Using vibDaq for Pump Test

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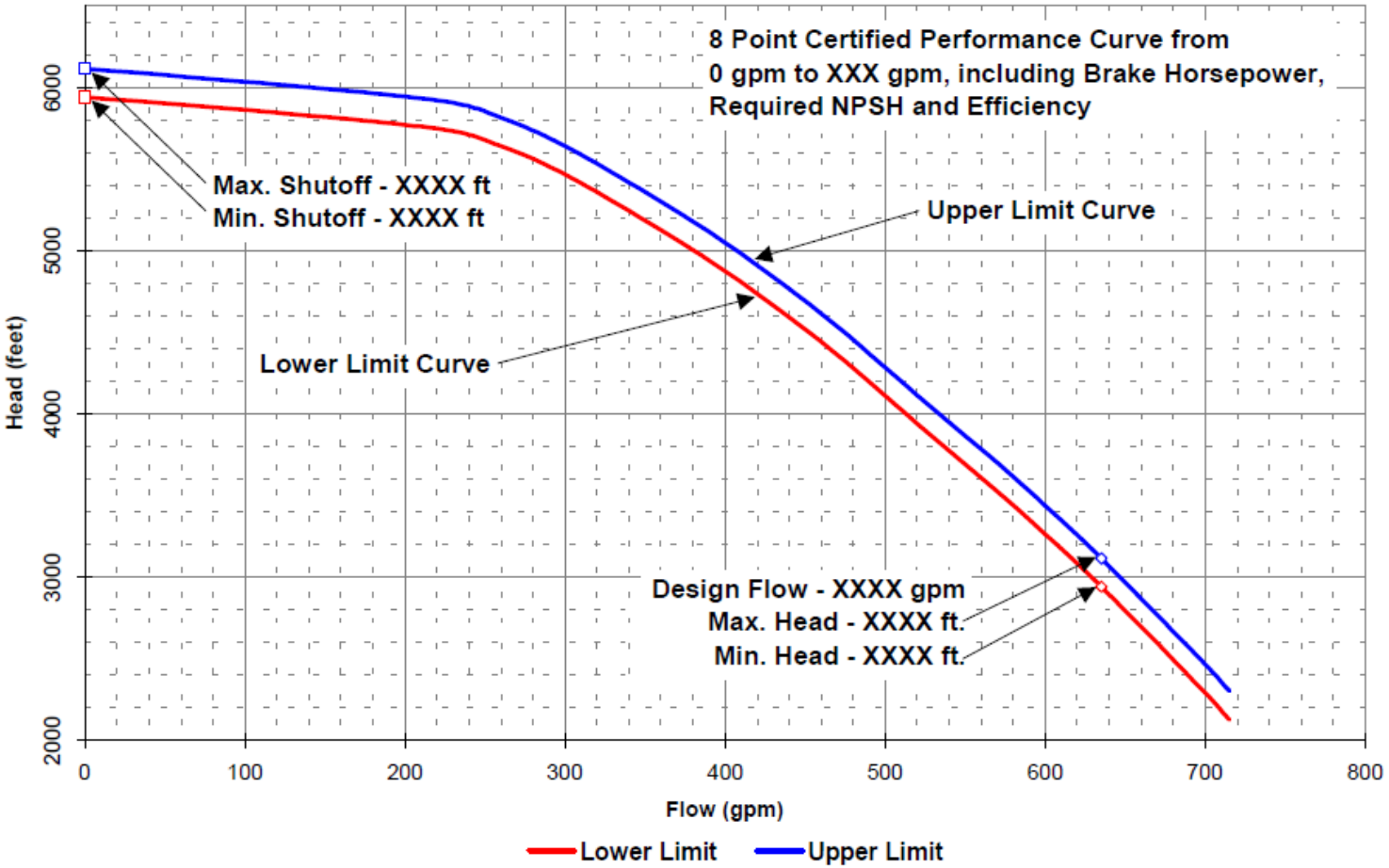
Nuclear Power Plant Charge Pumps

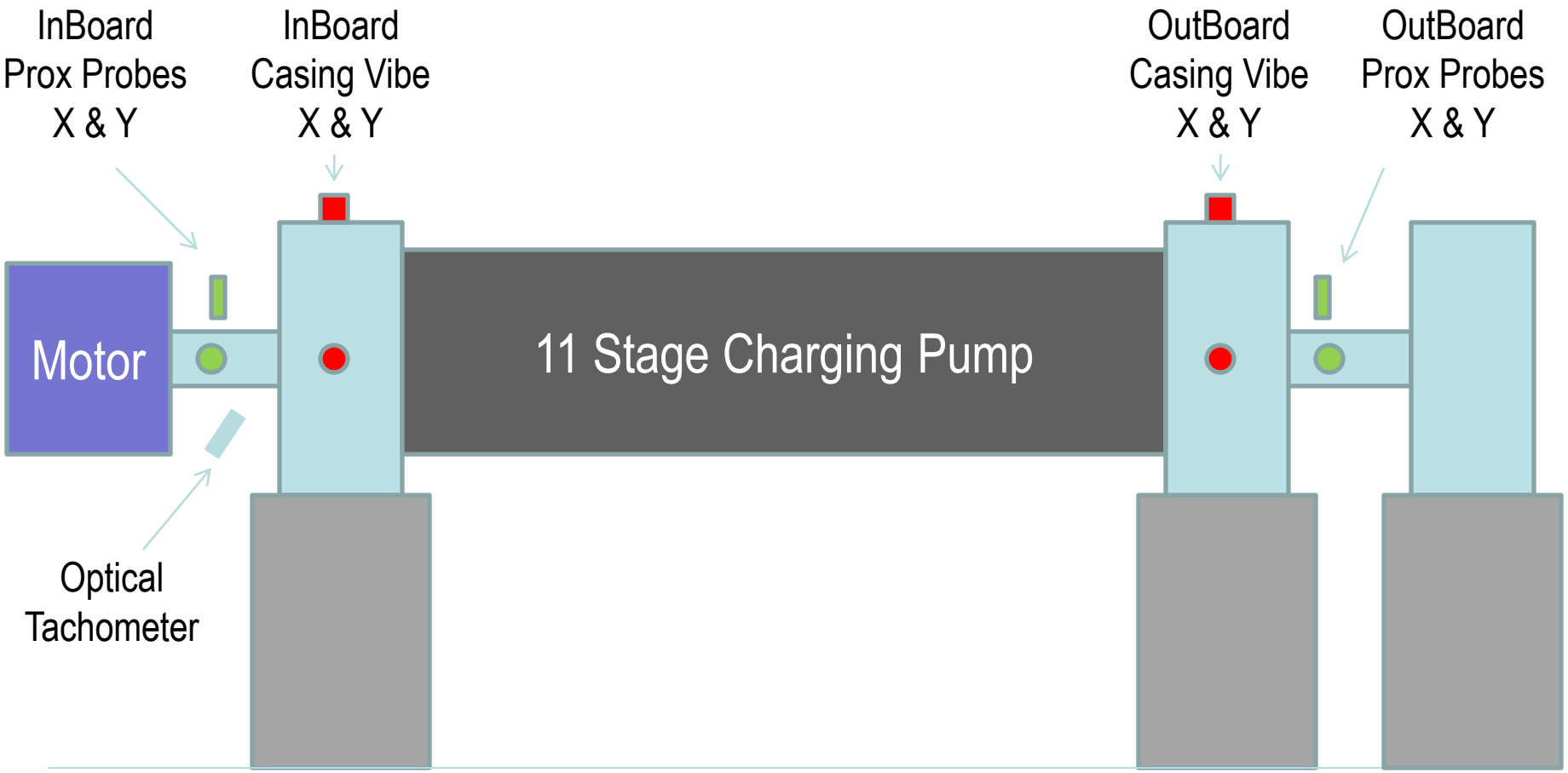
- For Pressurized Water Reactors (Most Commercial Nuclear Power Plants are PWR)
- Supplies high pressure water to the reactor
- Reconditioned Pumps need to pass two key tests
  - Pump Performance
  - Vibration

Example: 11 Stage Centrifugal Charging Pump

Pump Performance – Flow vs. Pressure



Vibration Test – Sensors

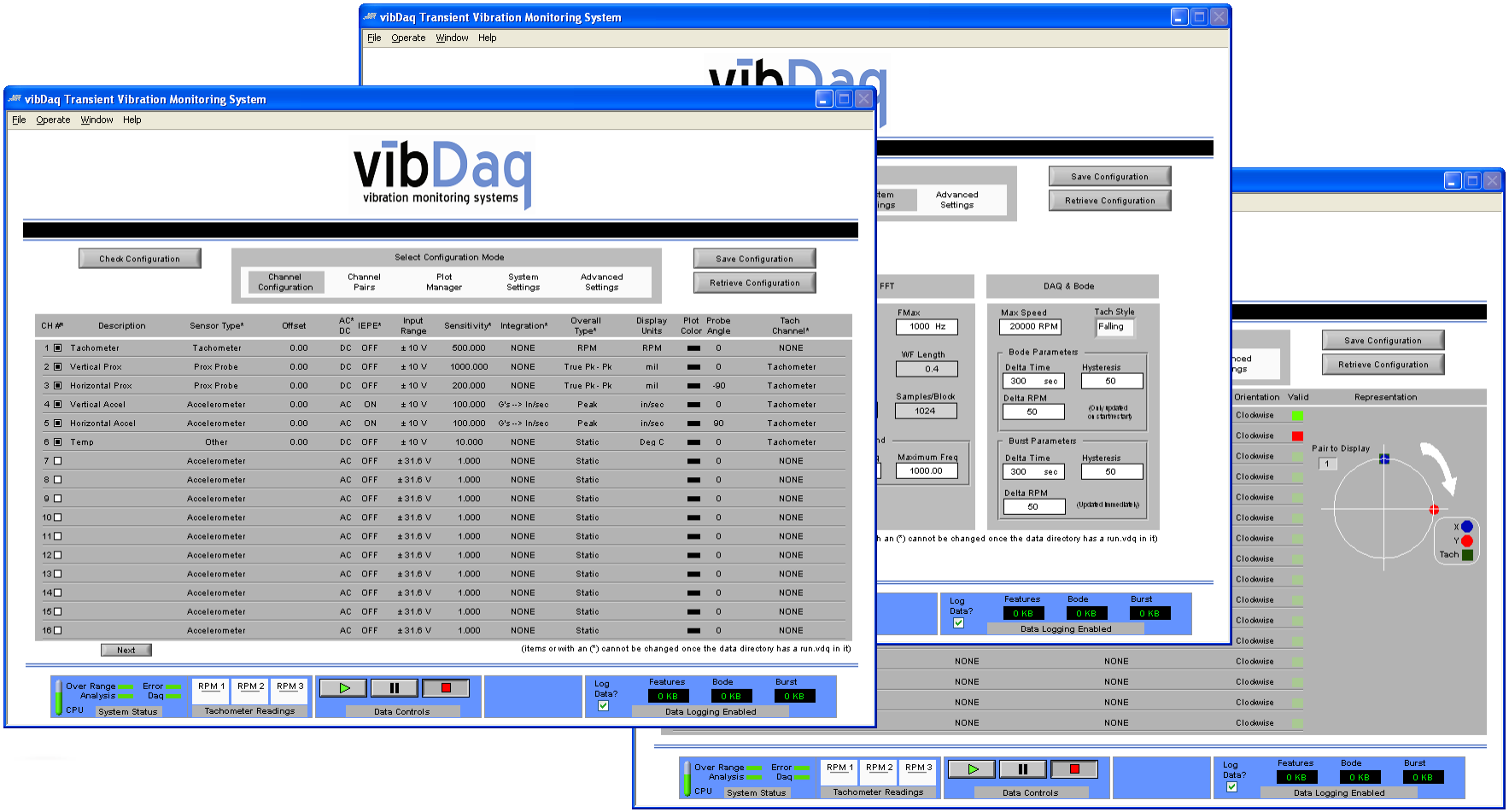


Vibration Test – Specifications

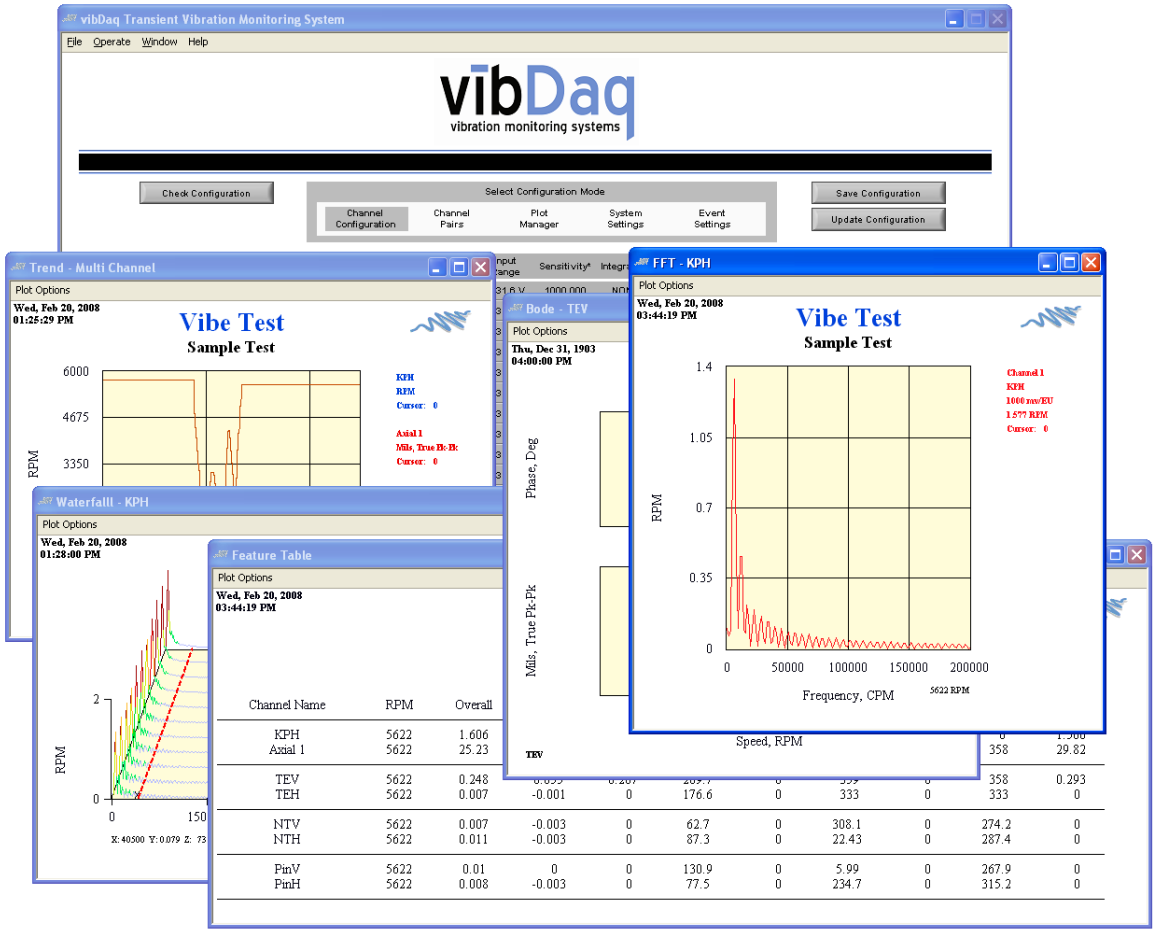
- Bearing Cap Absolute Velocity
  - 10 to 500 Hz
  - RMS value scaled to peak
  - 0.15 in/second
- Bearing Cap Absolute Velocity
  - DC to 1000 Hz
  - Peak to Peak
  - 0.0015 inch limit
- “Recommended but not required” to account for effect of test stand skid.

vibDaq System Used to Perform Test

vibDaq – Configuration



vibDaq – Viewing Data

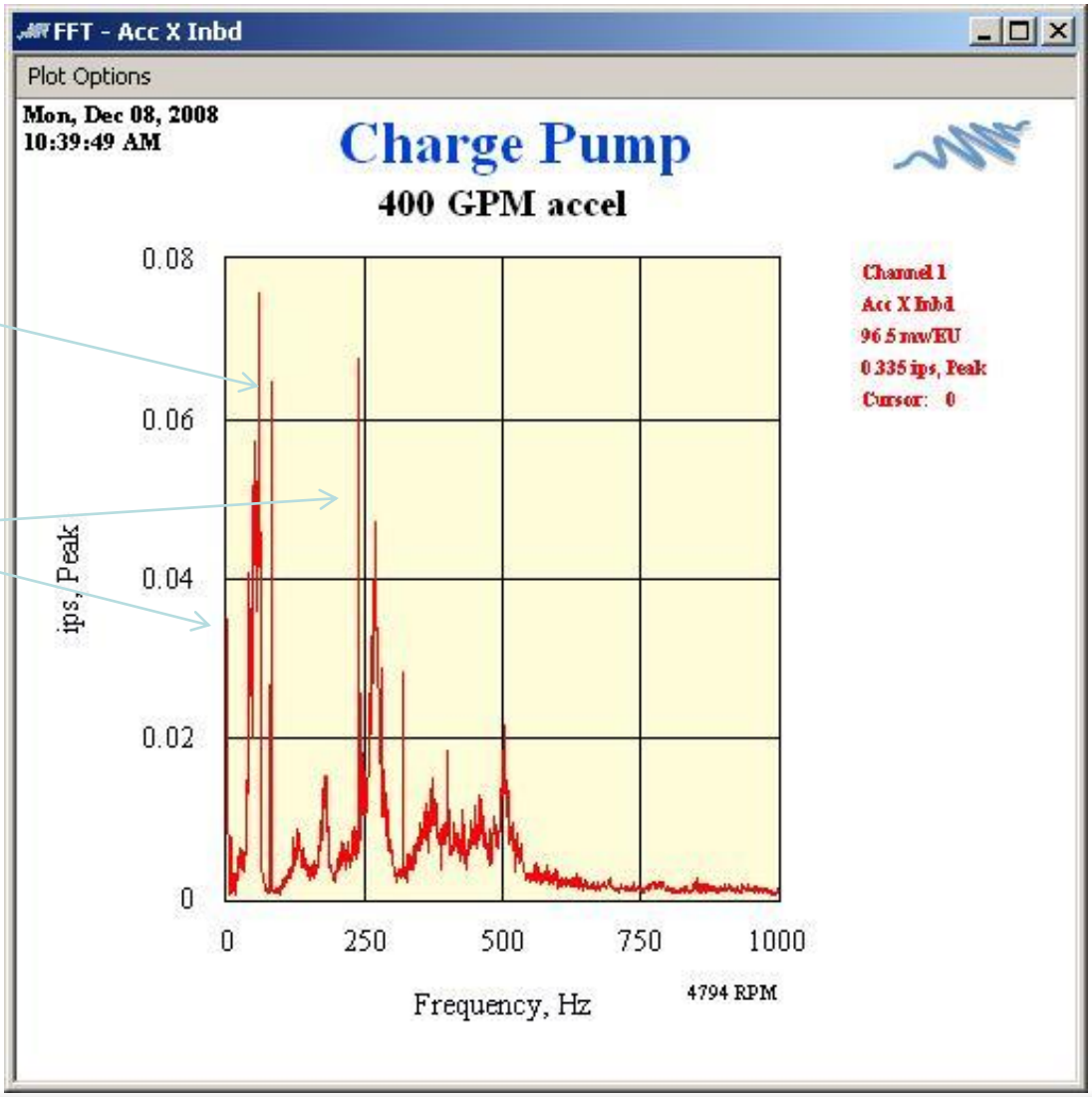


- Time Waveform
- FFT
- Orbit
- Bode
- Polar
- Shaft Centerline
- Waterfall
- Feature Table
- Trend

Test Data – Casing Vibration

Pump Related Vibration @ 4800 RPM

Flow Noise



Test Data – Shaft Vibration