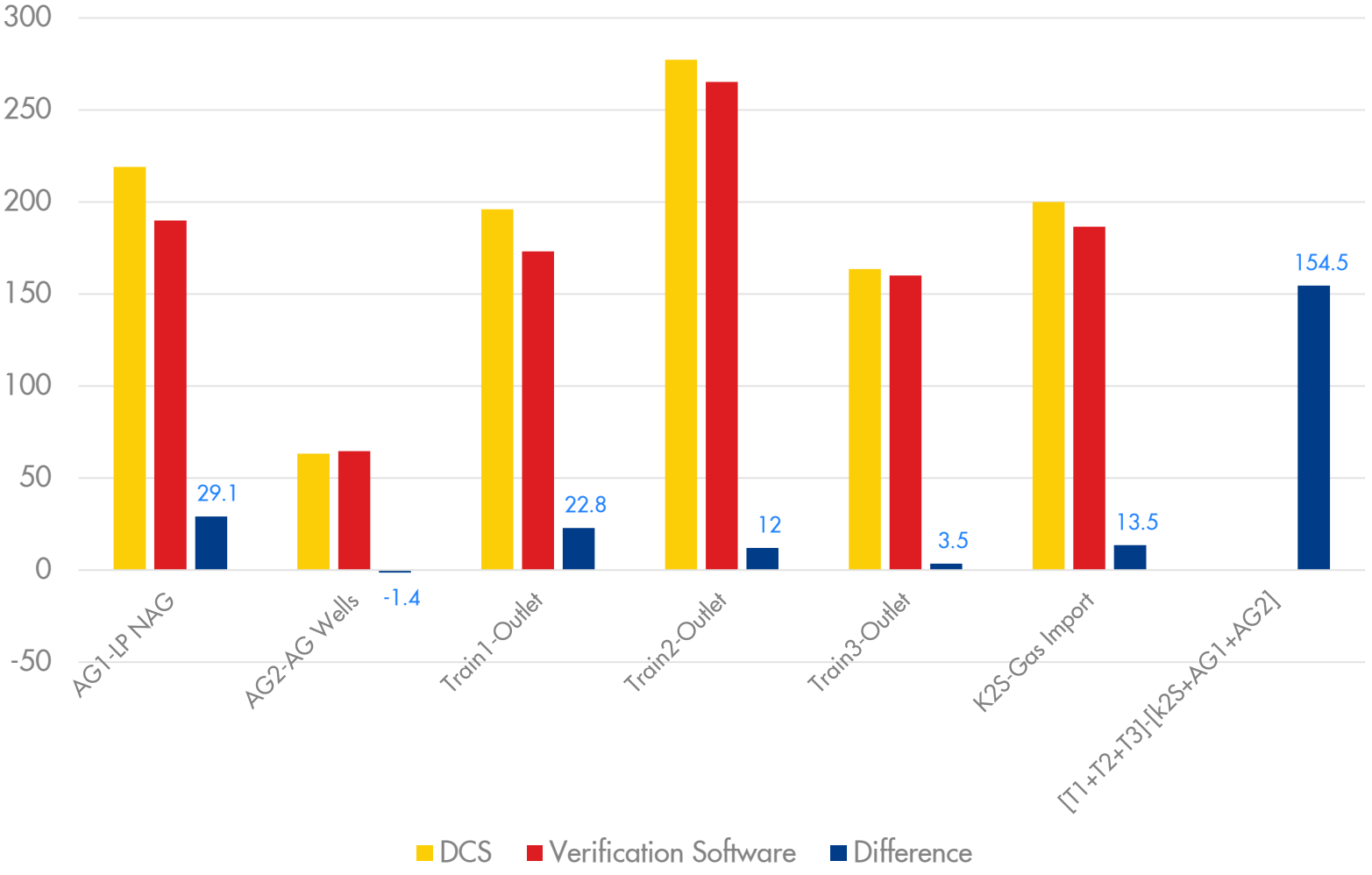
Soku GP, LP NAG Compressor -Gas Export Capacity Improvement

Verification of LP NAG Compressor outlet meter

Background

- A discrepancy of 30~40mmscf/d was discovered in export volumes when the LP NAG compressor is online. Specific discrepancy that brought the issue to fore occurred between 20th and 21st February 2018.
- This triggered an investigation and resulted in verification of all class III meters to find the source of the error.
- The source of the error was identified as the class III meter located at the outlet of LP NAG compressor [see slide 3]. This meter gives indication of the flow output of the compressor and used by control room operators to adjust the flow manually.

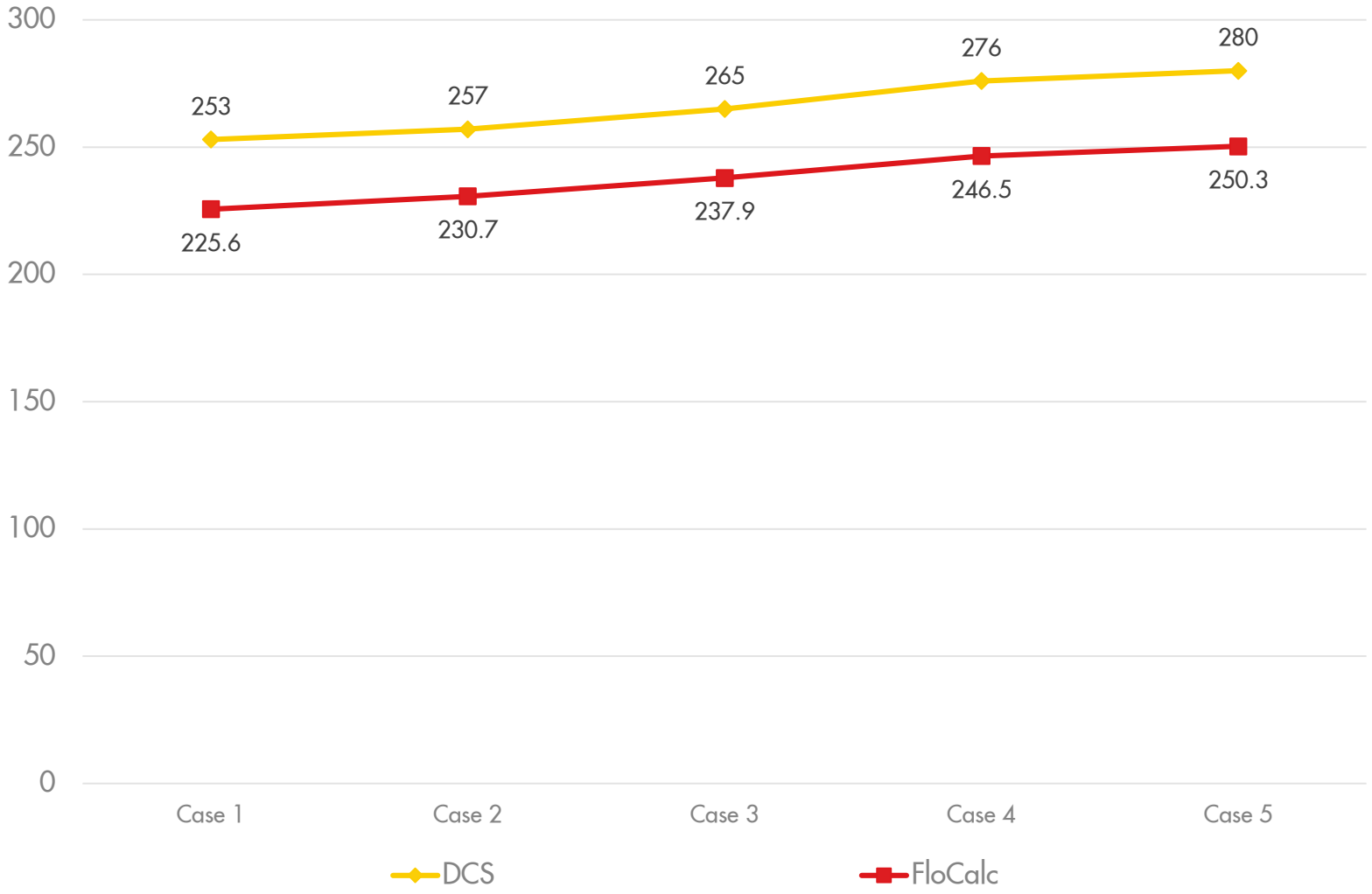
Comparison [DCS and FloCalc]



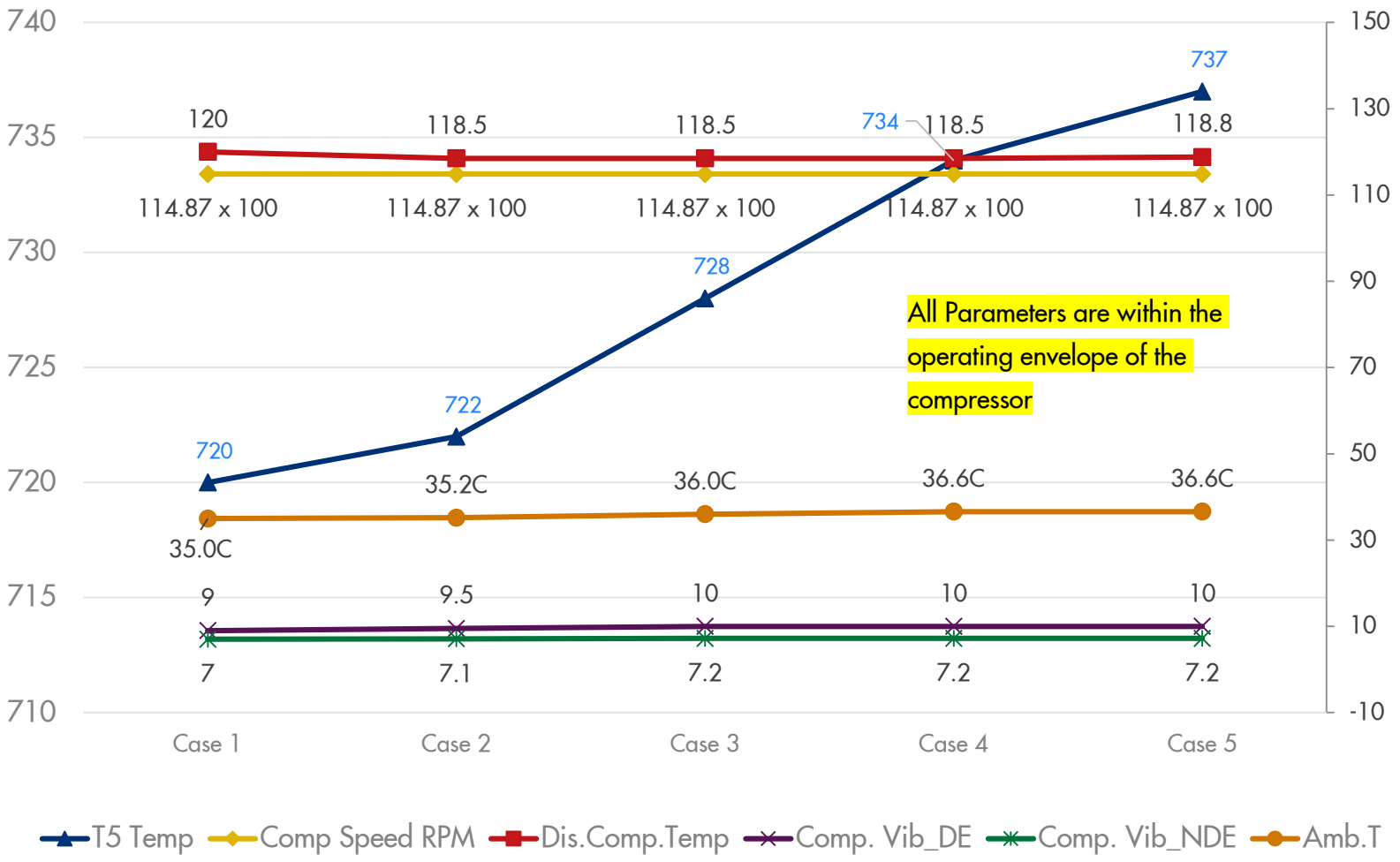
Actions and Outcome

- This was registered in Cadence as an opportunity to improve the compressor output by measuring the actual output.
- A team was formed to attend the site, revalidate the meter data and check the calculations against the compressor live performance.
- The gas feed to compressor increased in five steps and at each step the meter reading and corrected readings were calculated while monitoring the compressor performance.
- The calculated gas feed to compressor [corrected meter reading] was set to 250mmscf/d in-line with maximum safe compressor intake capacity and it was confirmed the meter readings are 10.6% above the actual volumes [see slide 5/6].

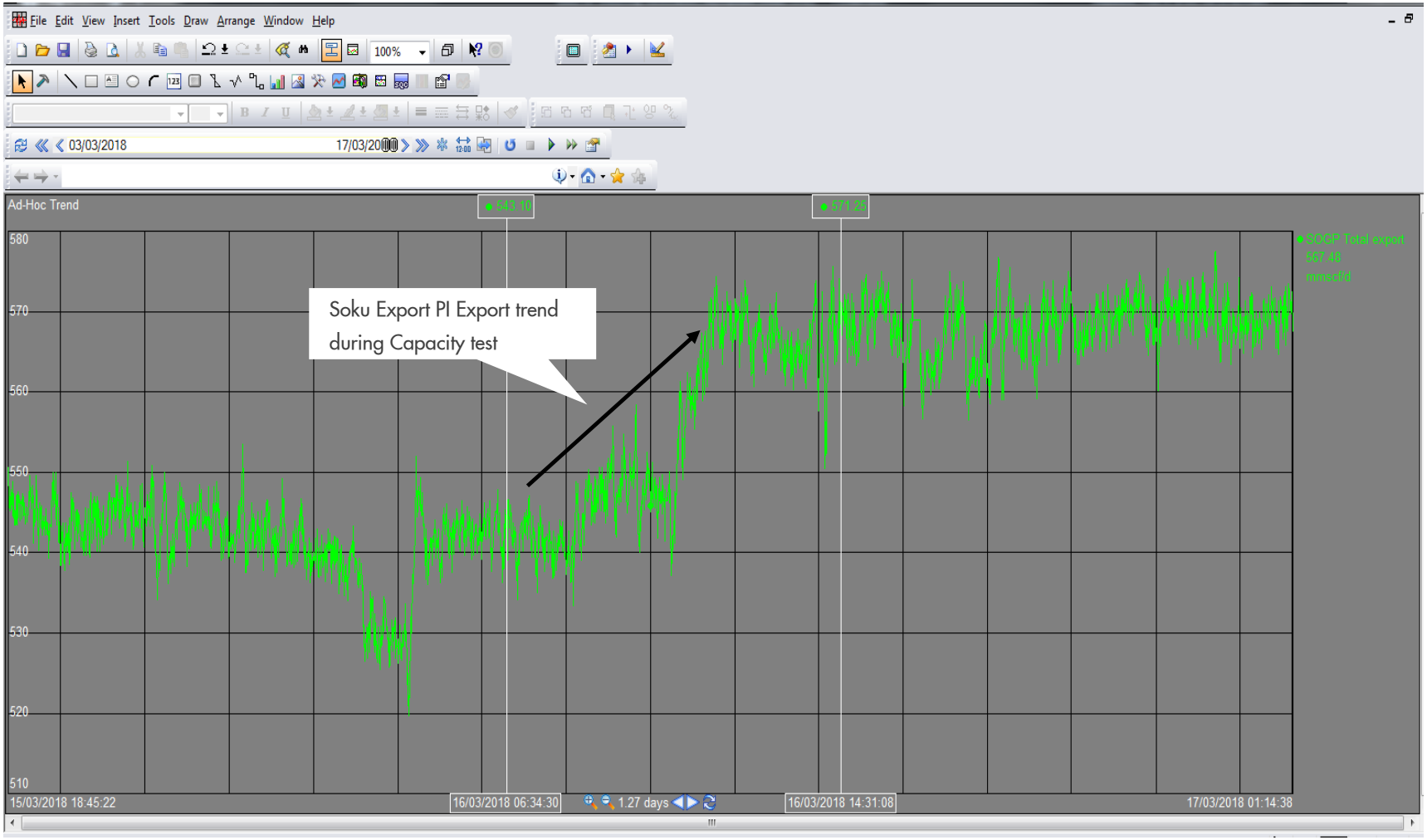
Flocalc/DCS


300
250
200
150
100
50
0
253
257
265
276
280
225.6
230.7
237.9
246.5
250.3
Case 1
Case 2
Case 3
Case 4
Case 5
DCS
FloCalc

Compressor Parameters



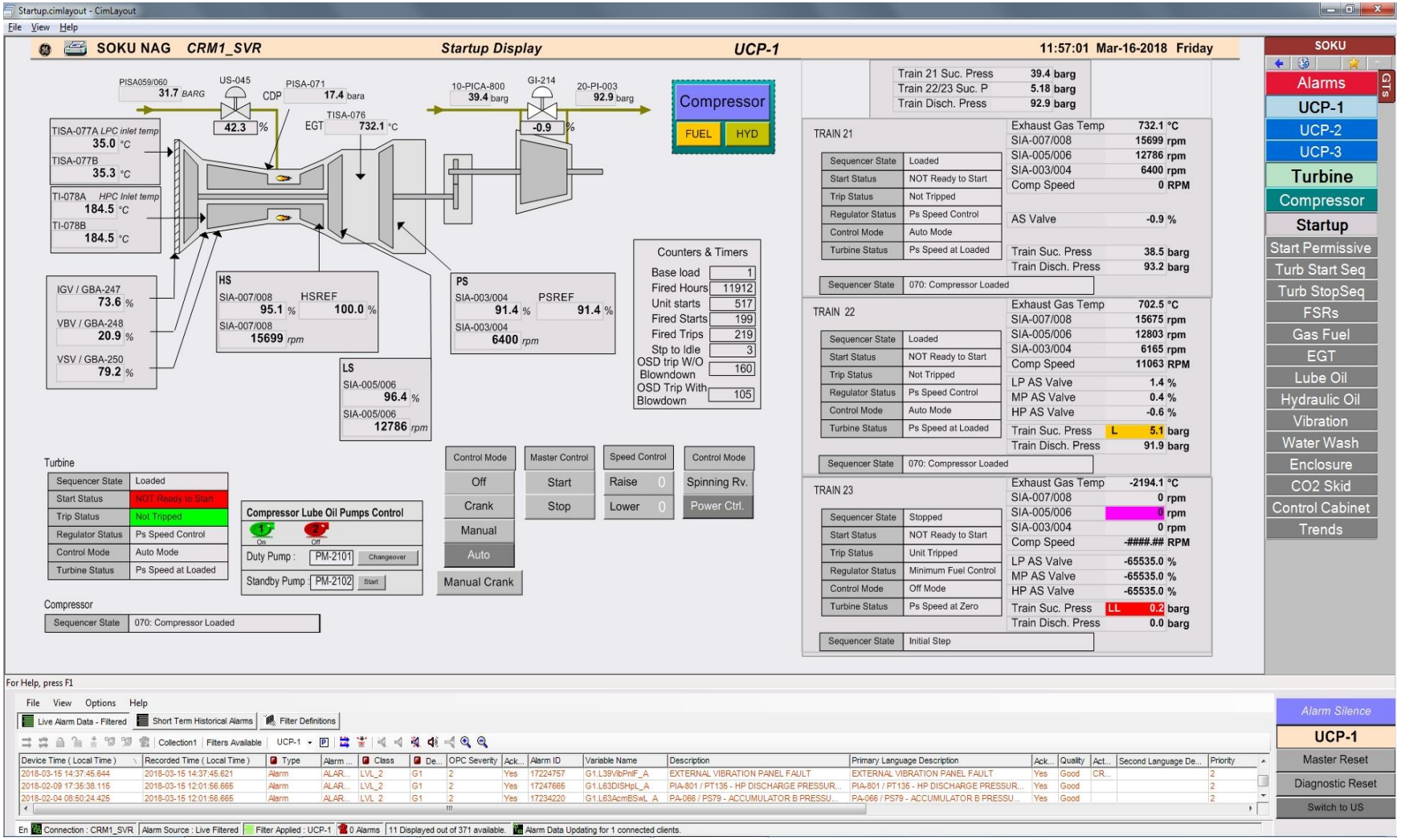
Soku Export PI trends



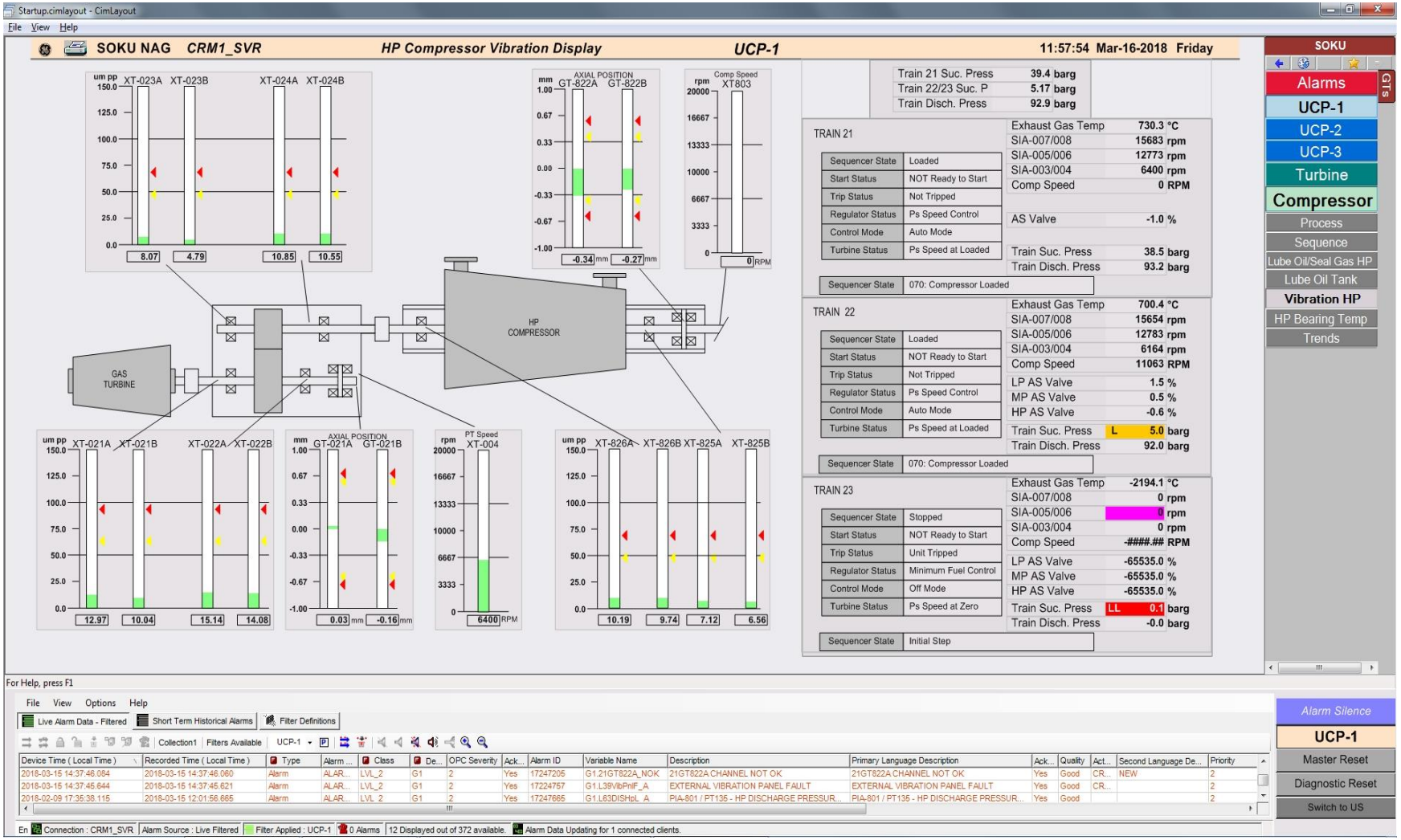
Conclusion / Way Forward

- The compressor outlet meter is over reading around 12% for flow rates below 180mmscf/d and 10.6% for flowrates above 180mmscf/d.
- The maximum allowable export volume [from the meter reading] shall be 275mmscf/d , [Actual export ~ 250mmscf/d]
- The export meter over reading shall be rectified.

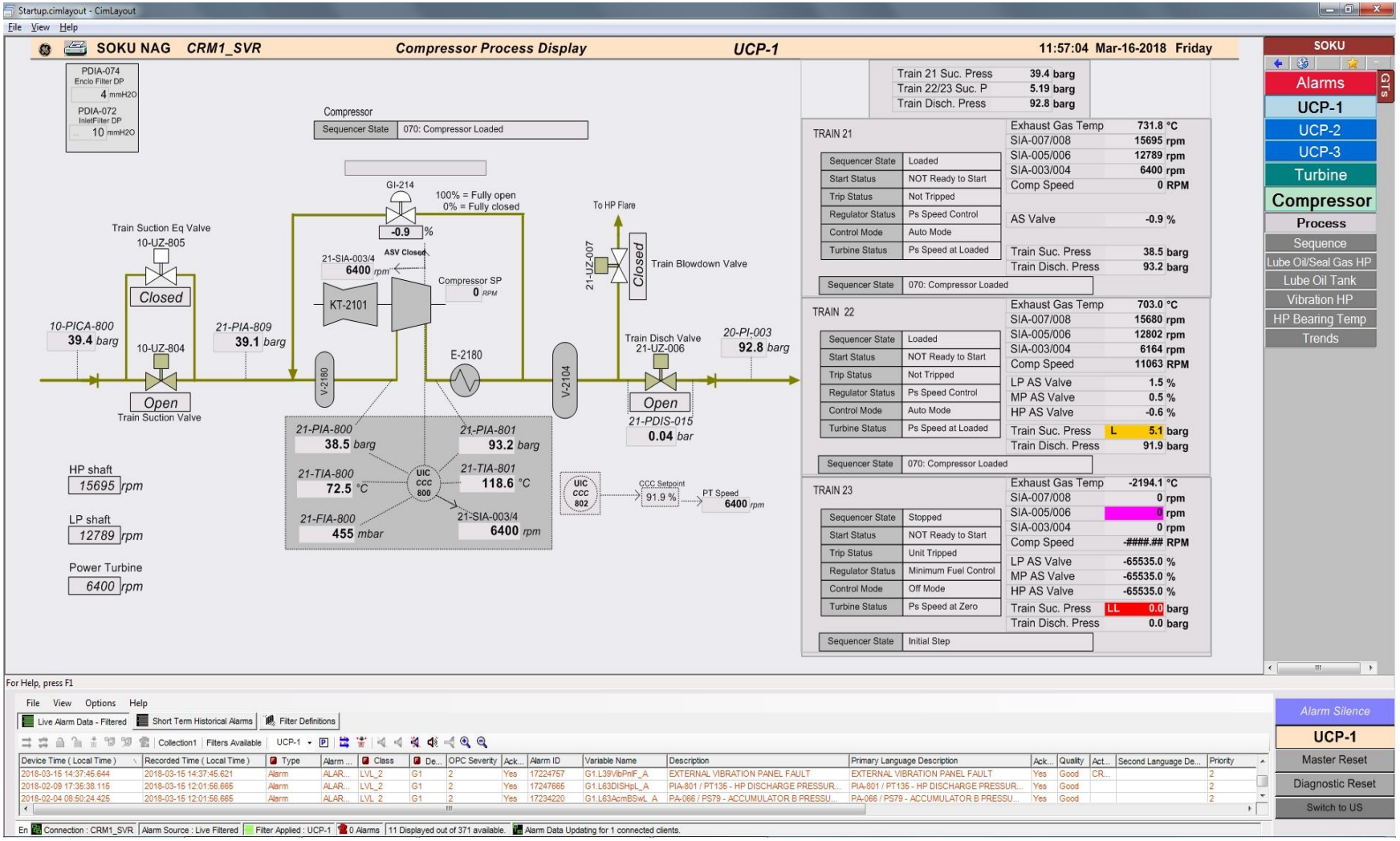
Compressor Data 250mmscf/d



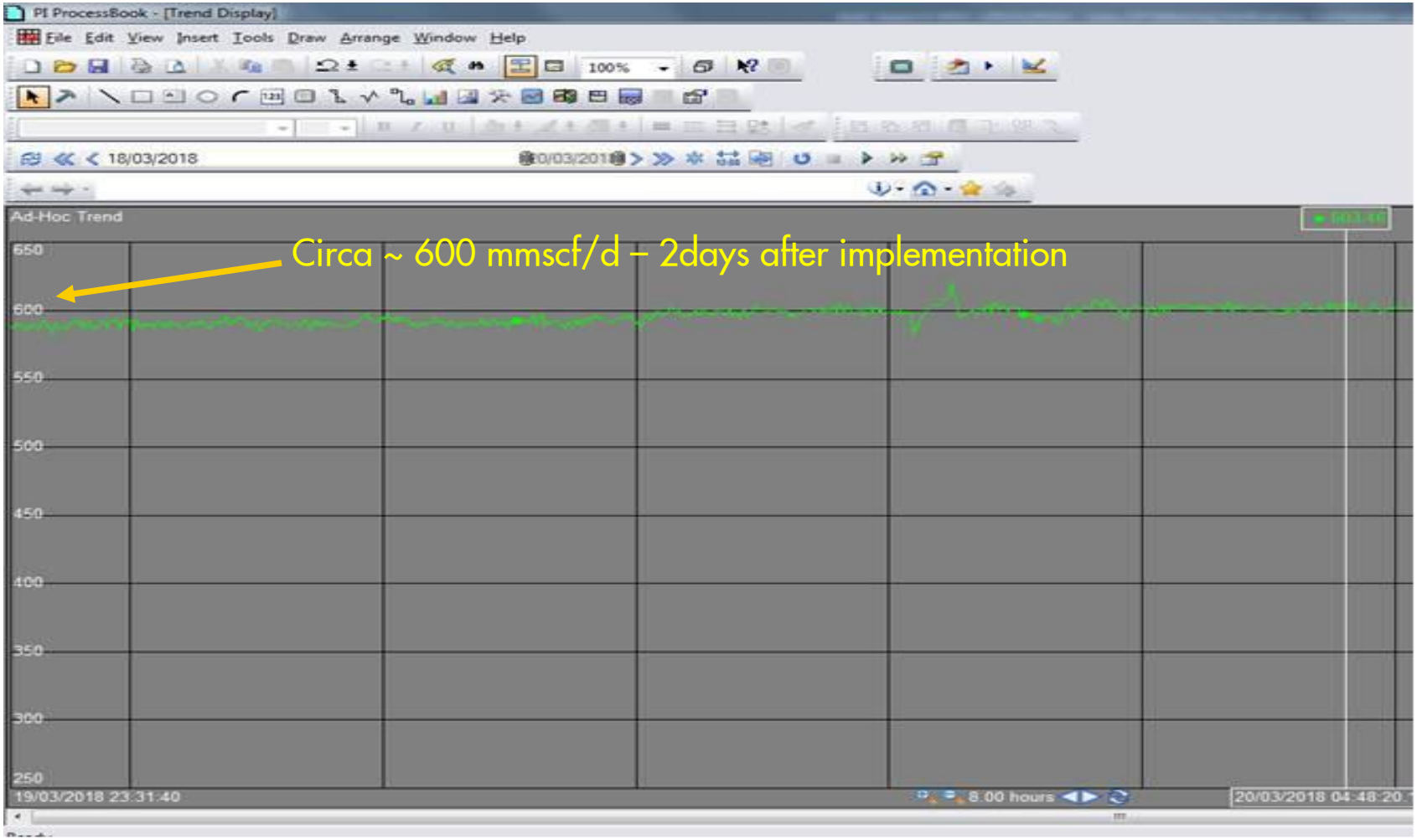
Compressor Data 250mmscf/d



Compressor Data 250mmscf/d



Soku Export PI trends



Investigation and Implementation

Arash Aref – Metering Specialist
Akpaibor Pius – Production Programmer
Epebiyi Taiwo – Process Engineer
Njoku Richard – Asset PACO
Ibrahim Shodipo – Asset Operations
Mogbolu Emmanuel – Reservoir Engineer
Stefano Benvenuto – Rotating Equip. Engr
Asset Maintenance / Operations team leads,
Asset Logistics and PUM