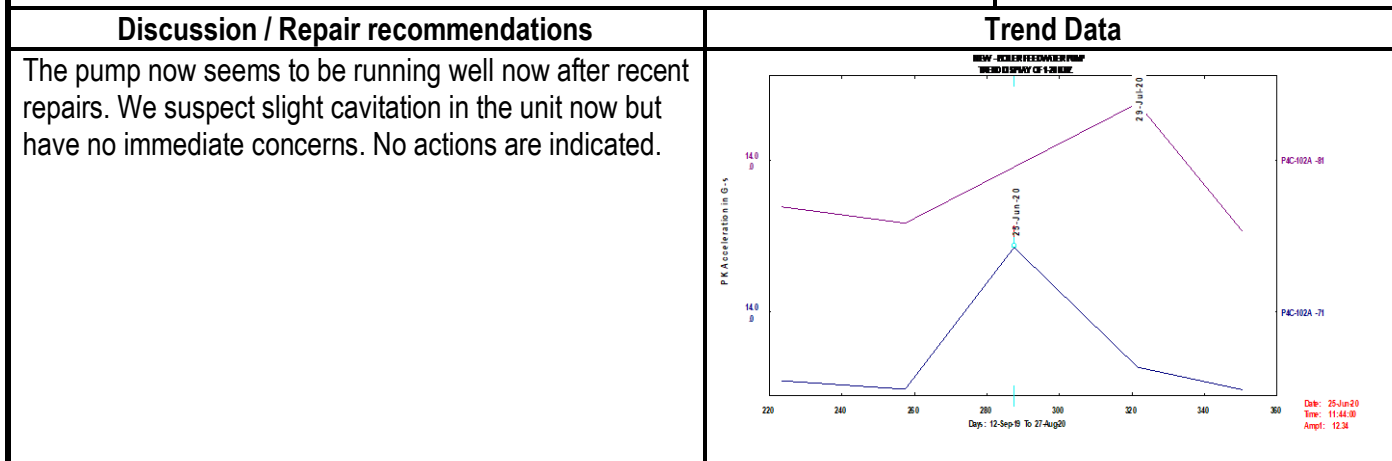
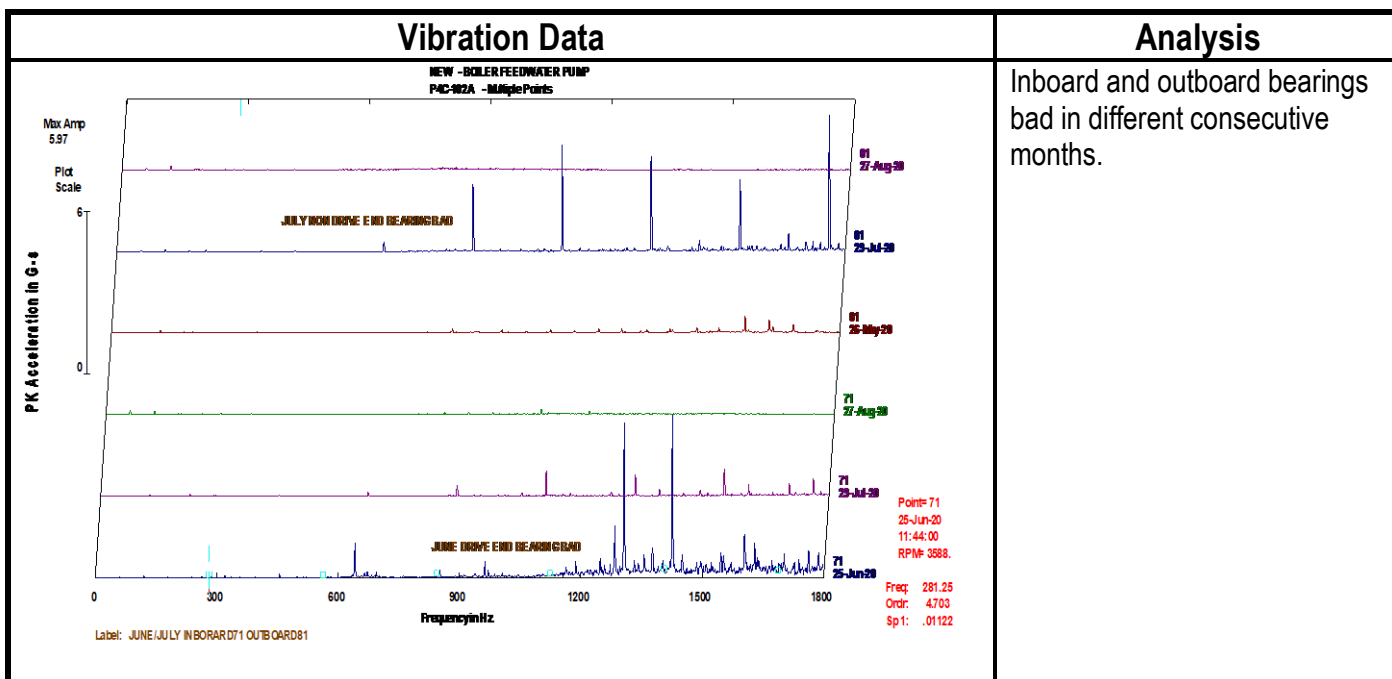




Client	Pennakem	Survey Date	8-27-20
Location	Memphis, TN	Report Date	8-28-20
Machine	P4C-102A Boiler feed water pump	QMS No.	143235
Component	Pump	Analyst	DWS

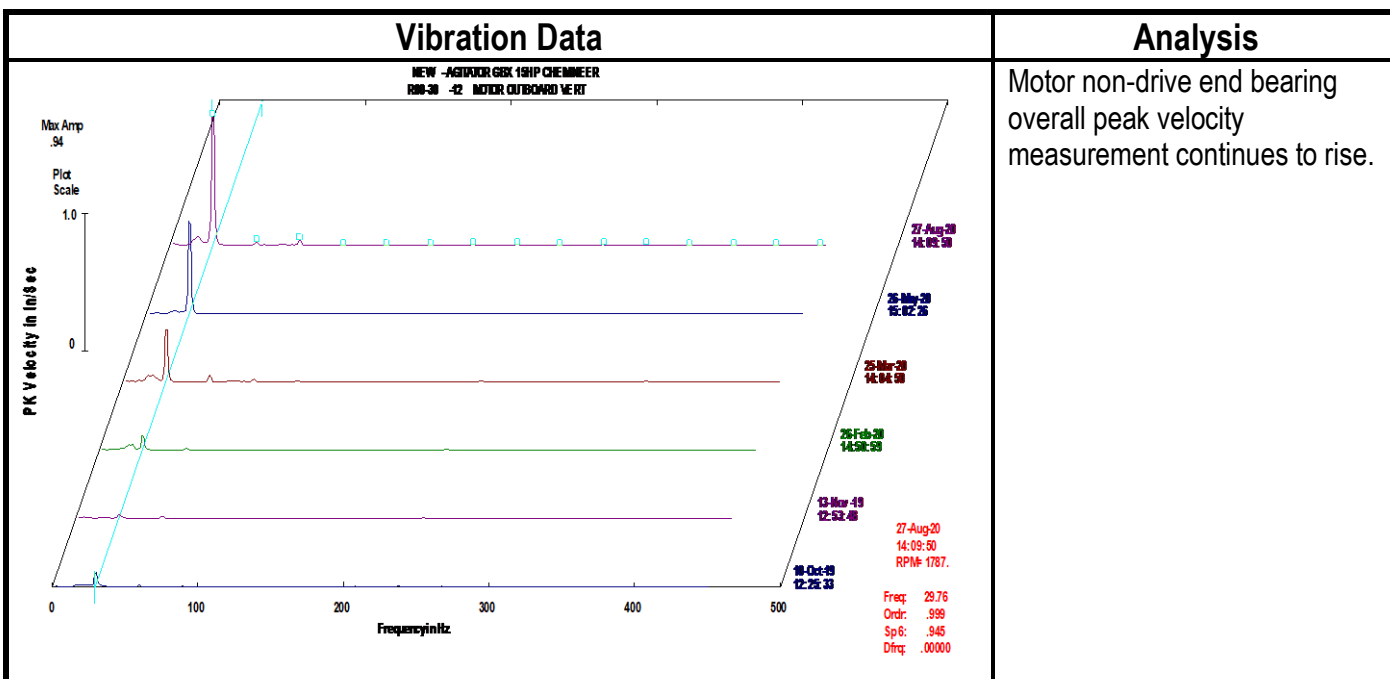
Defect Rating for this machine	NA
Defect Rating System	
Class I: Defect is present, but effect on reliability is not clear; no immediate action is required. Continue normal monitoring. Class II: Defect (s) present that may cause problem in long term (2-6 mos.). Repair during normal maintenance scheduling. Continue to monitor.	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 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.

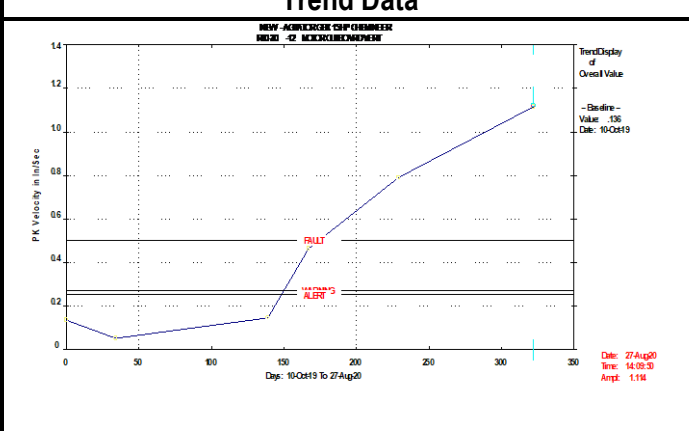




Client	Pennakem	Survey Date	8-27-20
Location	Memphis, TN	Report Date	8-28-20
Machine	R80-30 Chemineer Agitator Gearbox	QMS No.	143235
Component	Drivetrain	Analyst	DWS

Defect Rating for this machine	Class III
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.

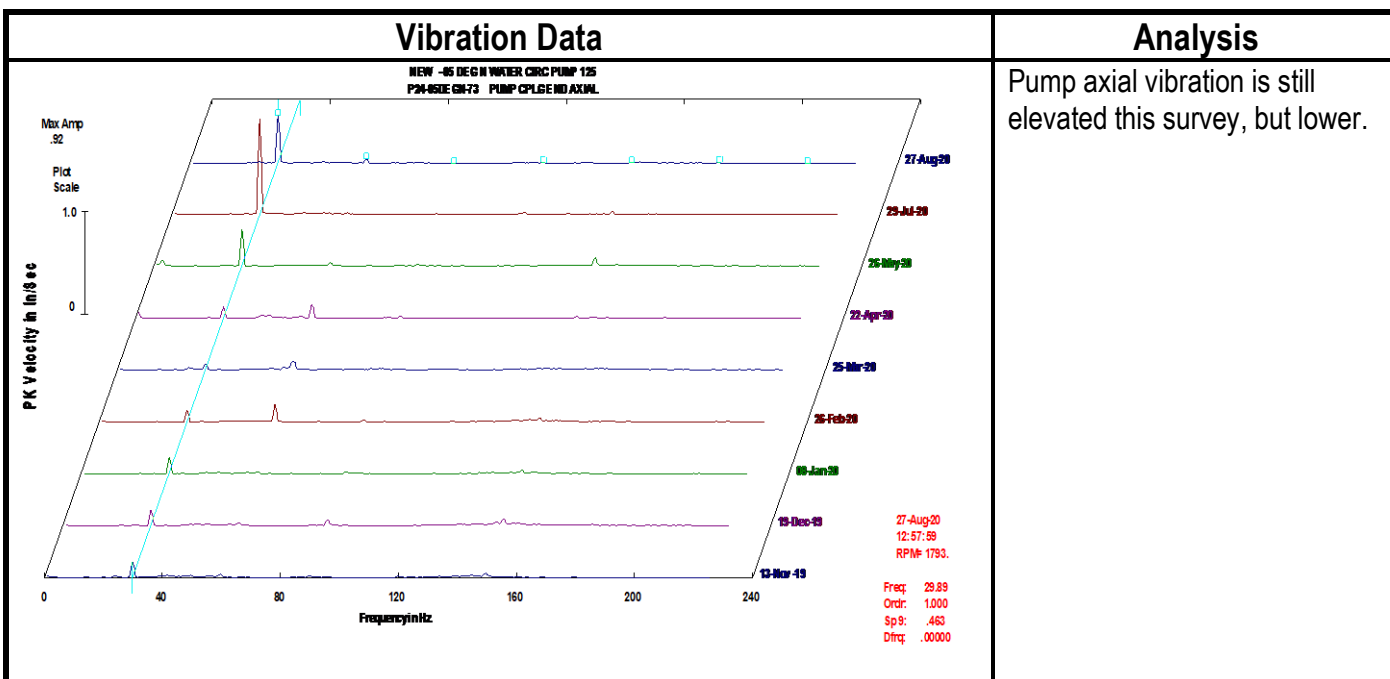


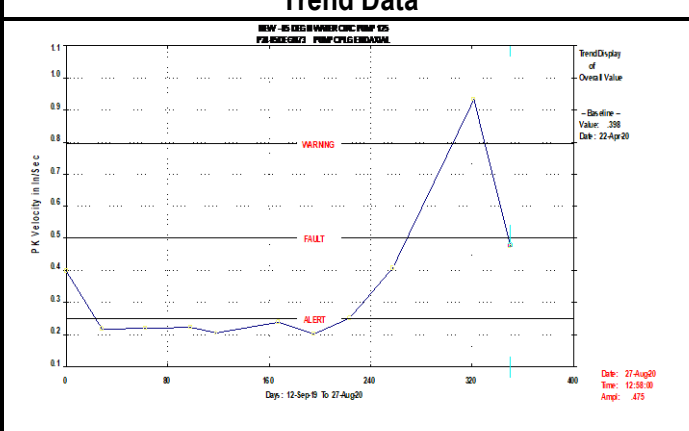
Discussion / Repair recommendations	Trend Data
<p>The motor shaft speed vibration continues to be very high at near 1"/sec velocity peak in the data. Inspect the unit ASAP to determine the cause. We believe there could be damage to the fan, loose fasteners, broken feet or structure, or a coupling issue. Rate a Class III Defect.</p>	 <p>NEW - AGITATOR GBR 15HP CHEMINEER R80-30 -02 MOTOR OUTBOARD VERT</p> <p>PK Velocity in in/sec</p> <p>Date: 10-Oct-19 To 27-Aug-20</p> <p>Trend Display of Overall Value</p> <p>Baseline Value: .136 Date: 10-Oct-19</p> <p>27-Aug-20 14:09:50 Trend: 1.114</p>



Client	Pennakem	Survey Date	8-27-20
Location	Memphis, TN	Report Date	8-28-20
Machine	P24-85 Degree North Water Pump	QMS No.	143235
Component	Coupling	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.

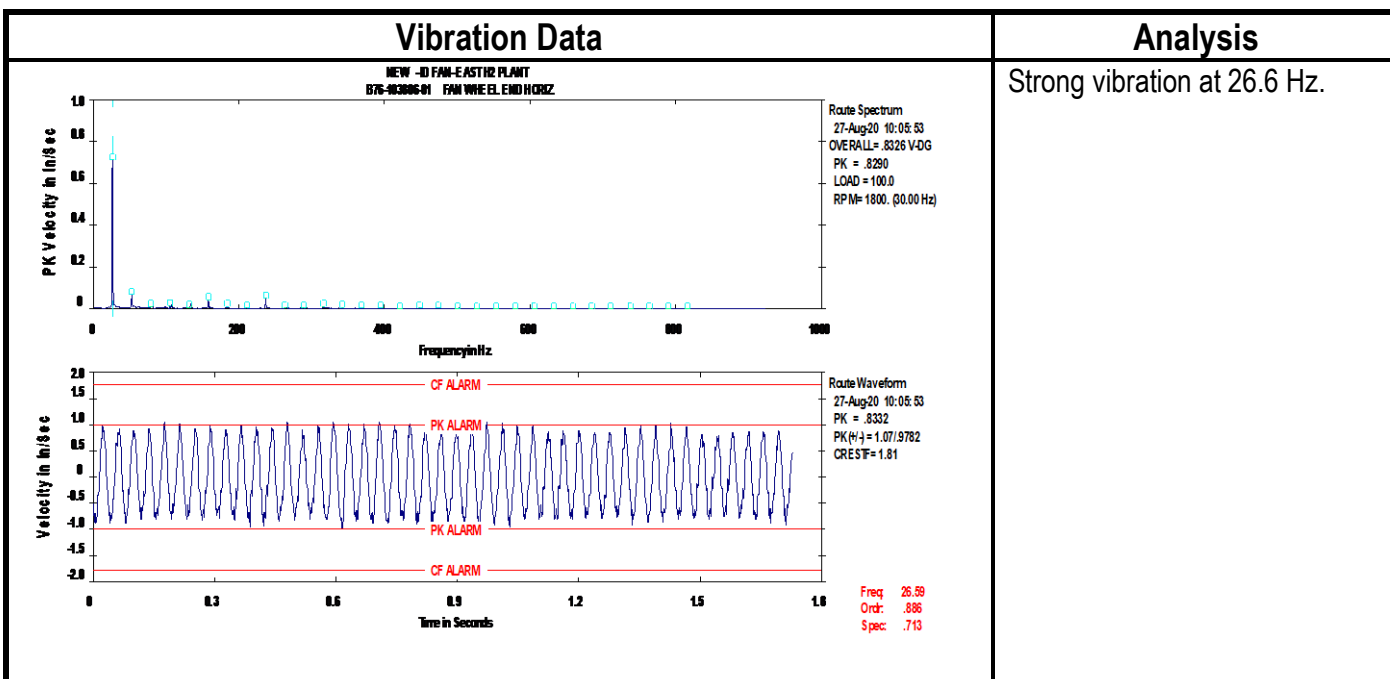


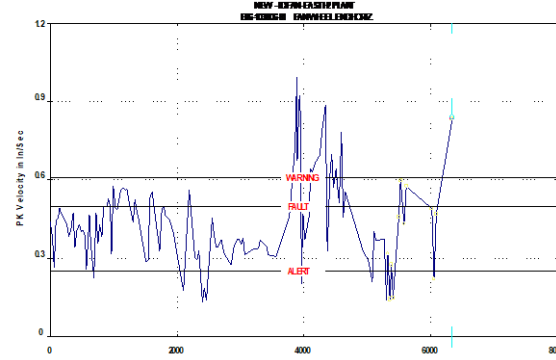
Discussion / Repair recommendations	Trend Data
<p>A moderate shaft speed vibration still exists in the axial plane for the pump drive end bearing after repairs. We still suspect one or more of the following: bent shaft, rotor out of balance, eccentric coupling hub, worn insert, soft foot, structural problems, or an alignment issue. Inspect unit soon. Rated a Class II Defect</p>	 <p>NEW -85 DEG N WATER CIRC PUMP 125 P24-85 DEGR73 PUMP CPLEND AXIAL</p> <p>Trend Display of Overall Value - Baseline Value: .398 Date: 22-Apr-20</p> <p>WARNING FAULT ALERT</p> <p>PK Velocity in In/Sec Days: 12-Sep-19 To 27-Aug-20</p> <p>Date: 27-Aug-20 Time: 12:58:58 Ampl: .475</p>



Client	Pennakem	Survey Date	8-27-20
Location	Memphis, TN	Report Date	8-28-20
Machine	ID Fan East H2 Plant	QMS No.	143235
Component	Unit	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.



Discussion / Repair recommendations	Trend Data
<p>Data for this unit was last acquired in December. It appears it could be dirty and out of balance after sitting so long. Recommend complete cleaning and inspection. Ensure belts are serviceable and the sheaves are aligned. Rated a Class II Defect.</p>	 <p>Trend Display of Overall Value</p> <p>Baseline Value .463 Date: 27-Aug-20</p> <p>WARNING FAULT ALERT</p> <p>Date: 27-Aug-20 Time: 10:05:37 Amplitude: .833</p>