BRINGING PREDICTABILITY TO PERFORMANCE

PROJECTS LIST

INDUSTRY	DESCRIPTION	CHALLENGE	SOLUTION
Major Midstream oil & gas company in the Montney Region	Field Pump Performance Testing and Mechanical Integrity Evaluation	Noticeable degradation in pump performance. High cost of assessment from pump OEM service provider. Analyst travels from USA to Western Canada	Westpower Reliability Engineering local outfit offered field performance testing and mechanical integrity analysis
Southern Alberta Municipality of approximately 35K people	IIoT Route-based Condition Monitoring	Municipality needed to reduce risk exposure by changing to predictive based maintenance. In-house expertise with predictive maintenance was not available.	Machine Sentry IIoT route-based vibration condition monitoring program implementation.
Major oil & gas company in with conventional storage in Hardisty Alberta	Field Diagnostics, Resonance	High vibration in critical butane single stage horizontal overhung (OH2) pump preventing the completion of commissioning of a critical unit.	Field vibration diagnosis, Impact Testing, confirming resonance. Collaboration with pump OEM to develop bearing housing brace to increase system stiffness and eliminate system resonance
Major oil & gas company; pipeline operations in Alberta, Canada	Piping System Design/ Feasibility Evaluation	Oversized pump in critical process operation had reliability issues from constant low flow operation. Customer contemplated installing a pump recycle line to compensate for low flow operation	System hydraulic design analysis using AFT Fathom software to assess recycle line feasibility. It was concluded that a recycle line would not be feasible, saving the customer over 1 million dollars in piping design and MOC process.
Major midstream company: pipeline operations in Consort Alberta, Canada	Field Engineering Diagnostics, Root Cause Analysis Turnkey Piping Modification	Excessive vibration of piping on gear pump leading to failure of fittings and tubing on PSVs, environmental release. System was shut down, resulting in costly losses from production downtime.	Field vibration analysis of piping system, including natural frequency testing. Simulation done to develop solution including suction dampers on pump and modification of piping system to increase natural frequency away from pump Gear Mesh Frequency
Independent Power Producer with 9 locations across, BC, Alberta and Saskatchewan, Southeast BC.	IIoT Condition Based Maintenance, Route-based IIoT Operator Routine Program development	Computerized Maintenance Management System did not exist. Mostly reactive maintenance mixed with preventive. Paper-based operator routine system was sufficient for a single site, but customer required a system that allowed for central planning and execution.	Machine Sentry IIoT Condition Monitoring System implementation: central maintenance management and migration of all paper-based operator routines to cloud-based system. Enabled: central planning and maintenance management, efficient tracking of operator tasks and defect elimination.

(403) 720-3300
RELIABILITY@WESTPOWERGROUP.COM

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Midstream company: Drayton Valley Alberta, Canada	Consulting Services, Field Research and Development	The impact of pushing pump flow operation beyond design specifications	Allowed the customer to determine the integrity of the pump during the desired increase flows. Solution included live monitoring of process parameters along with vibration signatures.
Small Energy Solutions Provider	Engineering Consulting Services, Field Research and Development	Customer developing a proprietary machine for use in the energy industry required Field testing and monitoring of the device to aid in its research and develop. They, however, did not have the expertise and equipment within their team.	Westpower Reliability provided bespoke monitoring and testing solutions tailored to the customer's requirements.
SAGD Oil and Gas facility, Cold Lake Alberta	Root Cause Failure Analysis (RCFA)	Poor reliability of critical OH4 (vertical inline rigidly coupled) pumps including several catastrophic failures of pump shaft. Customer needed to get to the root cause of failure	Root Cause Failure Analysis (RCFA) including analysis of operating data, maintenance history, vibration signatures, and dimensional checks on pump. High solids in process fluid were found to be the cause of failure. Corrective measures were proposed.
Major Power Producer, Saskatchewan, Canada	Vibration Analysis by Motion Amplification Study (VAMAS)	Excessive vibration at 1X running speed experienced on critical Boiler Feedwater (BFW) pumps. Customer needed pump expertise to diagnose the problem and recommend plan for correction.	Motion Amplification study of the BFW pump. MA was able to identify structural looseness of pump drive motor bolts. Consequently, a corrective plan was proposed.
Major Power Producer with sites across BC and, Alberta, Near Fort St John, BC	Pump Performance Testing and Mechanical Integrity Evaluation (PPTMIE)	Customer needed a cost-effective solution to determine state of aging pump assets including three critical boiler feedwater pumps. In-house expertise was not available to provide a solution.	Field Pump Performance Testing and Analysis on all critical pumps at the site. With competitive rates the customer was able to get an assessment of the state of all pumps at an affordable cost.
Major Power Producer in Saskatchewan	Vibration Analysis by Motion Amplification (VAMA)	Excessive vibration on several forced draft fans. Preliminary screening by customer's engineering team revealed vibration at running speed. Further screening needed to determine cause.	Motion amplification study to further assess the root cause of high 1X vibration. Several root causes were identified including insufficient support stiffness for an ageing 600 HP motor base. Recommendations were made to replace the motor base.
Leading Pulp and Paper producer, Grand Prairie, Alberta	Vibration Analysis by Motion Amplification (VAMA)	Excessive vibration identified on a critical process roots blower. Vibration signature identified at running speed (1X). Further testing was required to diagnose the root cause of the vibration observed.	Motion Amplification study revealed cracks in foundation sub-frame. Management team was able to see, in real time, the screening done with MA. Sub-frame upgrade and replacement was recommended.
Major Chemical Processing Plant in Joffre, Alberta	Structural Integrity Evaluation by Motion Amplification (SIEMA)	Critical process reciprocating compressors were scheduled for base/foundation repairs. Customer required an assessment of foundation bolts prior to repairs that will serve as a reference for comparison after repairs.	Motion Amplification study of reciprocating compressor hold down bolts, quantifying looseness, and severity of fault.