HORSBURGH & SCOTT

GEAR UP™

‘Sentry’ Solutions

Problem/Solution Cost/Benefit ‘Case’ study:

√ Converter/Reactor: Fan Recoup “Surge/Stall” Events.

The ‘Sentry’ Concept

Predicts the future “health” of equipment to proactively ensure maximum Uptime, Prevent Downtime and Protect your investment.

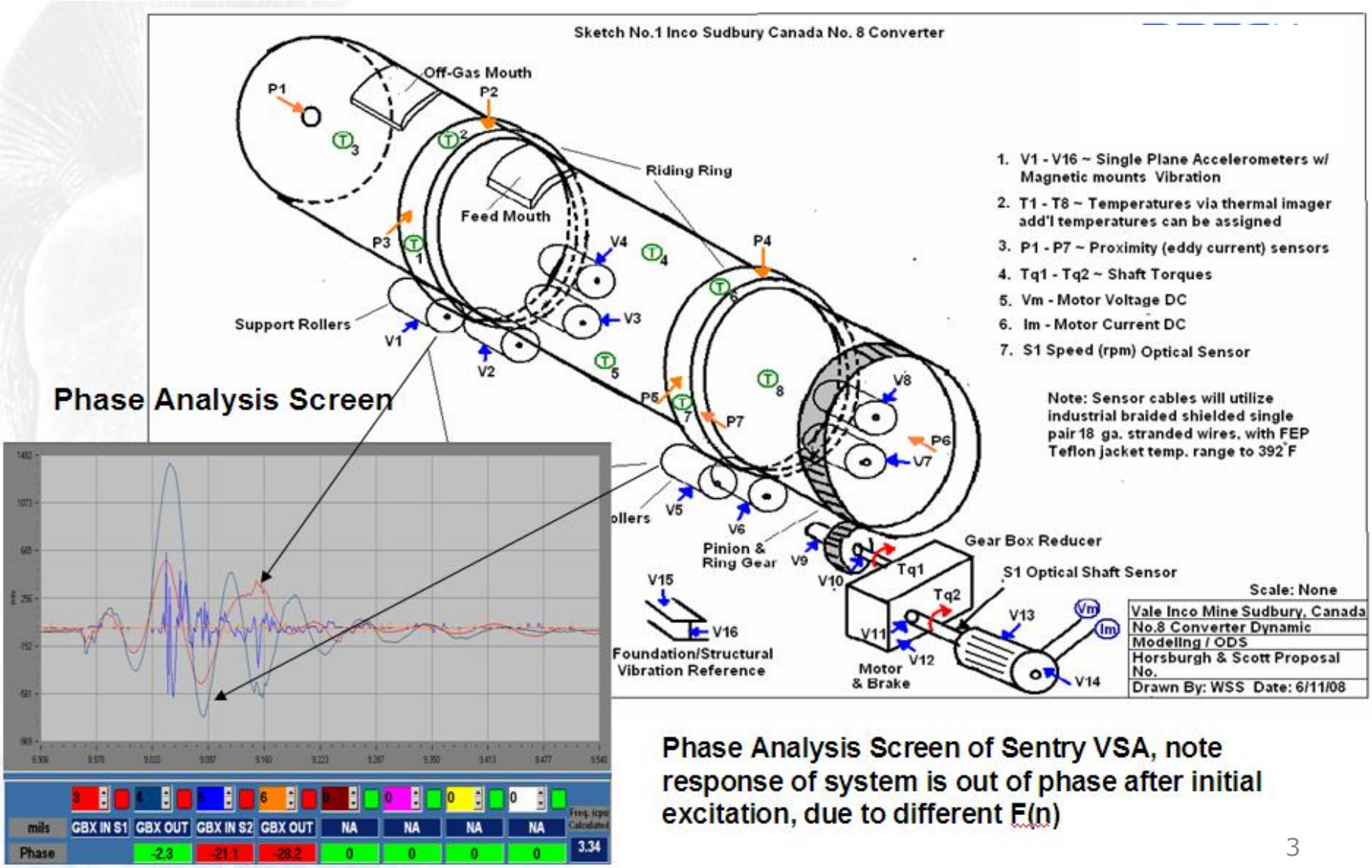
Provides 24/7 “At a Glance” equipment condition (of vibration, strain, temperature) using intuitive Red/Yellow/Green “Traffic Light” system.

Creates 3-D “movies” to rapidly identify the TRUE Root Cause of equipment “hot spots”.

Enhances Predictive Maintenance (PdM) and Process optimization.

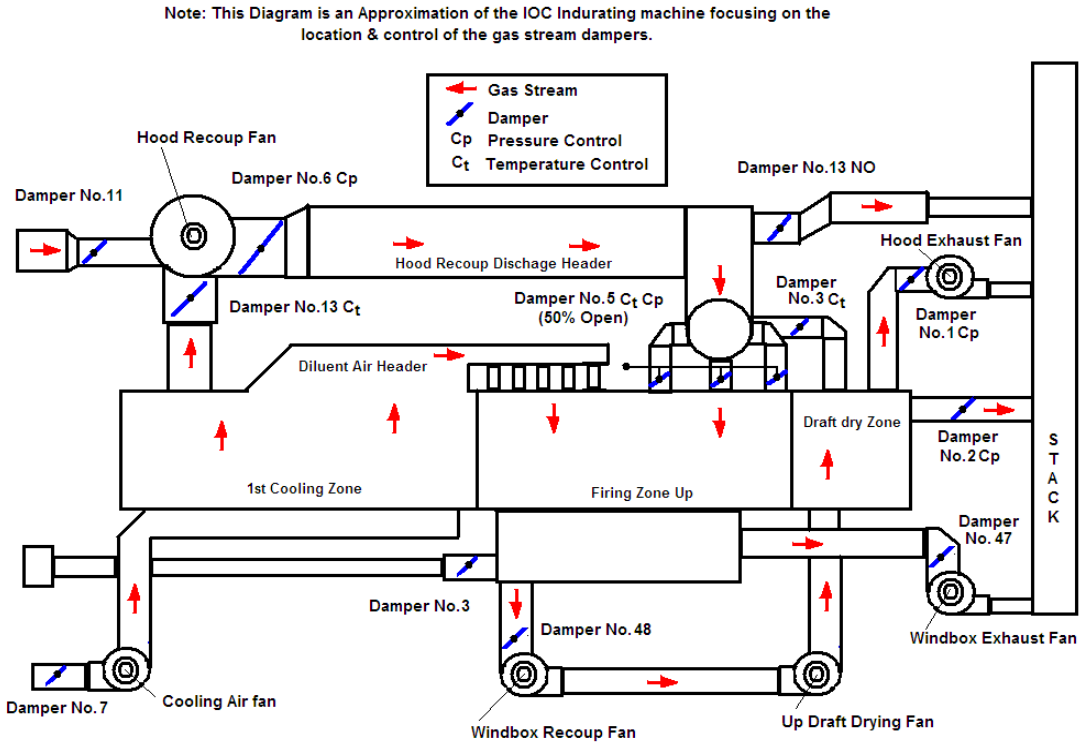
H&S takes full ownership for detailed Corrective Actions specific to the unique Needs of the Customer. (Extension of Customer Reliability Group)

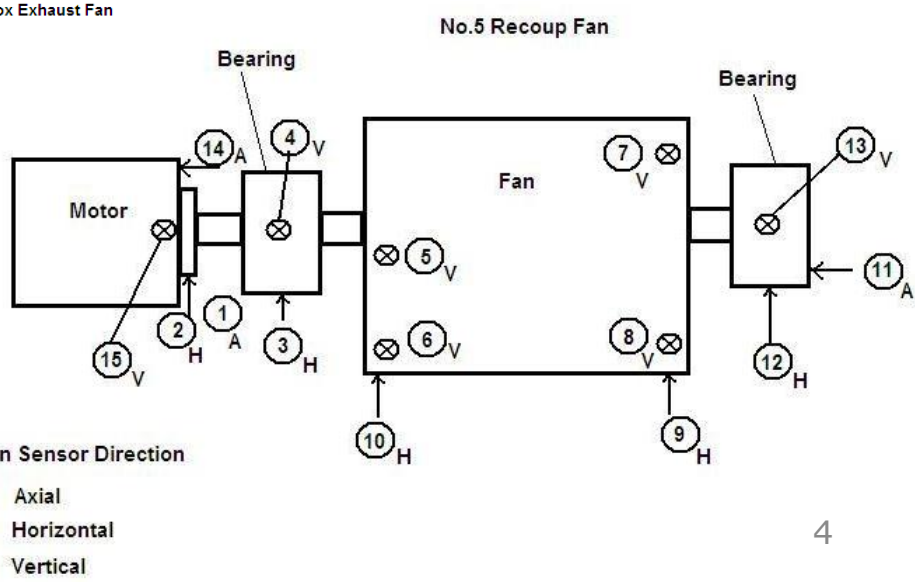
Problem: Converters, Reactors Fan Recoup "Surge/Stall" Events.



Phase Analysis Screen of Sentry VSA, note response of system is out of phase after initial excitation, due to different F(n)

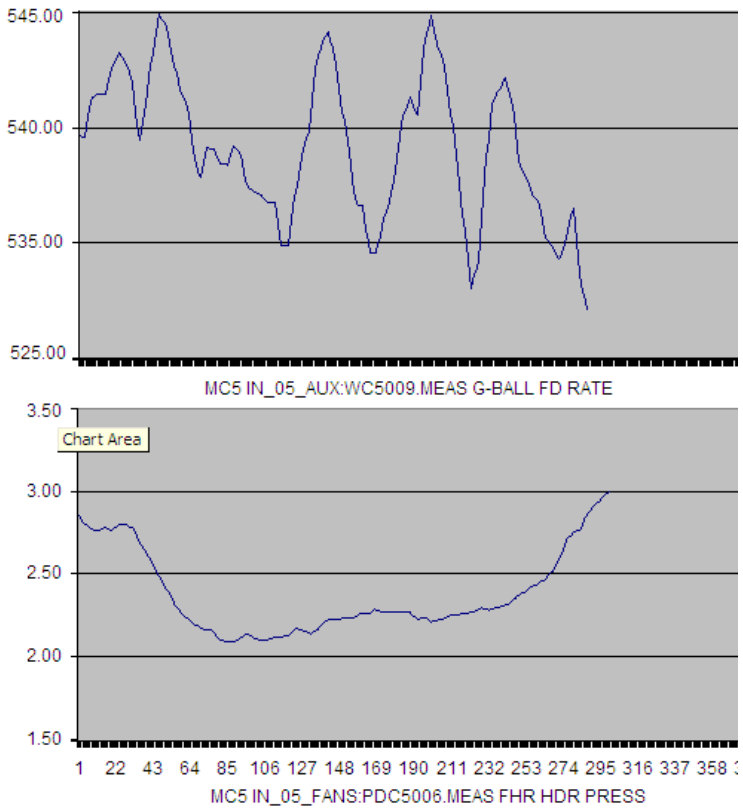
Performed Condition Assessment of Recoup Fan.



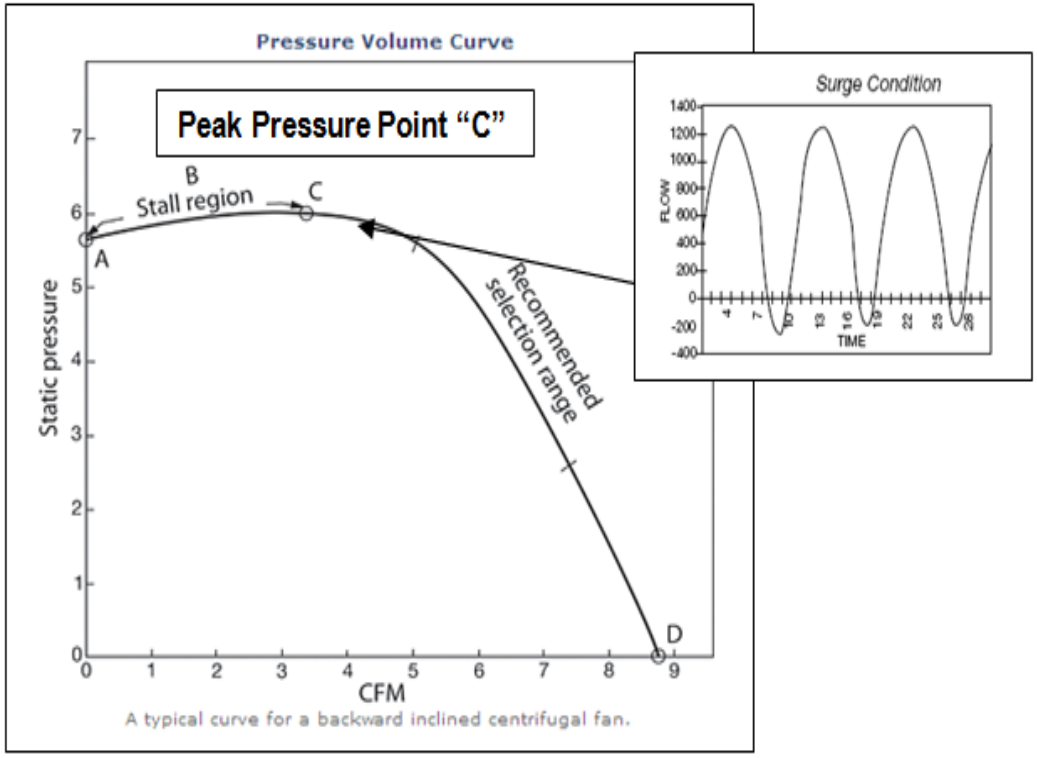


Solution Conclusion. 'Root' Causes of Fan Surge/Stall Event.

Note the Integrated PI data (via OPC link) with Sentry data.



PI Data: Flow Oscillating with rising static pressure. Classic "surge/stall" Event.



Fan Curve for Centrifugal Fans w/ surge graphic

Solution: Adding Structural support to make more 'Stiff' reduced 'V' levels.

Investments, Cost/Benefit analysis

- $150K investment: Condition Assessment (material and Engineering Services Labor), new/re-mfg. components and labor.

- ROI: Much higher reliability $150K/Day of increased Uptime (initial $1 invested = $1 of Return in the first Day)