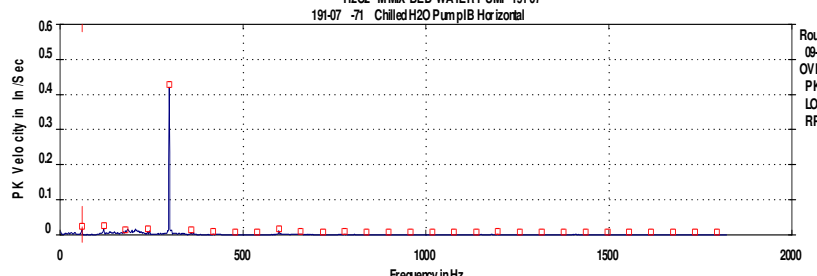
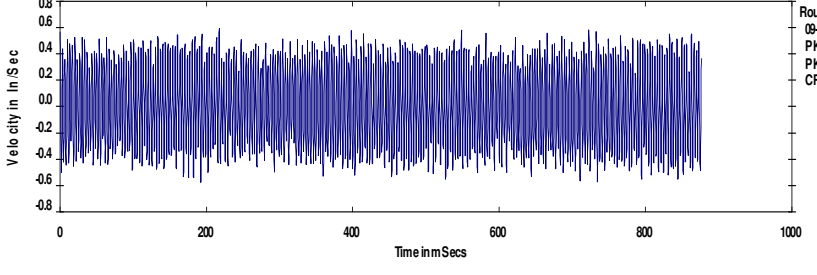
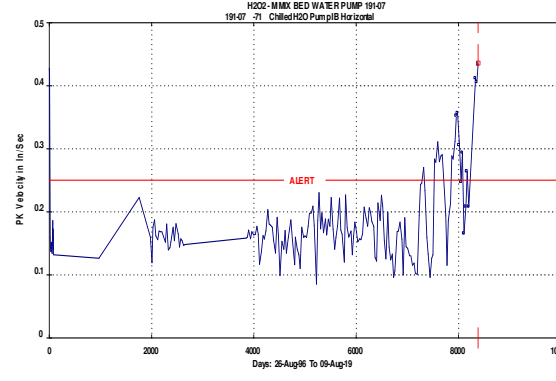




Client	ARKEMA	Survey Date	8-9-19
Location	Memphis, TN	Report Date	8-9-19
Machine	Middle Mixed Bed Water Pump	QMS No.	140287
Component	Pump	Analyst	DWS

Defect Rating for this machine	CLASS II
Defect Rating System	
Class I: Defect is present, but effect on reliability is not clear; no immediate action is required. Continue normal monitoring.	Class III: Defect (s) present that may cause failure in short term (less than 2 mos.). Should be addressed as soon as practical, with a high maintenance priority. Increase monitoring frequency.
Class II: Defect (s) present that may cause problem in long term (2-6 mos.). Repair during normal maintenance scheduling. Continue to monitor.	Class IV: Defect (s) present that makes continued reliability unpredictable, and possibility of secondary damage is high. Repairs should be made ASAP. An unscheduled shutdown should be considered for repairs.

Vibration Data	Analysis
<p>H202 - MMX BED WATER PUMP 191-07 191-07 -71 Chilled H2O Pump Horizontal</p>  <p>Route Spectrum 08-Aug-19 15:03:14 OVERALL= .4332 V-DG PK = .4316 LOAD = 100.0 RPM = 3593. (59.88 Hz)</p>  <p>Route Waveform 08-Aug-19 15:03:14 PK = .4284 PK(+-) = .5931/.5731 CRESTF= 1.96</p> <p>Freq: 59.84 Ord: .999 Spec: .01900</p>	<p>5X RPM vibration dominates the pump velocity data.</p>

Discussion / Repair recommendations	Trend Data
<p>The unit appears to have a strong vane pass vibration. We assume there are 5 vanes on the impeller. We recommend ensuring the pump is being operated at near the best operating point and that the pump internals are not worn. Inspect in the near future. Rated a Class II Defect.</p>	 <p>Trend Display d Overall Value --Baseline-- Value: .428 Date: 26-Aug-18</p> <p>Alert</p> <p>Date: 09-Aug-19 Time: 15:02:46 Ampl: .433</p>