Charge Compressor 2/3 Stage
Fouling/High Vibration

Johnny Dugas
Senior Technical Associate
DuPont Sabine River Works
Orange, Texas
Problem

- Significant performance loss and high vibration on the Charge Gas 2/3 stage compressor was experienced one year following the 2003 Turnaround.

- This followed two consecutive, highly successful runs after application of antifoulant coating in 1995.
GB201 Compressor Train
2/3 Stage Compressor Cross-Section
2/3 Stage Vibration Trend

Apparent period of no random spikes.
Frequency Spectrum
Restricted Orbit
Efficiency
March 30th Interlock

2nd and 3rd Stage - Trend Plot [2/3 Vib Trend] Plot 5

- 201 Stg2/3 WR: From 29MAR2005 00:00:00 To 01APR2005 00:00:00
- GB201 Charge: From 29MAR2005 00:00:00 To 01APR2005 00:00:00

- 30MAR2005 13:58:05: 12.03 mil pp, ∞224°, 6730 rpm

Graphs show:
- Phase Lag: 45 deg/div
- Amplitude: 0.5 mil pp/div

Time: 4 Hours/div
Restricted Orbit (Rub)
2/3 Stage Vibration Prior to Oil Flush
Hard Rub
Summary

- Performance loss and vibration was due to severe fouling.
- Severe fouling led to axial and radial rubs.
- Severe fouling was due to liquid carryover from suction drums.
- 2/3 stage compressor overhauled and returned to service
- Suction drum demisters upgraded to high efficiency.
Current Performance

![Graph showing current performance with data points and a trend line.](image-url)