

PI Data Assessment

TG Advisers, Inc.

PI Data Analysis Module

- Evaluation of Unit Startup and Low-Full Load Operational Practice
- Development of an “Observation” Report
- Integration into the Health Assessment Program
- Recommendations to minimize potential EFOR issues
- Supports “super-mini” low load Risk Assessments

PI Data Evaluation Includes

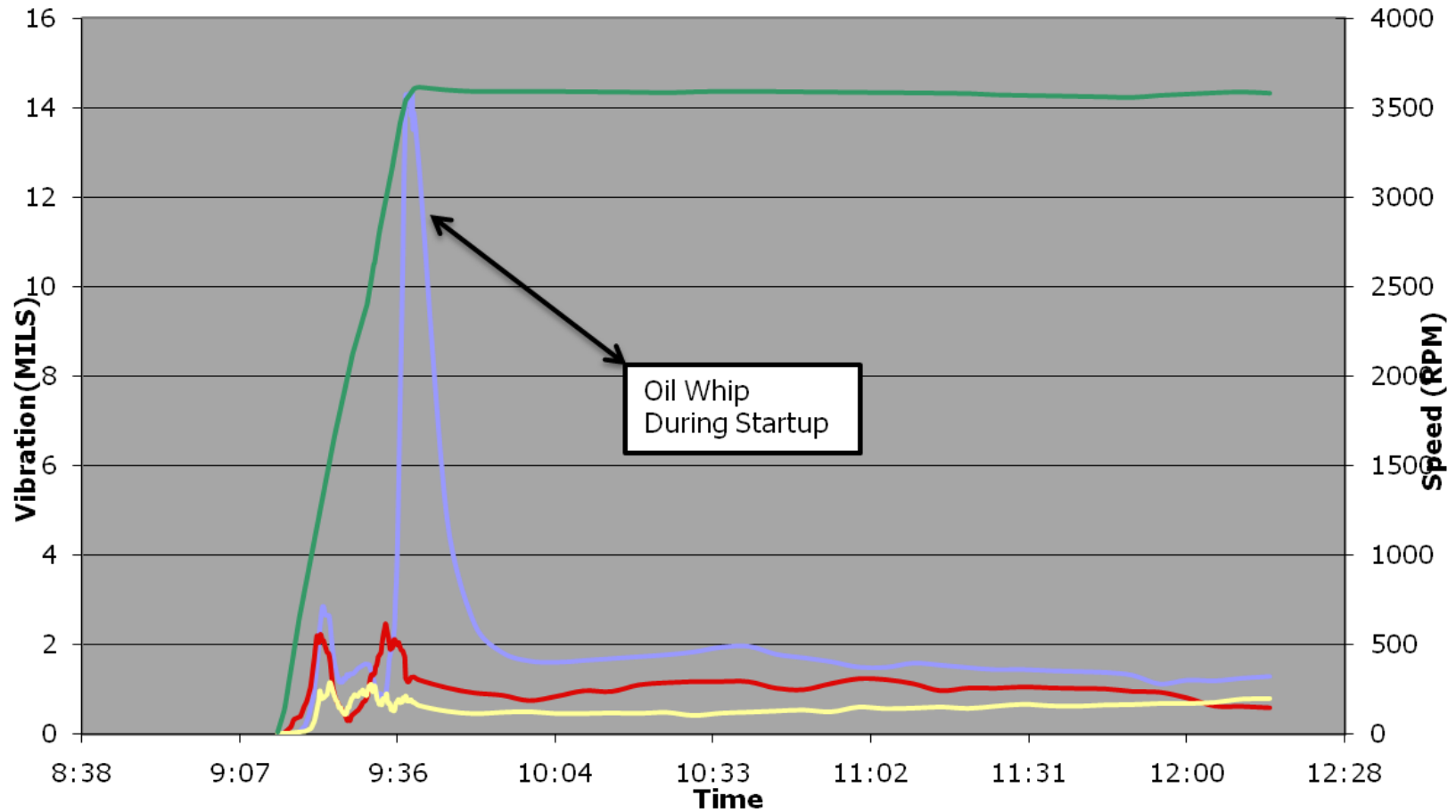
- Vibration
- Steam Conditions
- Differential Expansion
- Back Pressure
- Turbine Metal Temperatures
- Speed Ramp and Loading Rates
- Bearing Metal and Drain Temperatures
- Extraction Conditions

Common Faults Detected

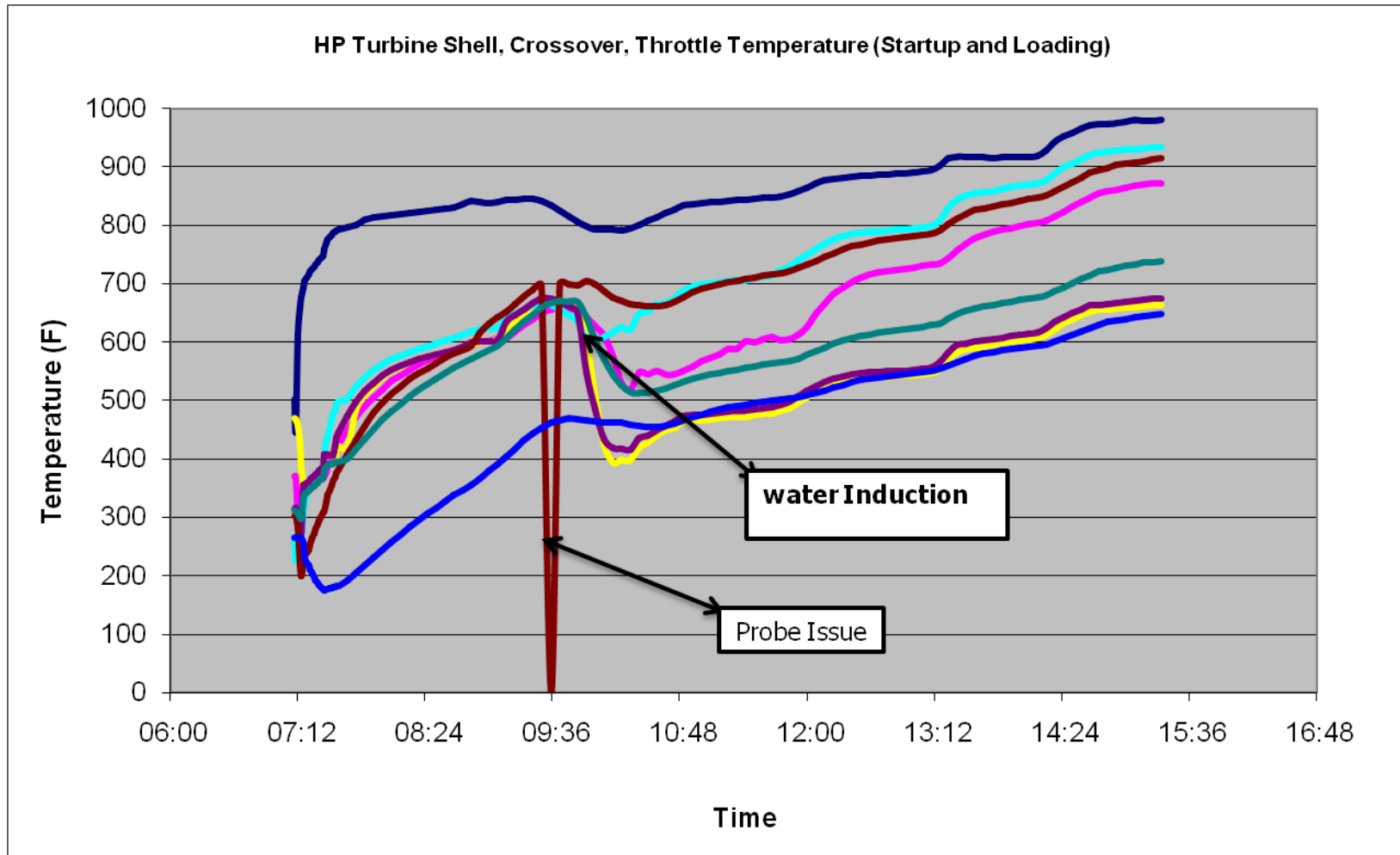
- Turbine Rubs, Balance and Alignment Concerns
- Low Load High Backpressure Issues - Stall Flutter
- Water Induction During Startups
- Improper Hold Speeds
- Faulty Instrumentation
- Electrical and Mechanical Run out concerns
- Critical Speed Peaks
- Improper Tilt Pad Bearing Preloads
- Bearing unloading
- Oil Whip
- Steam Whirl
- Improper inlet Oil temperatures
- Pedestal Sticking/Binding
- Valve Operational Issues
- High LP Moisture Levels
- Copper and Water Soluble Turbine Buildups

Case Study - Oil Whip

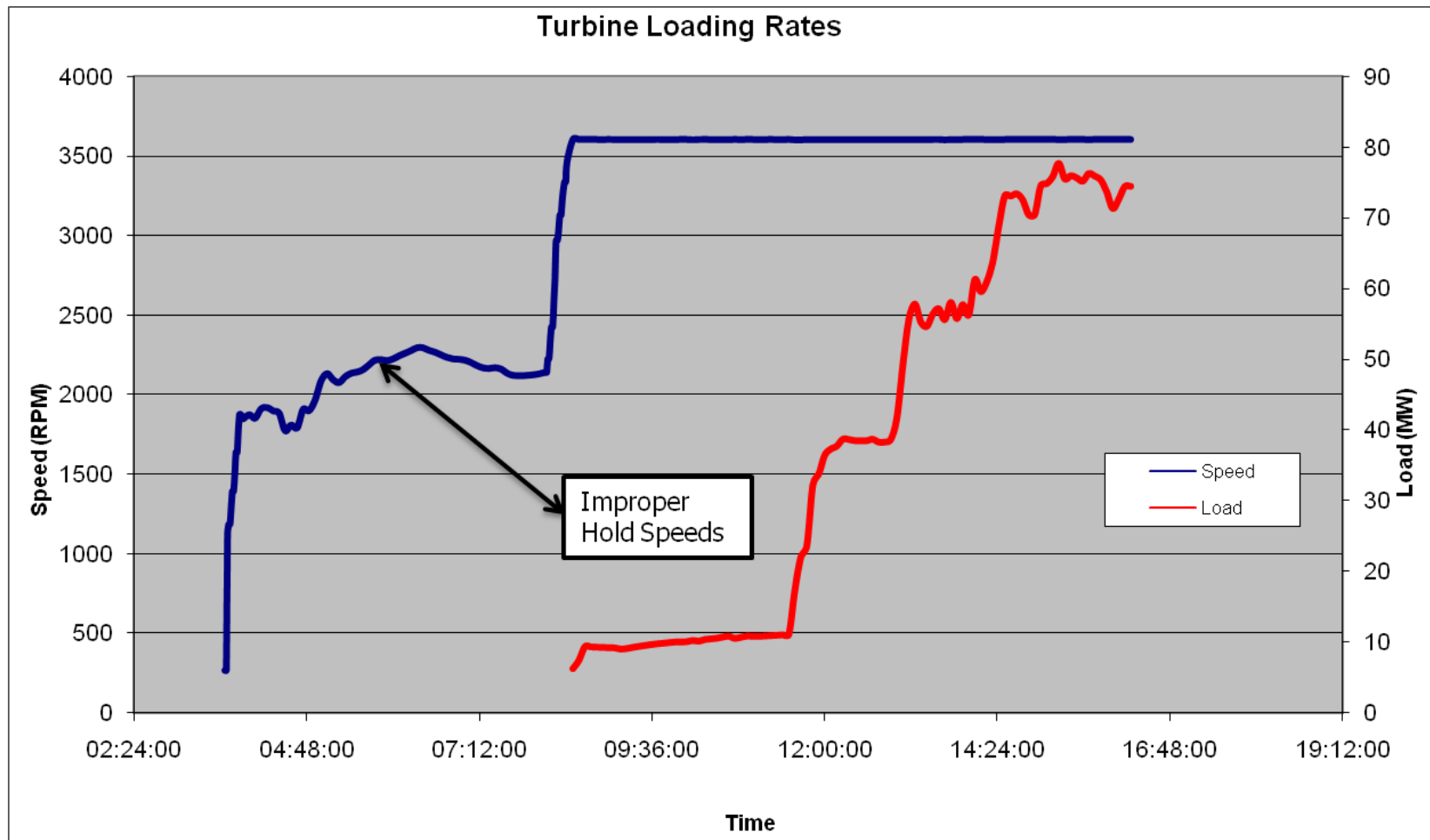
Bearing Vibration vs. Speed



Case Study - Water Induction



Case Study - Improper Hold Speeds



Conclusions

- PI data analysis has proven highly valued to our clients as an effective tool for identifying a number of unit faults that ultimately get included in the health assessment.
- TG Advisers stands ready to leverage our expert knowledge to interpret this data to help you meet your operational and financial goals