Project Detail: HPCL Vizag refinery revamp

Technology licensor: Chevron Lummus Global

Manufacturer: L&T Heavy Engineering

Key statistics:

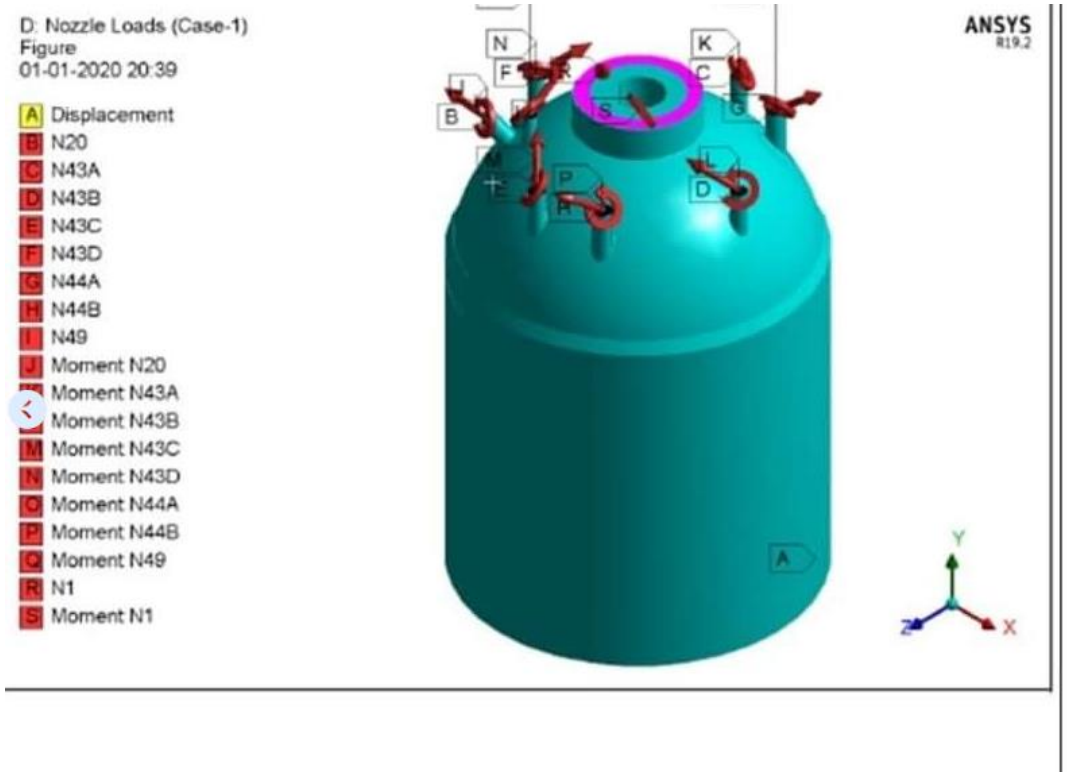
- 3 reactors over 2300 Tons each
- 2 reactors over 1200 Tons each
- Material of Construction: Cr-Mo-V

Source: LC-Max Reactor: Heaviest reactor in world by EIL, Vizag Refinery Modernization Project (psuconnect.in)

Stress analysis of Head & Nozzle junction ASME Section VIII Div 2

- Evaluated for protection against:
  1. Plastic collapse
  2. Thermal Ratcheting
  3. Local failure
  4. Fatigue accumulation

Key advancement:
Automated data acquisition using python scripts, reducing post-processing and report preparation times



Source: [Engineers India Limited added a... - Engineers India Limited (facebook.com)]

Reactor transportation simulation

- Iterative design and optimization of transportation arrangement including:
  1. Transportation load case evaluation (Handling, road transport, ocean transport)
  2. Saddle design
  3. Jack stools design

Source: LC-Max Reactor: Heaviest reactor in world by EIL, Vizag Refinery Modernization Project (psuconnect.in)
44211-LC-Max-Reactors.webp (800×600) (nbmcw.com)

Reactor lifting simulation

Iterative design of following:

1. Top lug
2. Tailing lugs
3. Reactor stiffeners

New internal benchmark for lifting simulation:

Old method:

Stresses evaluated for **4 load cases** only:

0°, max F_horizontal, max F_vertical, 90°

New method:

Prepared python script to evaluate stresses at every 5° increments (**19 load cases**) form horizontal to vertical

Advantages: Accurate simulation in similar time

Source: Post | Feed | LinkedIn