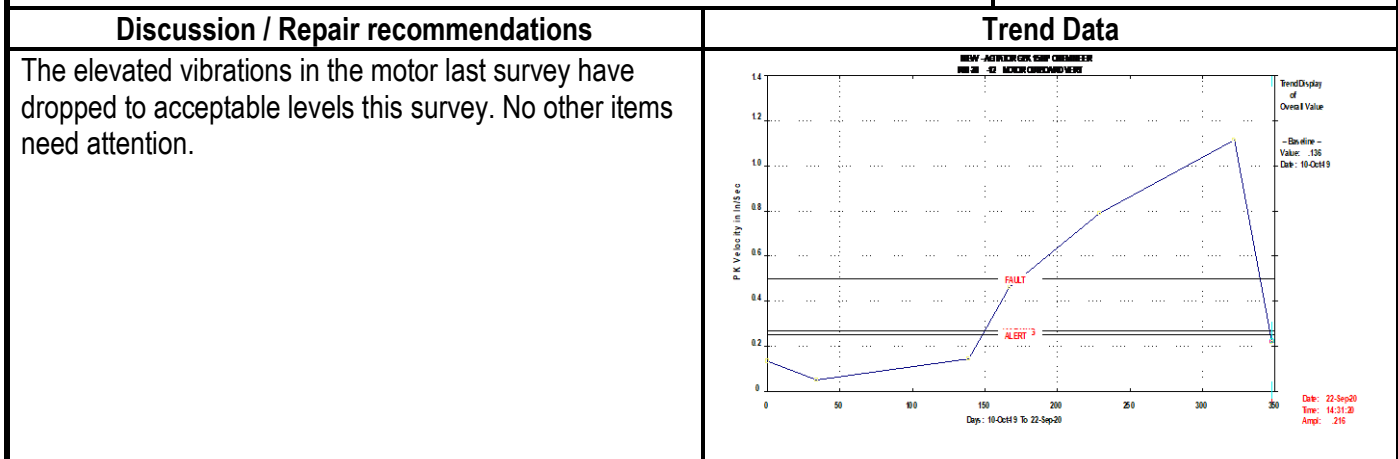
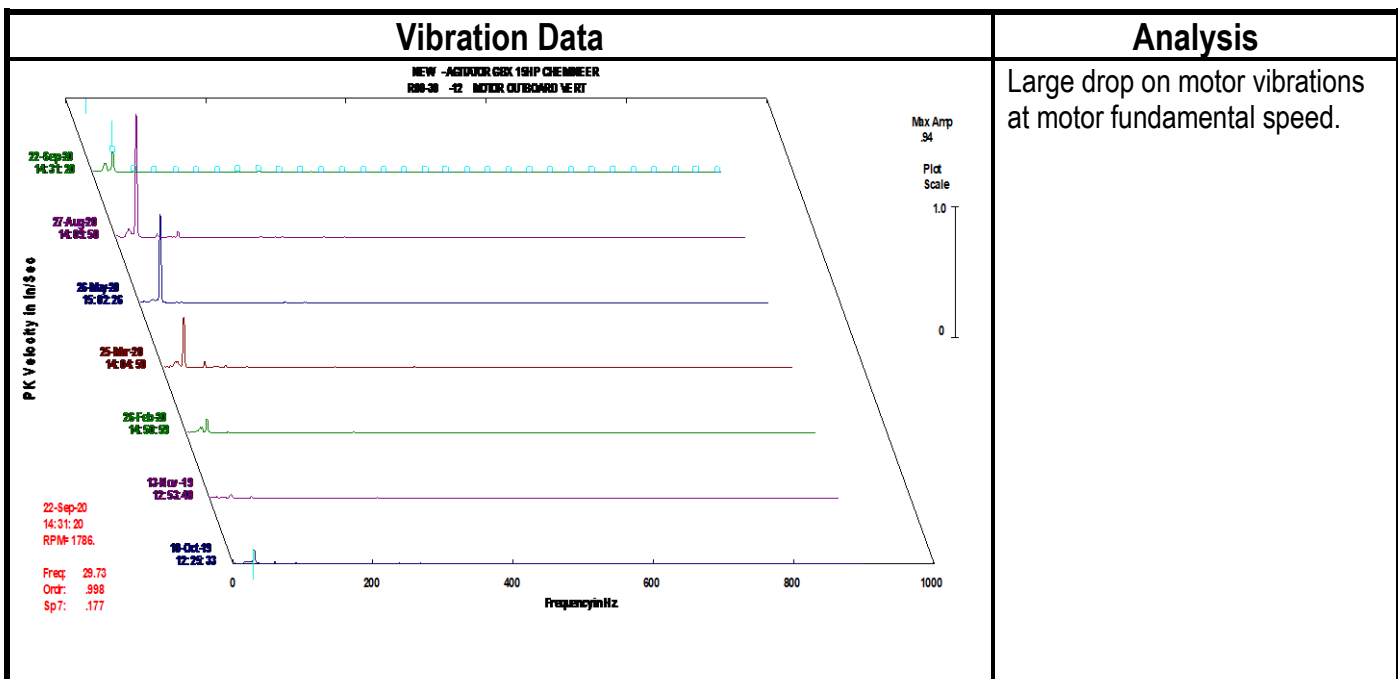




Client	Penn A Kem	Survey Date	9-22-2020
Location	Memphis, TN	Report Date	9-24-2020
Machine	R80-30 Agitator Motor/Gearbox Chemineer	QMS No.	143416
Component	Motor	Analyst	DWS

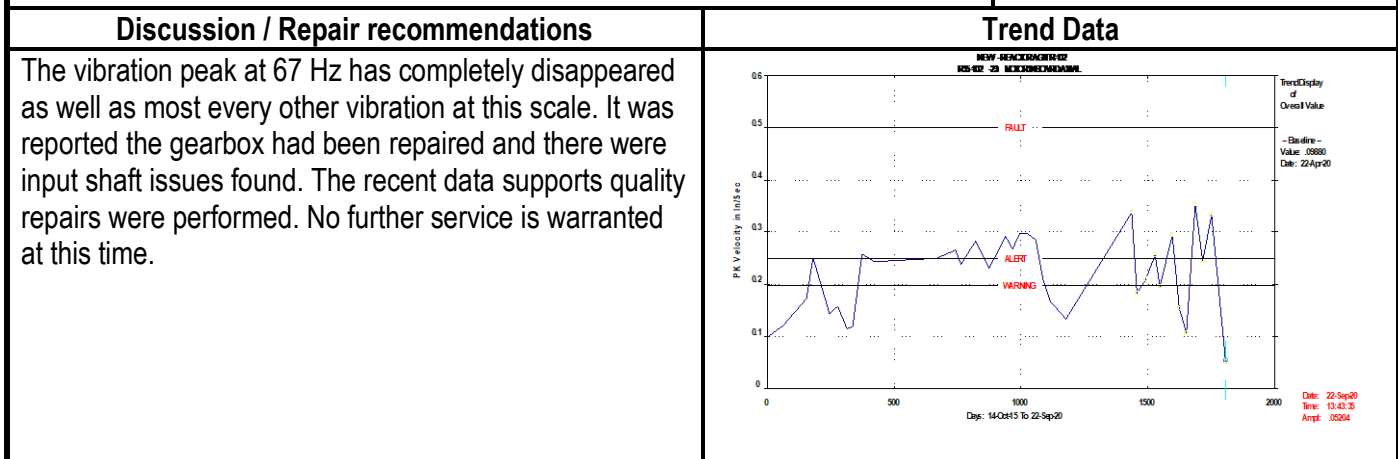
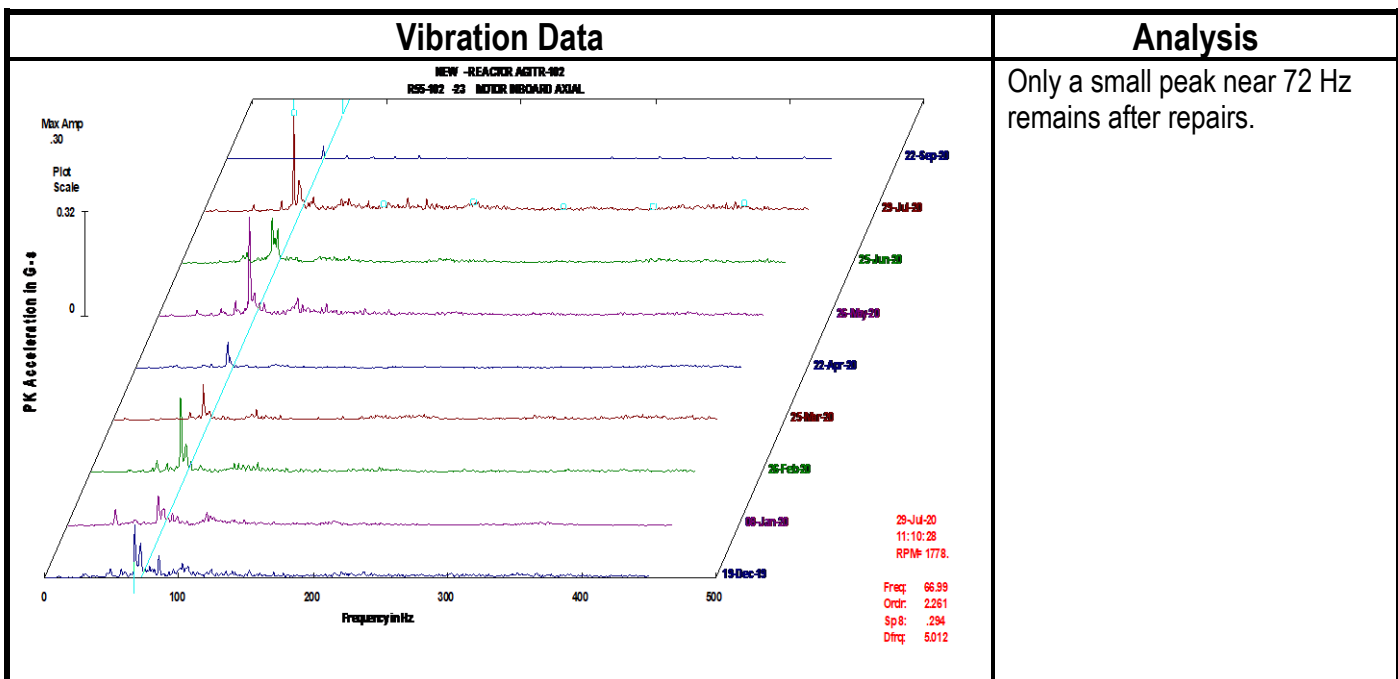
Defect Rating for this machine	NA
Defect Rating System	
Class I: Defect is present, but effect on reliability is not clear; no immediate action is required. Continue normal monitoring.	Class III: Defect (s) present that may cause failure in short term (less than 2 mos.). Should be addressed as soon as 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.





Client	Penn A Kem	Survey Date	9-22-2020
Location	Memphis, TN	Report Date	9-24-2020
Machine	R55-102 Reactor Agitator Motor and Gearbox	QMS No.	143416
Component	Motor/Gearbox	Analyst	DWS

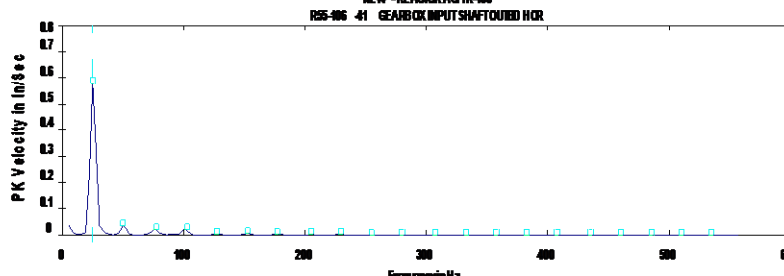
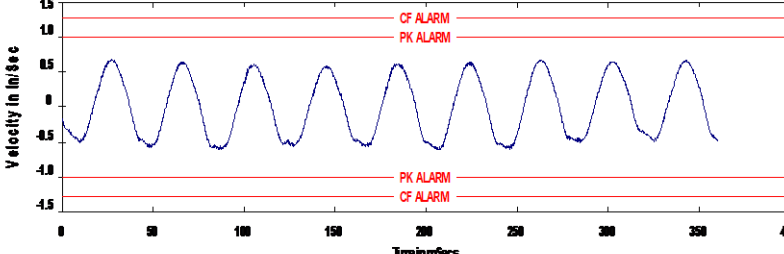
Defect Rating for this machine	NA
Defect Rating System	
Class I: Defect is present, but effect on reliability is not clear; no immediate action is required. Continue normal monitoring.	Class III: Defect (s) present that may cause failure in short term (less than 2 mos.). Should be addressed as soon as 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.

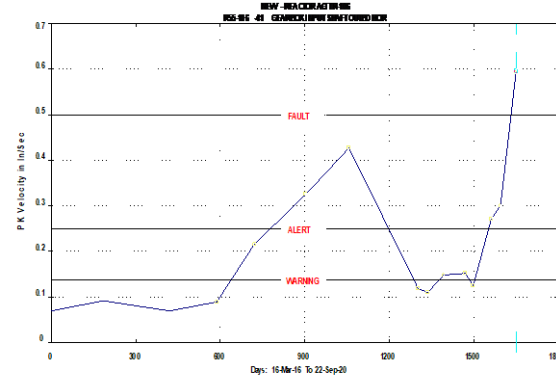




Client	Penn A Kem	Survey Date	9-22-2020
Location	Memphis, TN	Report Date	9-24-2020
Machine	R55-106 Agitator Motor and Gearbox	QMS No.	143416
Component	Gearbox	Analyst	DWS

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.

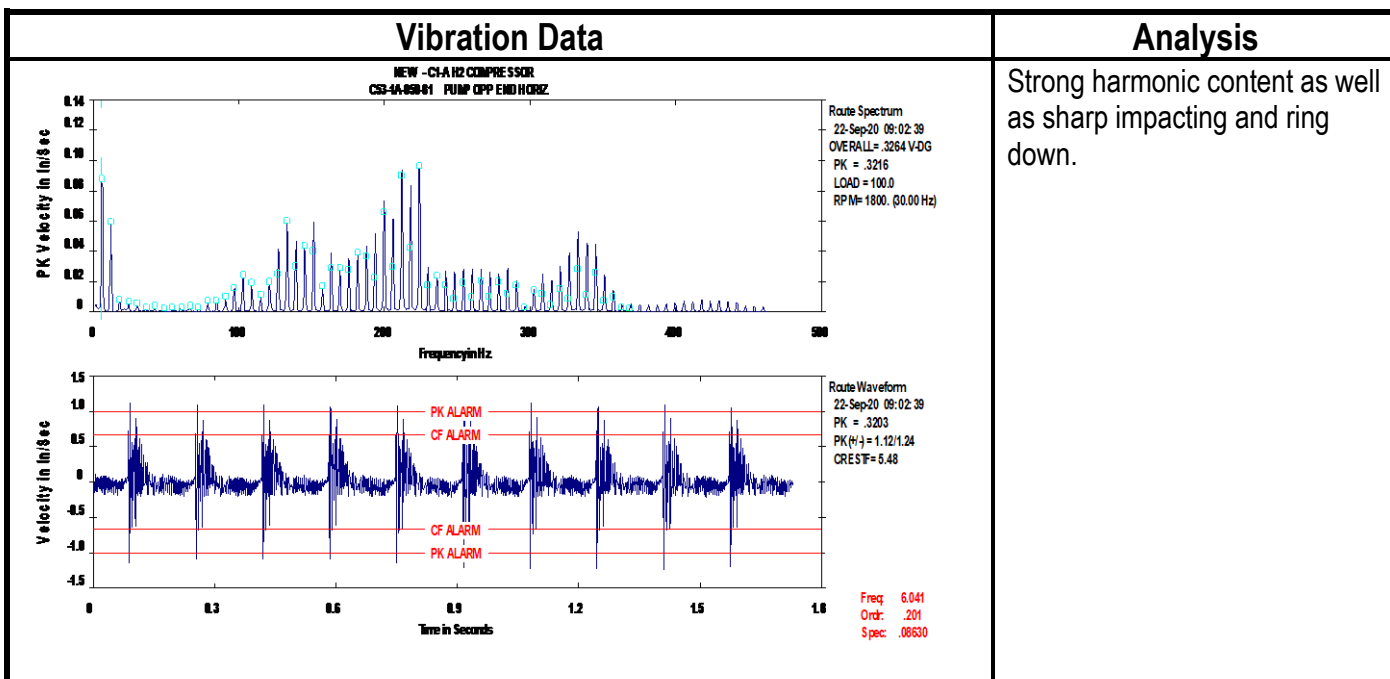
Vibration Data	Analysis
<p>NEW - REACTOR AGIT-106 R55-106 41 GEARBOX INPUT SHAFT OUTPUT HOR</p>  <p>Route Spectrum 22-Sep-20 13:49:49 OVERALL = .5922 V-DG PK = .5905 LOAD = 100.0 RPM = 1784 (29.73 Hz)</p>  <p>Route Waveform 22-Sep-20 13:49:49 PK = .6040 PK (H) = .6845/.6152 CREST F = 1.60</p> <p>Freq: 24.96 Ord: .840 Spec: .580</p>	<p>Dominant vibration at near 25Hz. In the outboard end of the gearbox.</p>

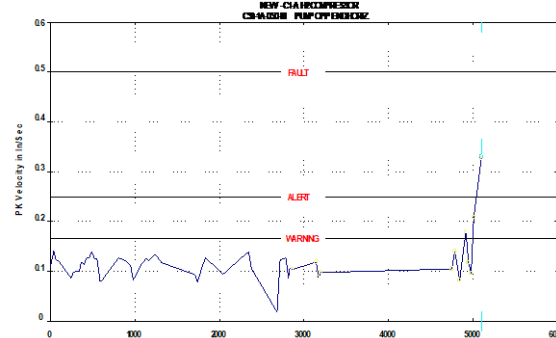
Discussion / Repair recommendations	Trend Data
<p>Most of the motor vibrations have dropped; however, the gearbox vibrations seem to have increased. The dominant vibration appears to be at input speed, which we believe to be about 25 Hz. Inspect the motor, coupling, gearbox, supports and structures for defects that could cause vibrations. Rated a Class II Defect.</p>	 <p>Trend Display of Overall Value - Deviation - Value: .06854 Date: 16-Mar-16</p> <p>PK Velocity in in/sec</p> <p>Days: 15-Mar-16 To 22-Sep-20</p> <p>Date: 22-Sep-20 Time: 13:49:50 Ampl: .592</p>



Client	Penn A Kem	Survey Date	9-22-2020
Location	Memphis, TN	Report Date	9-24-2020
Machine	C53-C1A Compressor	QMS No.	143416
Component		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
Data for the compressor indicates possible mechanical looseness in the unit. Inspect the unit for defects at the very next opportunity. Rated a Class III Defect.	 <p>TrendDisplay of Overall Value</p> <p>- Baseline - Value: .109 Date: 22-Apr-20</p> <p>FAULT ALERT WARNING</p> <p>Date: 22-Sep-20 Time: 09:02:48 Ampl: .326</p>