AMINE REGENERATOR COLUMN

CASE STUDY

CATEGORY

PRODUCTS / PRESSURE VESSELS

SUMMARY

Equipment : *45C-800X Column*
End User: *Caltex (NSW)*
Reference : *LA2258*
Client: *Caltex (NSW)*
Duration: *8 months, May 2007 to Jan 2008*

The Requirement was to supply a replacement column for installation during a planned refinery turn around. The column was supplied fully insulated following a trial platform assembly during manufacturing to mitigate site issues during final assembly prior to lifting into position.

Any replacement pressure equipment has the additional challenge of needing to be built like-for-like, if manufactured accurately it supports a seamless installation by the site crew, saving valuable time and effort bolting up the equipment to existing piping runs & foundations. Caltex NSW at the time of the project was operating an old refinery and equipment change outs were common and critical to maintaining production while upgrading end of life process equipment.

Scope included Design, Draft, Verify and Register

PROJECT DETAILS

Engineering

- Pressure : FV/345 kPa
- Temperature : 230°C
- Dimensions : 2m ID x 28m Overall
- Weight : 56 Tonnes
- Standard : AS1210 Class 2A
- PWHT : In halves with local on closing seam

Materials

- Shell : AS1548-7-460R x 20mm think
- Clad section : ASTM A516-60 + ASTM A240-321 x 23mm thick
- Ends : AS1548-7-460R x 20mm thick
- Flanges, forgings & pipe : ASTM A105 & A106-B

Manufacturing

- NDE: AS1210 Class 2A + Caltex NYS Specifications
- Assembly of internal trays
- Hydrotest to 1845 kPa (18.5 Bar)

Surface Treatment

- External - 2 coat epoxy phenolic system to total DFT of 250um
- Insulated and clad in Zincalume® sheeting
- Skirt - Chartek Fireproofing

Delivery / Transport

CIF, Kurnell (NSW) Australia

Planning

The column required a 2.5m long titanium stabilized austenitic stainless steel clad section to combat a corrosive process phase mid-column. An explosion bonded clad plate was sourced and joint with the Australian boiler plate using an in-house developed weld procedure designed & tested to meet the joint's corrosive performance requirements. To minimise on site works after delivery, all the platforms & ladders were trialed fitted in the factory. Insulation & site assembly were planned in conjunction with transport so the column arrived on-site 95% insulated and ready for assembly to be carried out supported by the transport saddles. This eliminated further handling, resulting in minimal insulation works before lifting the column into position.

Challenges

Due to the length of the column 23m tan to tan and the clad section, the column was completed in two halves, then PWHT. The clad section with overlaid nozzles was then used to join the halves and a local PWHT undertaken on the final two seams.

Notes

To ensure the integrity of the clad bond with the base metal, the surface was re-scanned after forming to Level S6 of ASTM A578.

Find out more at www.la.services

Contact us for further details on our projects
77A Carrington St
Revesby NSW 2212
+61 2 9780 8000
enquiries@la.services