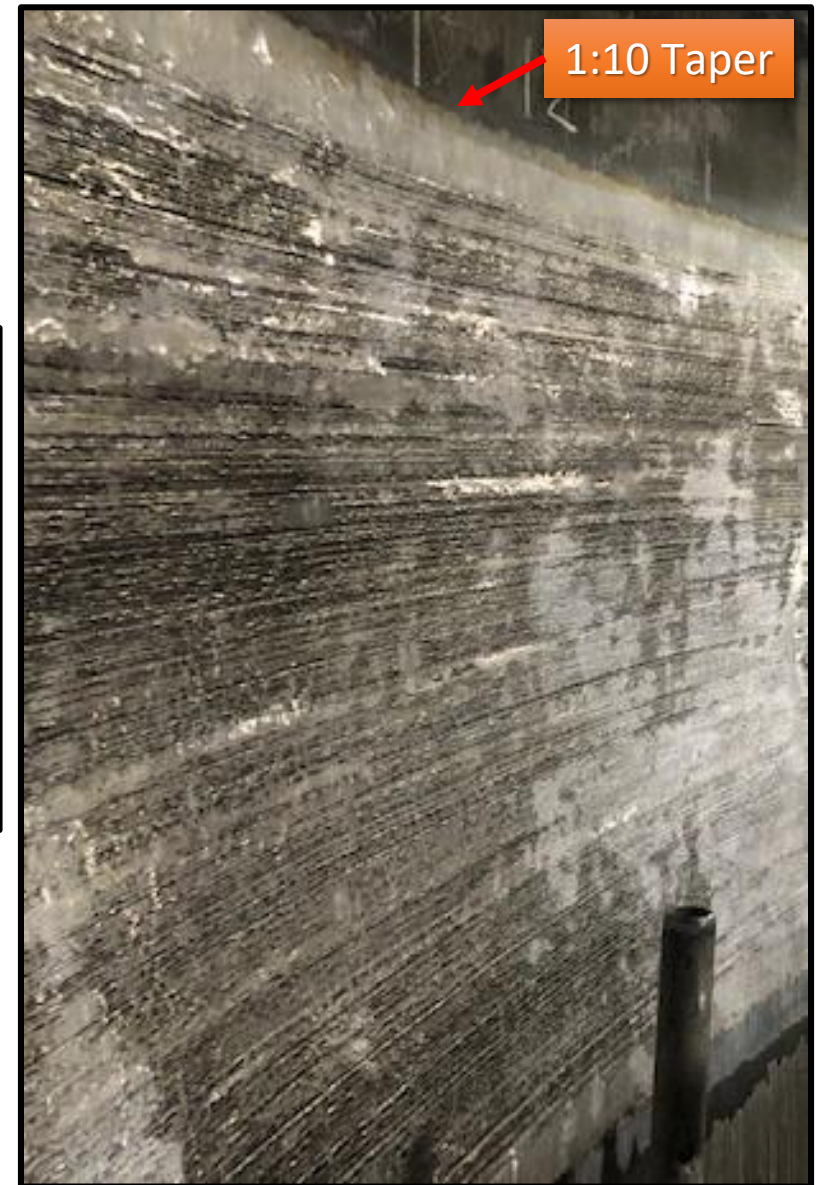
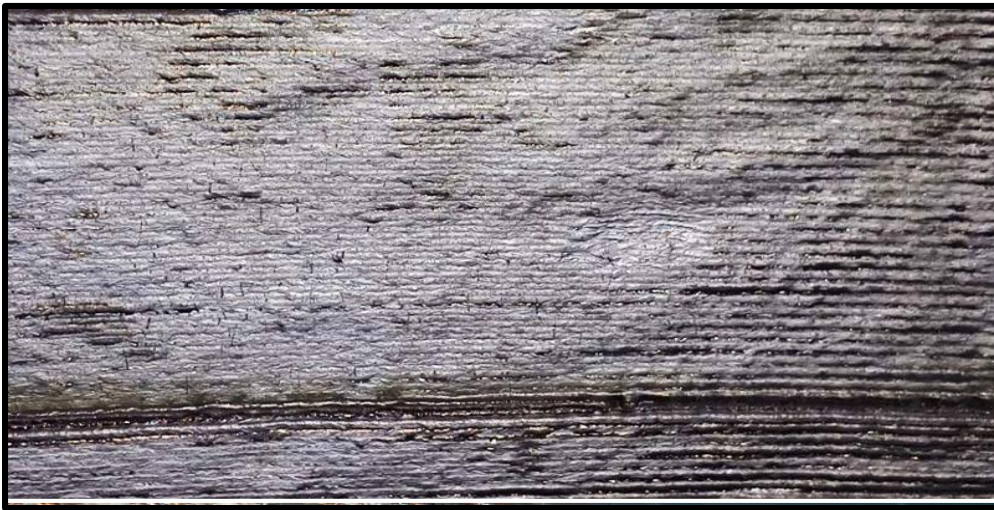
Inhouse developed Fully Automatic Weld overlay Systems



- 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



Emergency Repair

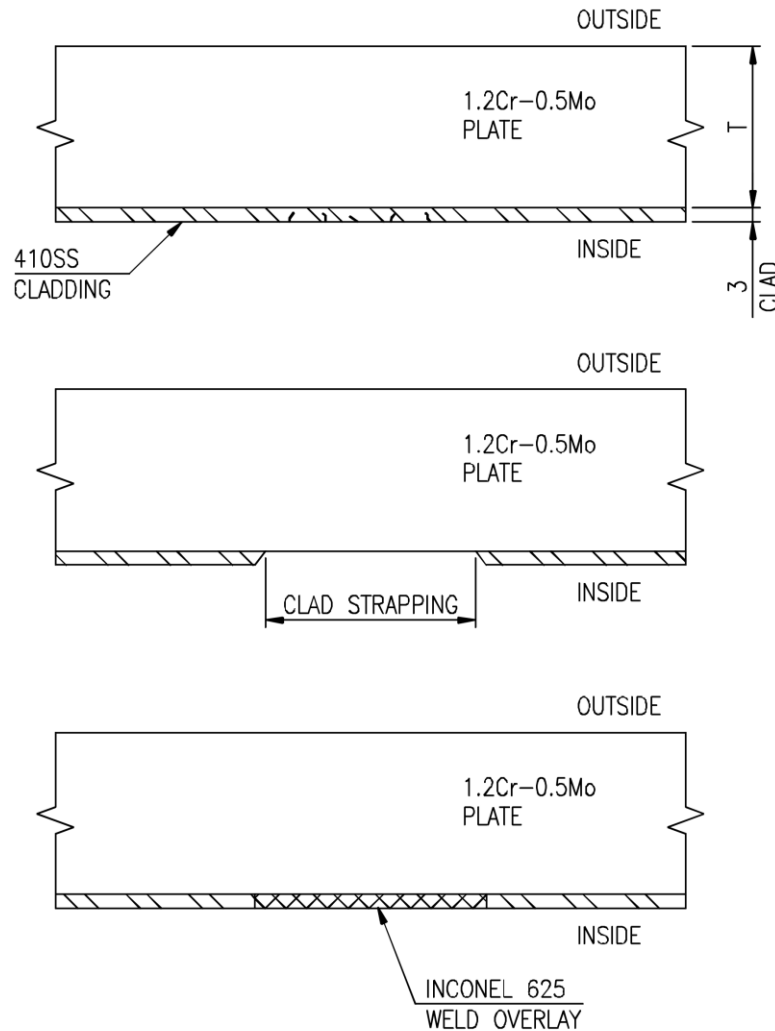
Overlay patch after repair



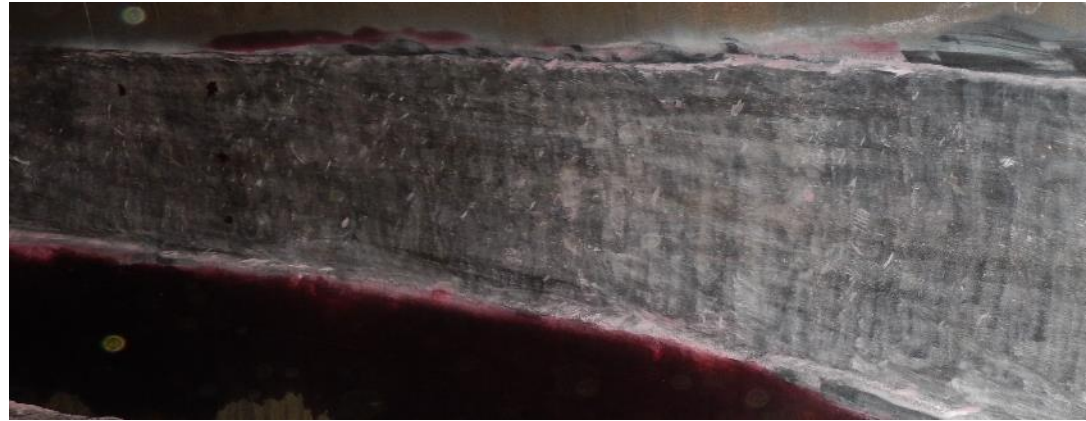
Connected patches by taper welding



- Precise gouging for avoiding damage to base metal
- Temper bead technique for better mechanical properties & to avoid PWHT



After Gouging



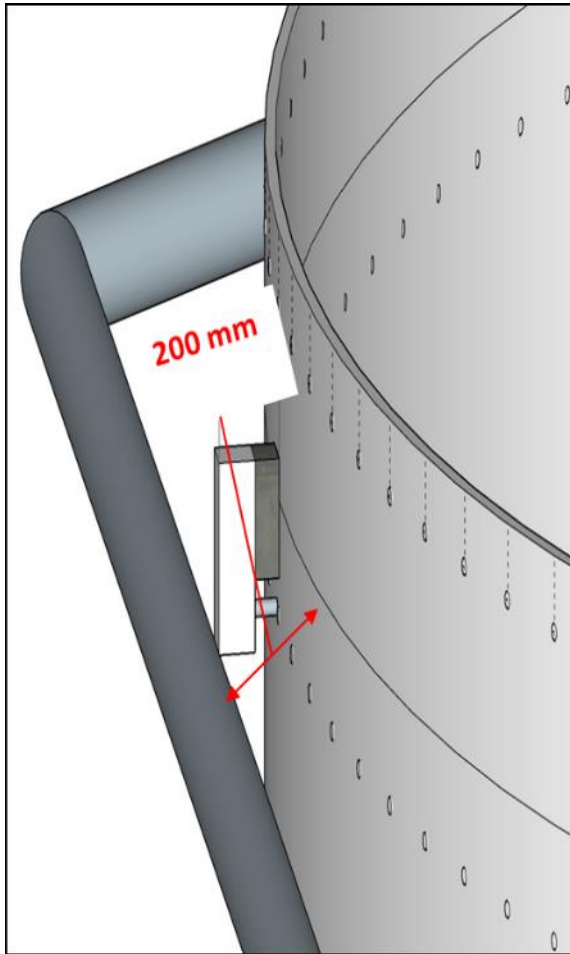
After clad restoration



- 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 anufactured
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**



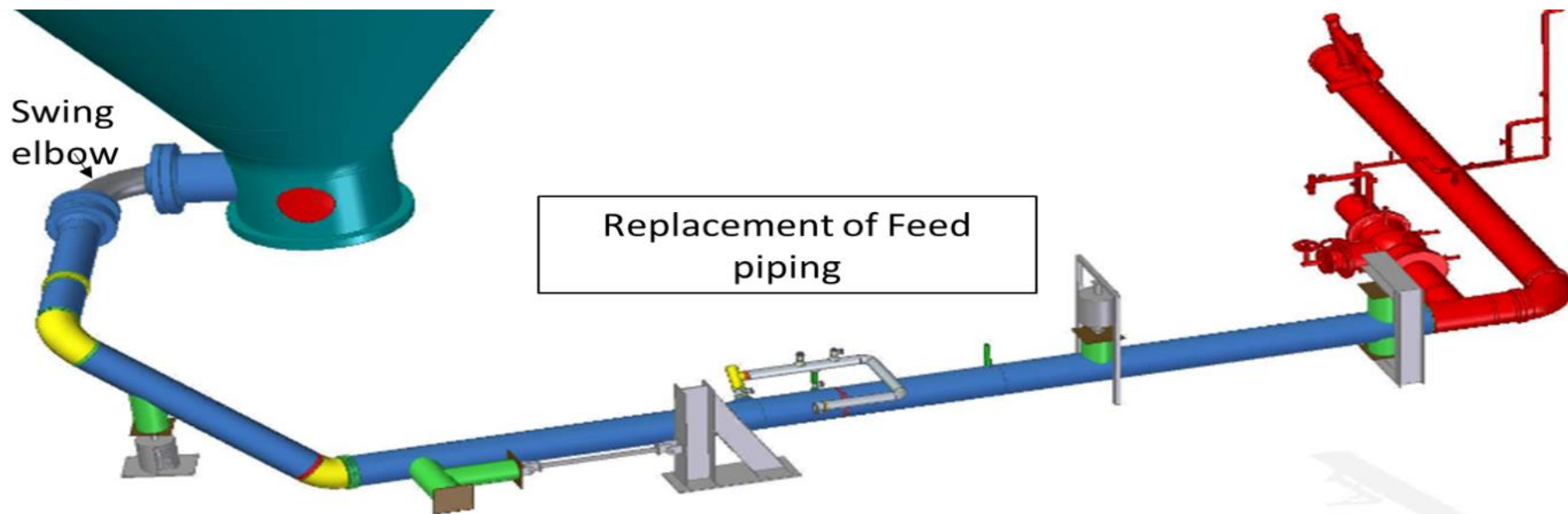
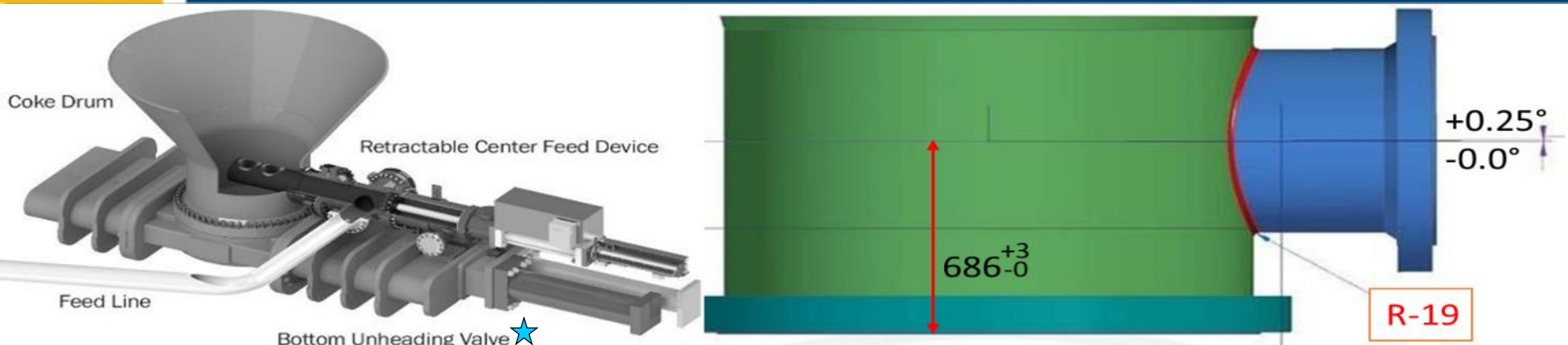
Workshop Fabrication:



- Largest order executed : 8 nos. of Coke drum delivered in single dispatch

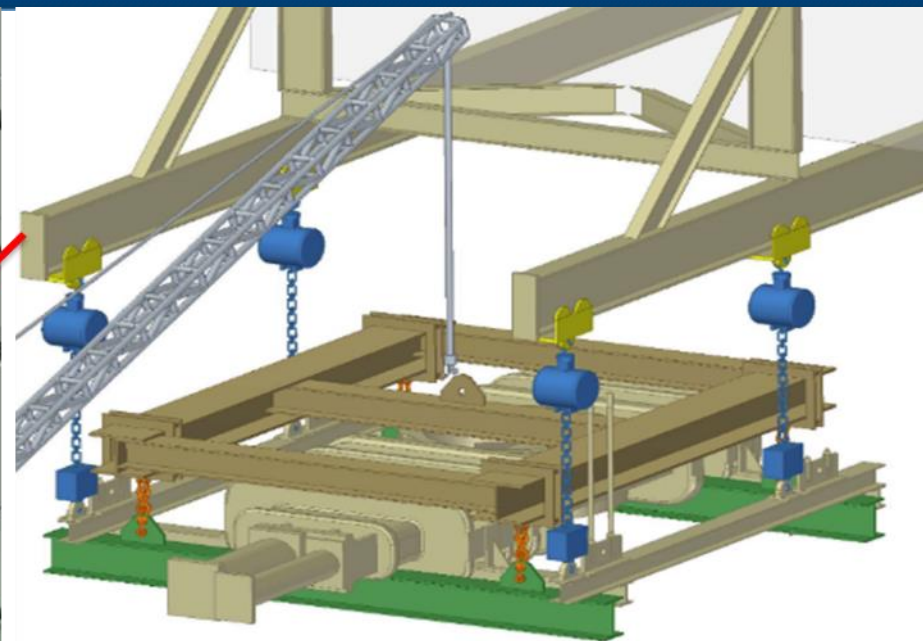
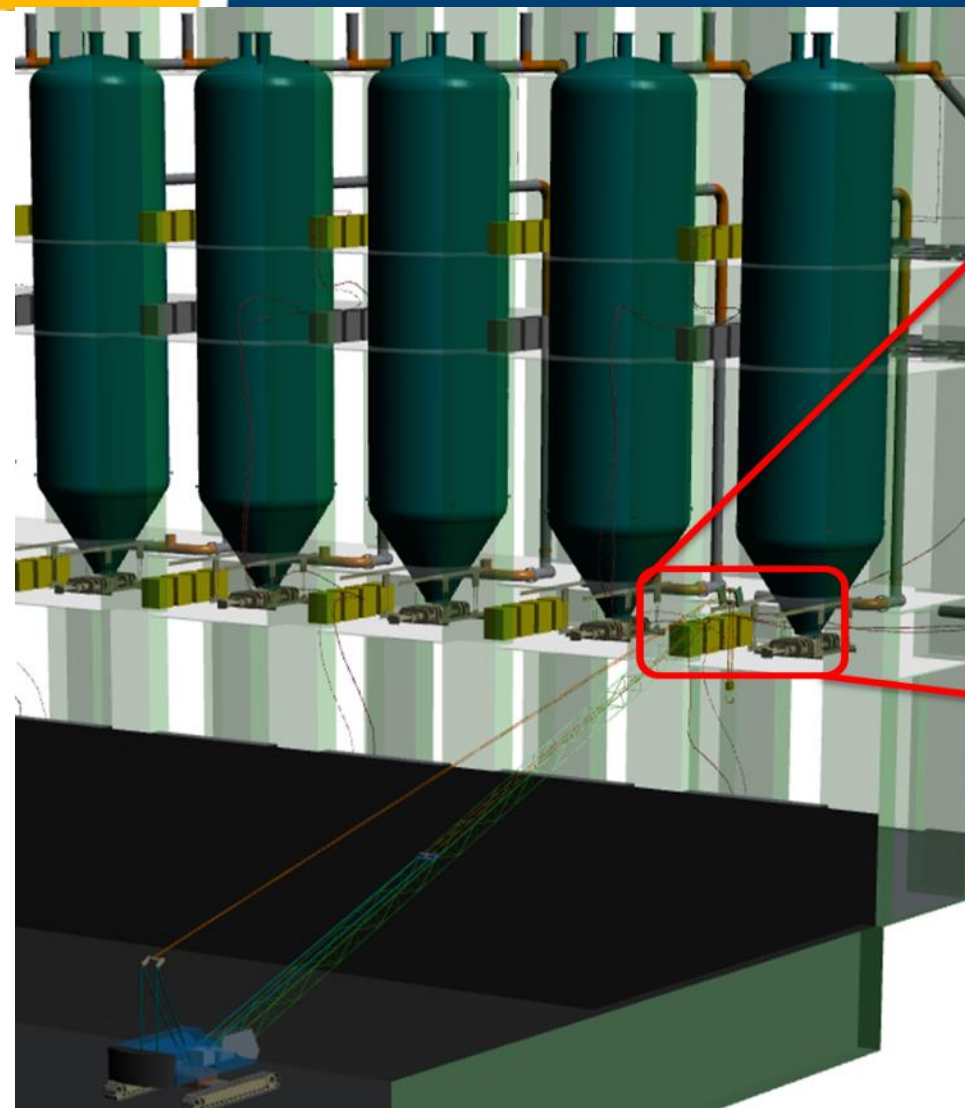


Modification & Upgradation of associated systems

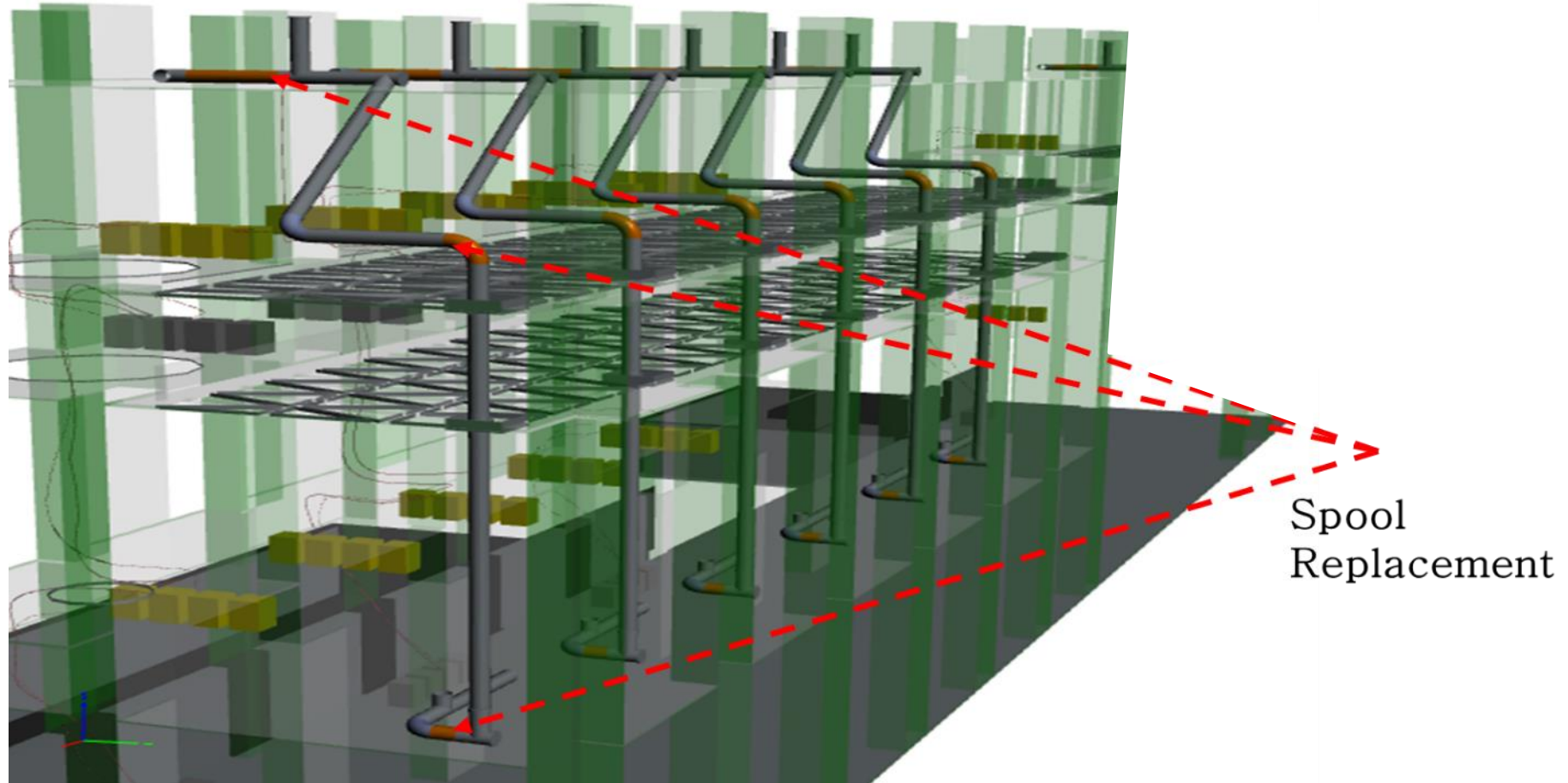


- Critical set-up & fabrication at site
- PWHT with +/- 5 deg. Temperature control

★ 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



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



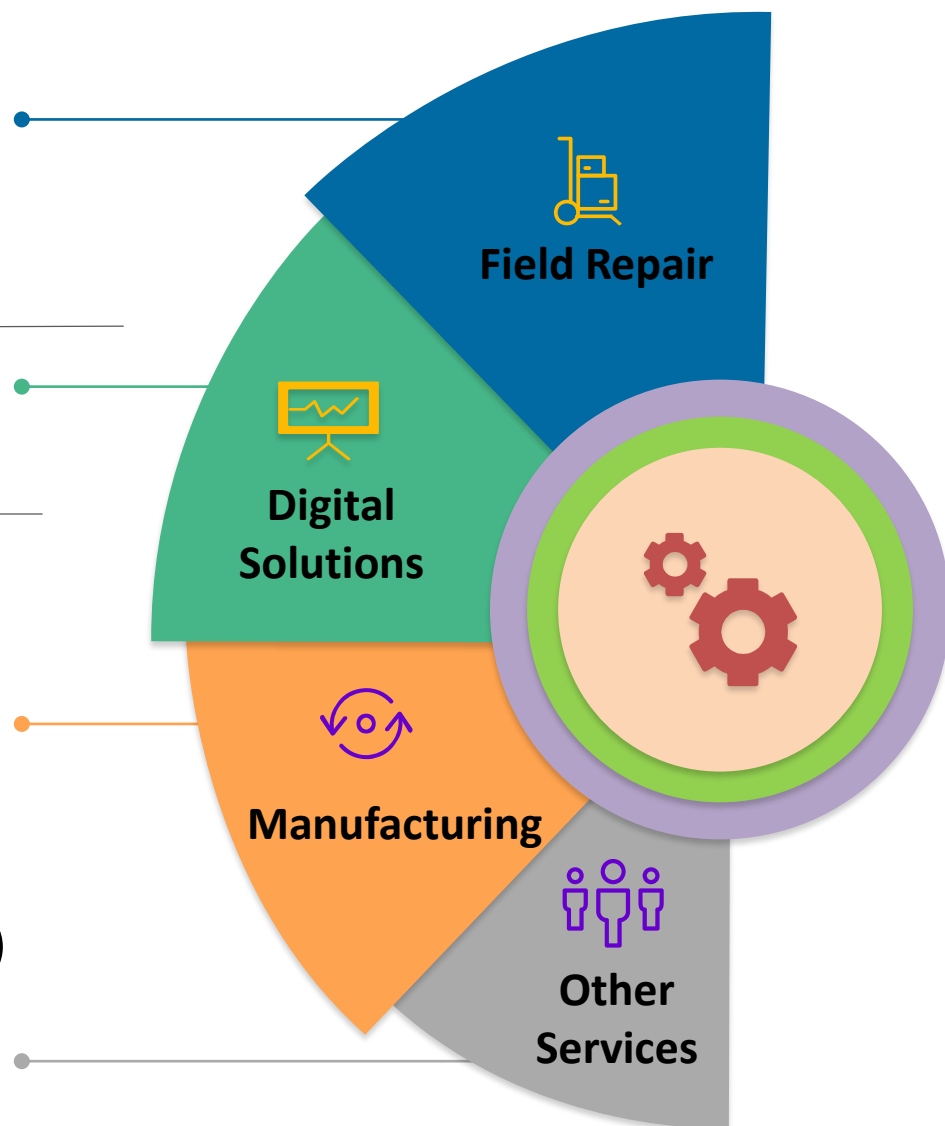
Manufacturing

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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