

CHAD WILCOX

5620 Fossil Creek Pkwy #7105
Fort Collins, CO 80525

970.420.8782
cwilcox@pioneer-engineering.com

PROFESSIONAL EXPERIENCE

- **Mechanical Engineering Consultant** **2004 - Present**
Pioneer Engineering – Fort Collins, CO
Mechanical engineering consultant for engineering services company. Specialize in single and multi-channel vibration analysis troubleshooting and condition monitoring, modal and ODS analysis, public and private mentoring and training, and general plant reliability services. Maintain all aspects of numerous client accounts, including quotations, contract agreements, service details, office and field services, and invoicing. Continually track business P&L and explore new business opportunities.
- **Advanced University Reciprocating Engine Program** **2005**
Caterpillar / National Energy Technology Laboratory – Mossville, IL
Provided support for the analysis group of a cross functional team developing a new large high speed diesel engine to be used in various applications. Support included performing critical modal tests at many different levels of structure complexity. Responsibilities included post processing and analysis of test results. The work scope also involved providing direct correlations between modal test results and computer models via commercial available software. Recommendations based on these findings helped to drive redesign and retest.
- **Failure Analysis Engineer** **2003 - 2004**
Seagate Technologies – Longmont, CO
Directly supported a failure analysis group consisting of managers, engineers and technicians. Performed hard disk drive teardowns and failure analysis using hand tools, table top microscopes, various interferometer microscopes, and atomic force microscopes. Developed and documented procedures for proper use of optical surface analyzer and surface profiler. Trained colleagues on proper use of optical surface analyzer and various equipment.

CONSULTING EXPERIENCE

- **Modal / ODS Analysis and Redesign of Agglomeration Support Structure**
Single-channel and multi-channel onsite vibration analysis was used to troubleshoot and identify a structural resonance problem. Multi-channel modal and ODS field data was then collected and utilized to validate a finite element model for testing potential redesigns. Structural redesigns were recommended and implemented that solved the structural resonance problem.
Hardware and software utilized
 - SonyEX data acquisition hardware ▪ PCB Modal hammer and accelerometers ▪ Matlab ▪ MEScope ▪ Algor ▪ Microsoft Word and Excel ▪
- **Vibration Condition Monitoring Program Restructuring**
Restructured vibration CM programs at MillerCoors (Golden Packaging), Rocky Mountain Bottle Company, and oil refinery. Restructuring included software and hardware updates, review of current program, training of personnel, implementation of new collection specifications, population of baseline and historical data, and development of analysis and reporting standards. All programs were developed to allow turn over for in-house management. Vibration CM program restructuring has resulted in more acceptance of recommendations by planners, maintenance personnel and managers.
Hardware and software utilized
 - CSI 2130 ▪ CSI 2120 ▪ Emerson's Machinery Health Manager ▪ Microsoft Word and Excel ▪
- **Pipeline Pump Analysis**
Performed vibration analysis and pump performance measurements to audit critical pipeline for U.S. Naval Air Facility in Misawa, Japan. Project included onsite measurement and analysis of twelve pumps making up three pipeline pumping stations to identify the overall health of the motors and pumps. The scope of work included oversight of a Japanese crew for pump teardown, internal inspection of the pump components, repair and/or system redesign recommendations, and a return visit to quantify changes made to the system. The analysis and recommendations resulted in installation of motor VFD's eliminate pumping fluid recirculation.
Hardware and software utilized
 - Entek Datapac 1500 ▪ Rockwell's Emonitor Enshare ▪ Microsoft Word and Excel ▪

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CONSULTING EXPERIENCE (CONTINUED)

- **Real Time Monitoring of Oxygen Compressor**
Provided real-time monitoring of proximity probe pairs on turbine and compressor hydrodynamic bearings. Real-time monitoring was necessary due to the risks involved with the re-commissioning of the upgraded oxygen compressor and unknown rotor behavior due to the rapid pipeline switching desired. Monitoring provided potential operational problem areas and defined operational no dwell zones.
Hardware and software utilized
 - NI PXI Data Acquisition hardware ▪ Sony SIR1000i recorder ▪ Labview created proprietary real-time analysis software ▪ Microsoft Word and Excel ▪
- **Refinery Reliability Contract Engineer**
Mechanical engineer responsible for auditing critical oil refinery's assets for the purpose of increasing plant reliability. Audit included identifying criticality of assets, necessary spare parts for fixed and rotating equipment, reviewing current preventative and condition based maintenance tasks, and creating new tasks.
Software utilized
 - MP2 CMMS ▪ Empac CMMS ▪ Crystal Reports ▪ Microsoft Word and Excel ▪
- **Vibration Analysis Training**
Continually teach public and private vibration analysis seminars. Seminars range from 24 to 40 hours of training on introduction and intermediate vibration analysis as well as dynamic balancing. Responsible for organizing seminar structure and helping to develop exercise material. Also continually provide one-on-one mentoring training onsite for personnel.
Hardware and software utilized
 - 2 channel FFT analyzers (any brand) ▪ various transducers ▪ Microsoft PowerPoint ▪
- **Contracted Vibration Condition Monitoring / Vibration Troubleshooting**
Routinely perform data collection and analysis on various pieces of rotating equipment, such as electric motors, pumps, gearboxes, hammer mills, blowers, compressors, and centrifuges. Utilize advanced techniques such as phase analysis, modal analysis, ODS analysis, and real-time monitoring when required for troubleshooting.
Hardware and software utilized
 - Single and dual channel FFT analyzers and software (Rockwell, CSI, Ludeca, Commtest, SKF, DLI brands) ▪ Microsoft Word and Excel ▪
- **Field Dynamic Balancing**
Frequently balance rotating equipment per ISO 1940/1 balance quality standards. Properly troubleshoot and analyze vibration data prior to balancing to determine best balancing procedure and ensure balancing is feasible.
Hardware and software utilized
 - Single and dual channel FFT analyzers and software (Rockwell and Ludeca brands) ▪ Microsoft Word and Excel ▪

EDUCATION

- **Master of Science Degree in Mechanical Engineering** **Expected 2009**
Colorado State University – Fort Collins, CO
Graduation pending thesis work "Force Prediction in Rotating Equipment"
- **Bachelor of Science Degree in Mechanical Engineering** **2004**
Colorado State University – Fort Collins, CO

PROFESSIONAL INVOLVEMENT & ACHIEVEMENTS

- ISO Category III Vibration Analyst ▪ FE (fundamentals of engineering) certified ▪ Member of Vibration Institute ▪ Member of American Society of Mechanical Engineers (ASME)