HI-SPEED INDUSTRIAL SERVICE QualiTest® Diagnostics

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May 27, 2025

Lanxess
Memphis, TN

The following is a summary of findings from the May 2025 quarterly vibration survey at your facility. Please let us know if there are any questions or comments.

QualiTest® uses a four-step rating system for defects.

Class I: Defect is present, but effect on reliability is not clear; no immediate action is required. Continue to normally monitor.

Class II: Defect (s) present that may cause problem in long term (2-6 months). Repair during normal maintenance scheduling. Continue to monitor.

Class III; Defect (s) present that may cause failure in short term (less than 2 months). This 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

Machine Summary Table

Date Collected												
Month	5	8	1	9	11	4	8	12	5			
Day	3	18	10	22	16	22	21	13	27			
Year	22	22	23	23	23	24	24	24	25			
Item	Condition											
Refrigeration Compressor A						NR		NR				
Refrigeration Compressor B			NR	NR	NR	NR	NR		NR			
East Cooling Tower Pump				NR	NR							
Middle Cooling Tower Pump	NR		NR			NR	NR	NR	NR			
West Cooling Tower Pump		NR										
West Neutralization Pump	NR	NR	NR	NR	NR		NR					
East Neutralization Pump						NR		NR	NR			
KOH Feed Pump												
Peroxide Feed Pump						NR						
Crystallizer Recirc Pump												
Slurry Transfer Pump												
Quench Tank Pump												
Centrifuge Feed Pump												
Caro's Acid Pump												
Scrubber Circulation Pump												
Dust Collector Blower	NA											
Quench Tank Blower												
Vent Scrubber Blower	NA											
Hold Tank Agitator	NA											
Crystallizer Agitator	NA					NR	NR	NR	NR			
Pre-Crusher	NA											
Grinder	NA											
Brine Tank Pump	NR	NR	NR									
Two Stage Water Pump												

Abbreviated Last Measurement Summary

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Database: oxone.rbm
Station: MEMPHIS OXONE

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
REFGCOMPA - REFRIGERATION COMPRESSOR A	**(27-May-25)**	
	OVERALL LEVEL	**1-20 kHZ**
MOH	.055 In/Sec	1.318 G-s
MOV	.041 In/Sec	.263 G-s
MOA	.023 In/Sec	.198 G-s
MIH	.062 In/Sec	.380 G-s
MIV	.026 In/Sec	.090 G-s
MIA	.031 In/Sec	.076 G-s
C1H	.036 In/Sec	.304 G-s
C1V	.051 In/Sec	.198 G-s
C1A	.069 In/Sec	.140 G-s
C2H	.050 In/Sec	.637 G-s
C2V	.281 In/Sec	.246 G-s
C2A	.117 In/Sec	.157 G-s
C3H	.032 In/Sec	.334 G-s
C3V	.244 In/Sec	.169 G-s
C3A	.069 In/Sec	.260 G-s
C4H	.052 In/Sec	.563 G-s
C4V	.116 In/Sec	.116 G-s
C4A	.022 In/Sec	.171 G-s
7371-07 - EAST COOLING TOWER PUMP	**(27-May-25)**	
	OVERALL LEVEL	**1-20 kHZ**
11	.347 In/Sec	3.219 G-s
12	.151 In/Sec	1.739 G-s
13	.265 In/Sec	1.502 G-s
14	.109 In/Sec	1.686 G-s
7371-05 - WEST COOLING TOWER PUMP	**(27-May-25)**	
	OVERALL LEVEL	**1-20 kHZ**
11	.069 In/Sec	1.509 G-s
12	.072 In/Sec	1.351 G-s
13	.085 In/Sec	1.657 G-s
14	.052 In/Sec	2.351 G-s
X1 - WEST NEUTRALIZATION PUMP	**(27-May-25)**	
	OVERALL LEVEL	**1-20 kHZ**
11	.059 In/Sec	.250 G-s
12	.068 In/Sec	.194 G-s
362-13 - KOH FEED PUMP	**(27-May-25)**	
	OVERALL LEVEL	**1-20 kHZ**
11	.096 In/Sec	2.305 G-s
21	.102 In/Sec	2.858 G-s
23	.083 In/Sec	.304 G-s
71	.123 In/Sec	1.931 G-s
72	.101 In/Sec	.787 G-s
363-06 - CRYSTALLIZER RECIRC PUMP	**(27-May-25)**	
	OVERALL LEVEL	**1-20 kHZ**
11	.018 In/Sec	.272 G-s
21	.016 In/Sec	.276 G-s
23	.017 In/Sec	.049 G-s
71	.075 In/Sec	.100 G-s
72	.041 In/Sec	.050 G-s
81	.041 In/Sec	.106 G-s
363-07A - SLURRY TRANSFER PUMP	**(27-May-25)**	
	OVERALL LEVEL	**1-20 kHZ**
11	.121 In/Sec	.956 G-s
21	.094 In/Sec	1.624 G-s

	23	.092 In/Sec	.325 G-s
	71	.171 In/Sec	.281 G-s
	72	.086 In/Sec	.047 G-s

106-01 - PUMP,#2 QUENCH TANK (27-May-25)

	OVERALL LEVEL	1-20 kHZ
11	.048 In/Sec	.866 G-s
21	.053 In/Sec	.681 G-s
23	.150 In/Sec	.176 G-s
71	.671 In/Sec	.816 G-s
72	.188 In/Sec	.627 G-s

363-13 - CENTRIFUGE FEED PUMP (27-May-25)

	OVERALL LEVEL	1-20 kHZ
11	.160 In/Sec	.393 G-s
21	.106 In/Sec	.383 G-s
23	.108 In/Sec	.048 G-s
71	.075 In/Sec	.219 G-s
72	.133 In/Sec	.087 G-s

360-05 - CARO'S ACID PUMP (27-May-25)

	OVERALL LEVEL	1-20 kHZ
11	.057 In/Sec	1.143 G-s
21	.129 In/Sec	3.883 G-s
23	.069 In/Sec	.265 G-s
71	.113 In/Sec	.267 G-s
72	.121 In/Sec	.068 G-s

363-18 - AGITATOR, HOLD TANK (27-May-25)

	OVERALL LEVEL	1-20 kHZ
11	.075 In/Sec	.574 G-s
21	.102 In/Sec	.865 G-s
23	.141 In/Sec	.109 G-s
31	.102 In/Sec	1.637 G-s
32	.059 In/Sec	.497 G-s

106-08 - BLOWER, QUENCH TANK (27-May-25)

	OVERALL LEVEL	1-20 kHZ
11	.323 In/Sec	1.232 G-s
12	.762 In/Sec	.253 G-s
13	.651 In/Sec	.279 G-s
21	.166 In/Sec	.888 G-s
22	.895 In/Sec	.178 G-s
23	.396 In/Sec	.128 G-s
71	.418 In/Sec	1.314 G-s
81	.516 In/Sec	.987 G-s

DC BLOWER - BLOWER, DUST COLLECTOR (27-May-25)

	OVERALL LEVEL	1-20 kHZ
11	.110 In/Sec	1.979 G-s
12	.131 In/Sec	.529 G-s
13	.082 In/Sec	.233 G-s
21	.124 In/Sec	1.739 G-s
22	.114 In/Sec	.474 G-s
23	.110 In/Sec	.342 G-s
71	.099 In/Sec	1.618 G-s
81	.131 In/Sec	1.910 G-s

VNTSCRBBLW - BLOWER, VENT SCRUBBER (27-May-25)

	OVERALL LEVEL	1-20 kHZ
11	.179 In/Sec	1.225 G-s
12	.194 In/Sec	.498 G-s
13	.061 In/Sec	.355 G-s
21	.133 In/Sec	1.738 G-s
22	.232 In/Sec	.303 G-s
23	.055 In/Sec	.426 G-s
71	.130 In/Sec	1.252 G-s
81	.110 In/Sec	1.197 G-s

370-03 - GRINDER,OXONE (27-May-25)

	OVERALL LEVEL	1-20 kHZ
11	.060 In/Sec	.394 G-s
71	.076 In/Sec	.219 G-s

366-41 - SCRUBBER CIRCULATION PUMP (27-May-25)

	OVERALL LEVEL	1-20 kHZ
11	.172 In/Sec	3.091 G-s
21	.152 In/Sec	3.806 G-s
23	.174 In/Sec	1.269 G-s
71	.218 In/Sec	.583 G-s
81	.248 In/Sec	.380 G-s

7368-03 - PRECRUSHER OXONE (27-May-25)

	OVERALL LEVEL	1-20 kHZ
23	.113 In/Sec	.060 G-s
11	.209 In/Sec	.328 G-s
21	.176 In/Sec	.410 G-s
22	.098 In/Sec	.128 G-s
71	.131 In/Sec	.358 G-s
81	.198 In/Sec	.382 G-s

110-04 - BRINE TANK PUMP (27-May-25)

	OVERALL LEVEL	1-20 kHZ
11	.133 In/Sec	.438 G-s
21	.109 In/Sec	.380 G-s
23	.111 In/Sec	.067 G-s
71	.090 In/Sec	.203 G-s
72	.156 In/Sec	.088 G-s

2STAGEWTR - TWO STAGE WATER PUMP (27-May-25)

	OVERALL LEVEL	1-20 kHZ
11	.060 In/Sec	.863 G-s
21	.062 In/Sec	.556 G-s
23	.078 In/Sec	.161 G-s
71	.152 In/Sec	3.518 G-s
72	.098 In/Sec	.708 G-s

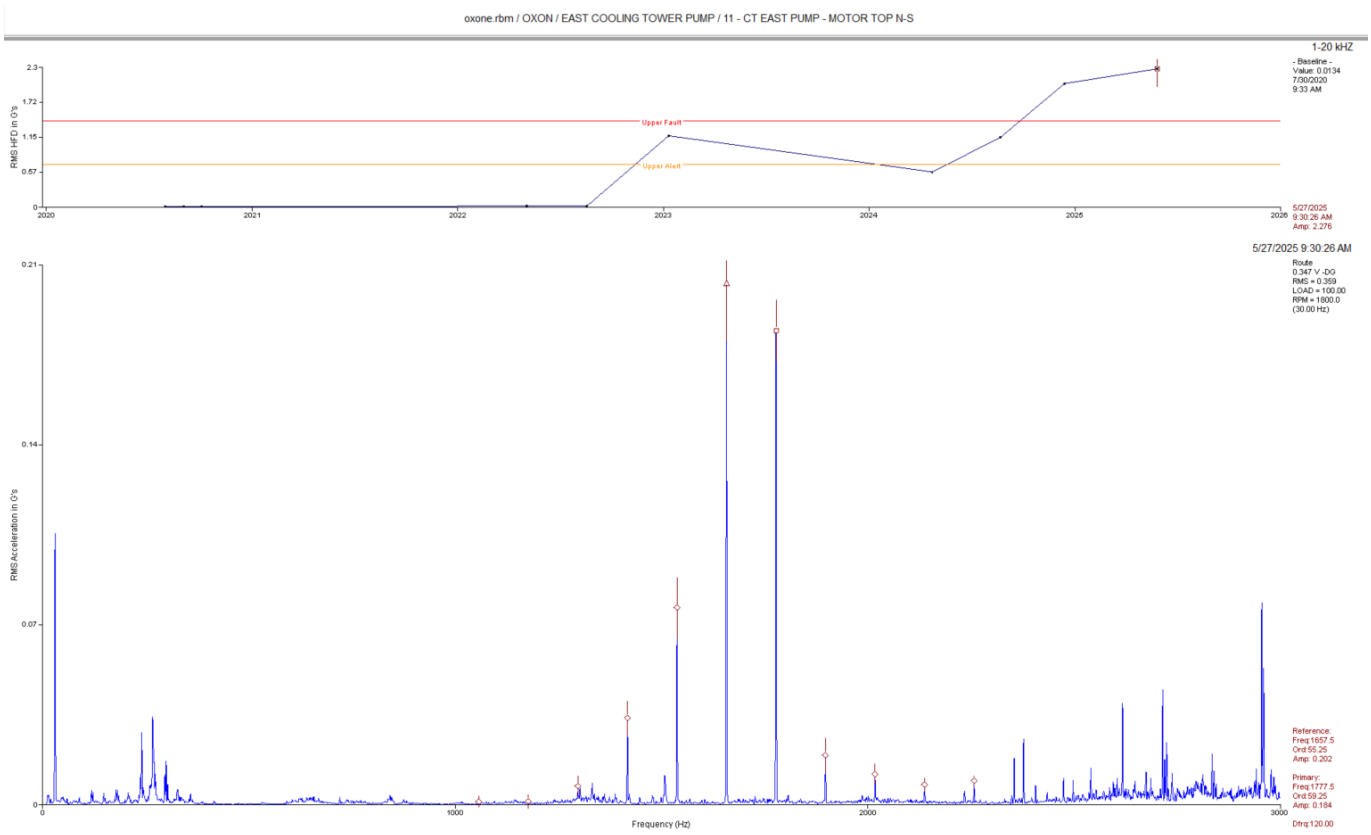
Clarification Of Vibration Units:

Acc --> G-s PK

Vel --> In/Sec PK

Vibration Analysis

East Cooling Tower Pump MOTOR CLASS I



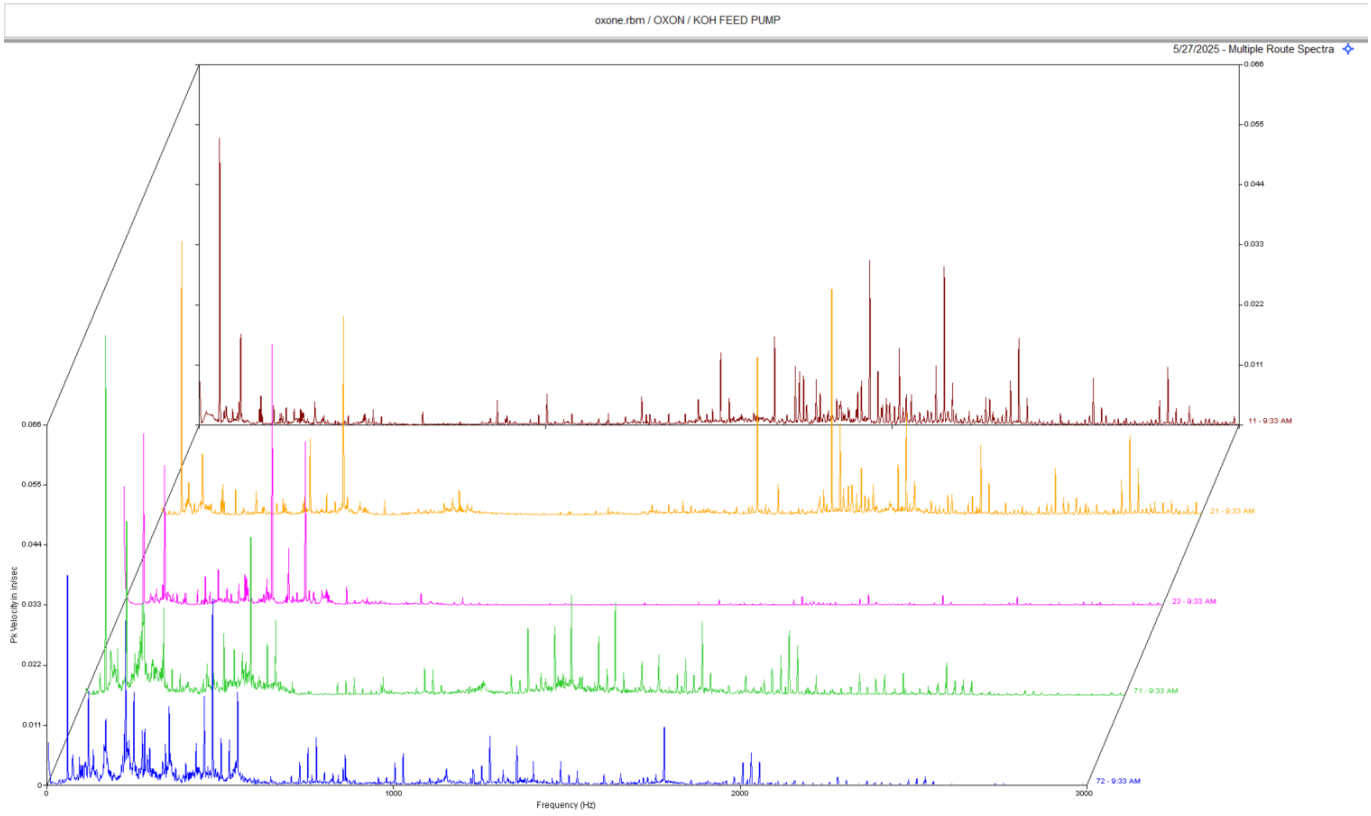
Observation:

Motor data shows a peak with 120 HZ. sidebands.

Recommendation:

Motor data shows an increase in high frequency amplitude. The 120 HZ. sidebands are electrical related as well. Motor may have an air gap issue or rotor issue. We will continue to monitor this closely.

KOH Feed Pump CLASS II



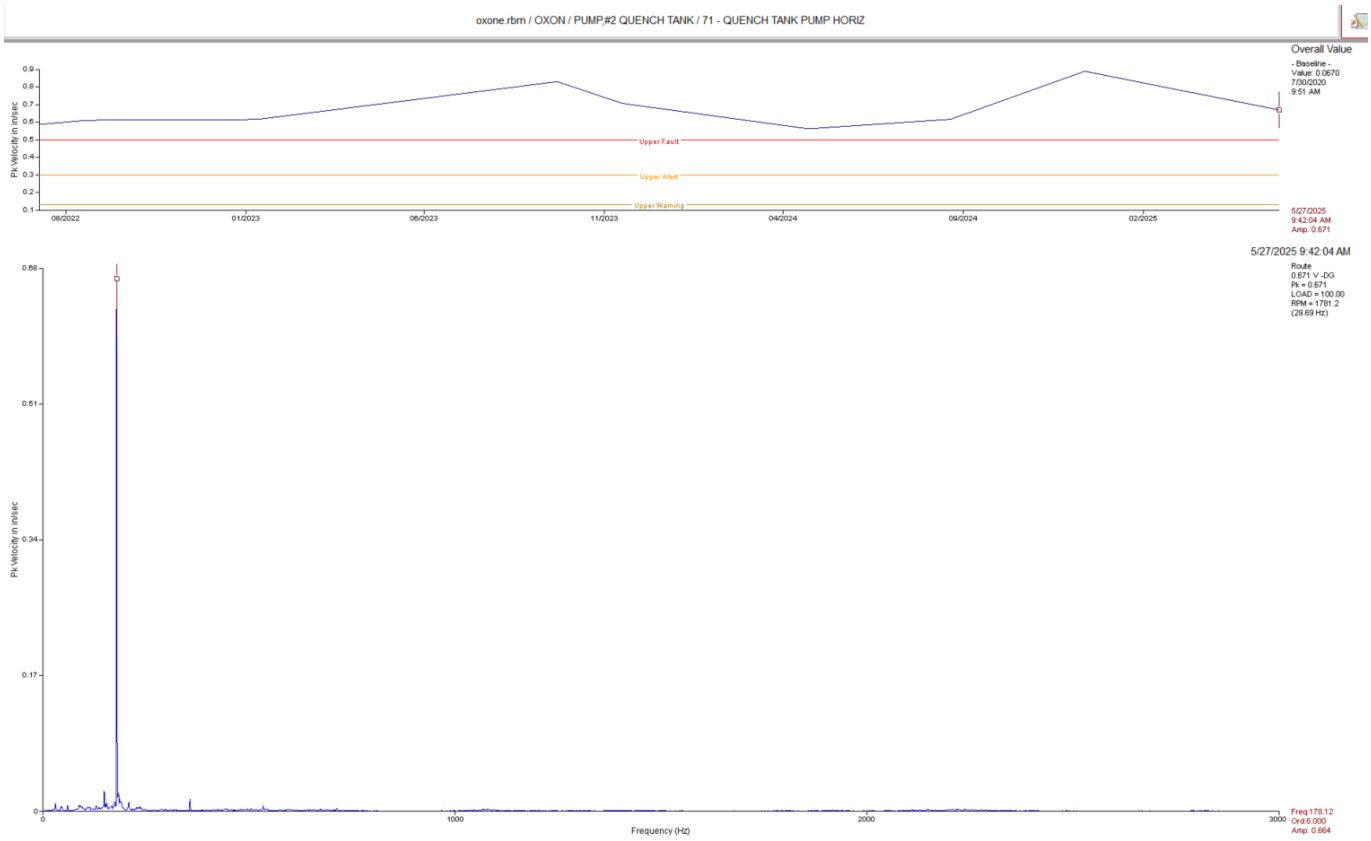
Observation:

Multi-spectral waterfall of the motor and pump shows non-synchronous peaks.

Recommendation:

Motor/Pump data shows some signs of bearing degradation. Motor and Pump will likely need attention in the next few months.

Quench Tank Pump CLASS II



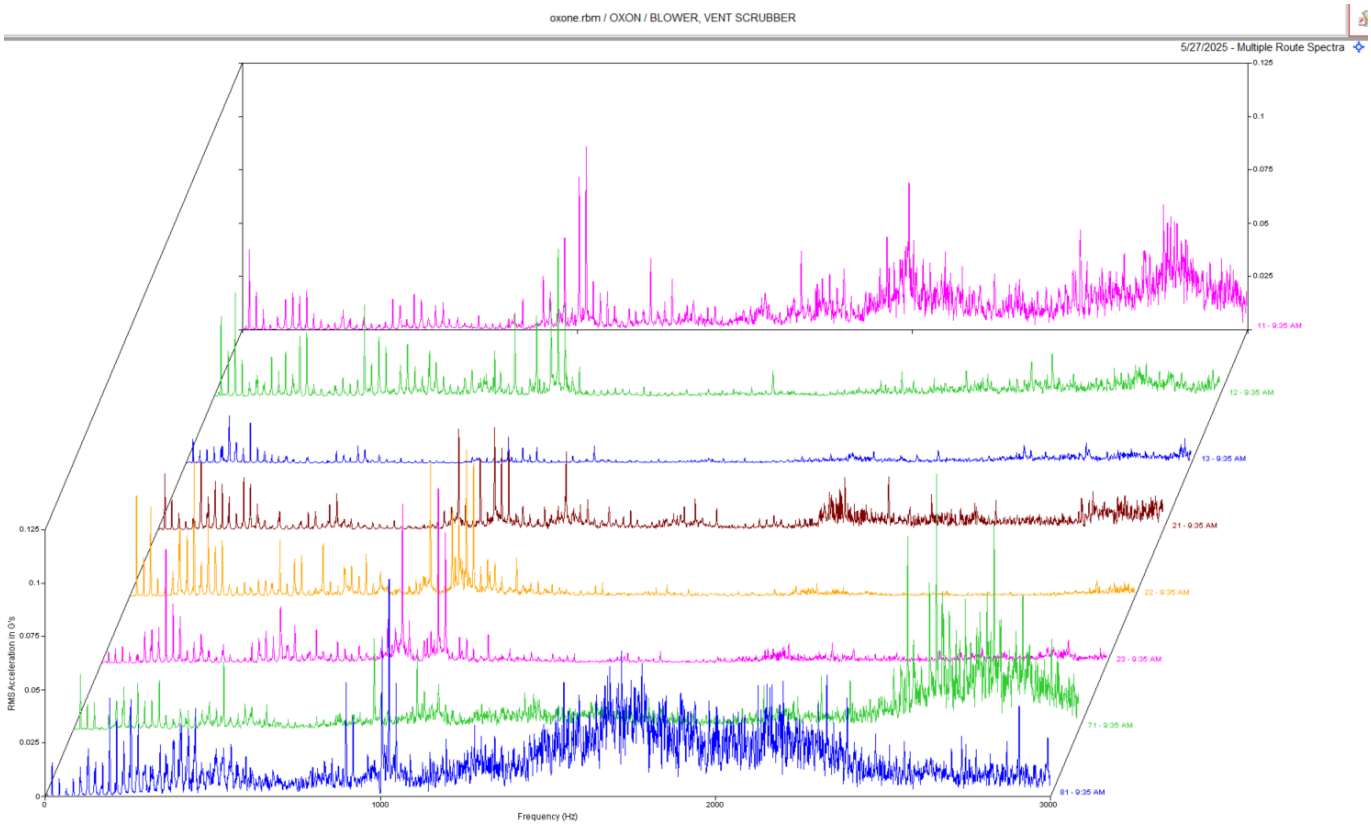
Observation:

Pump horizontal data shows a dominant vibration at 6 x rpm. Trend data shows an increase in overall vibration.

Recommendation:

If impeller has 6 vanes, then this vibration is pump vane pass and may be caused by internal pump/impeller issue or pump flow issue. Ensure pump is operating within the proper flow parameters and inspect pump/impeller as scheduling allows.

Vent Scrubber Blower CLASS II



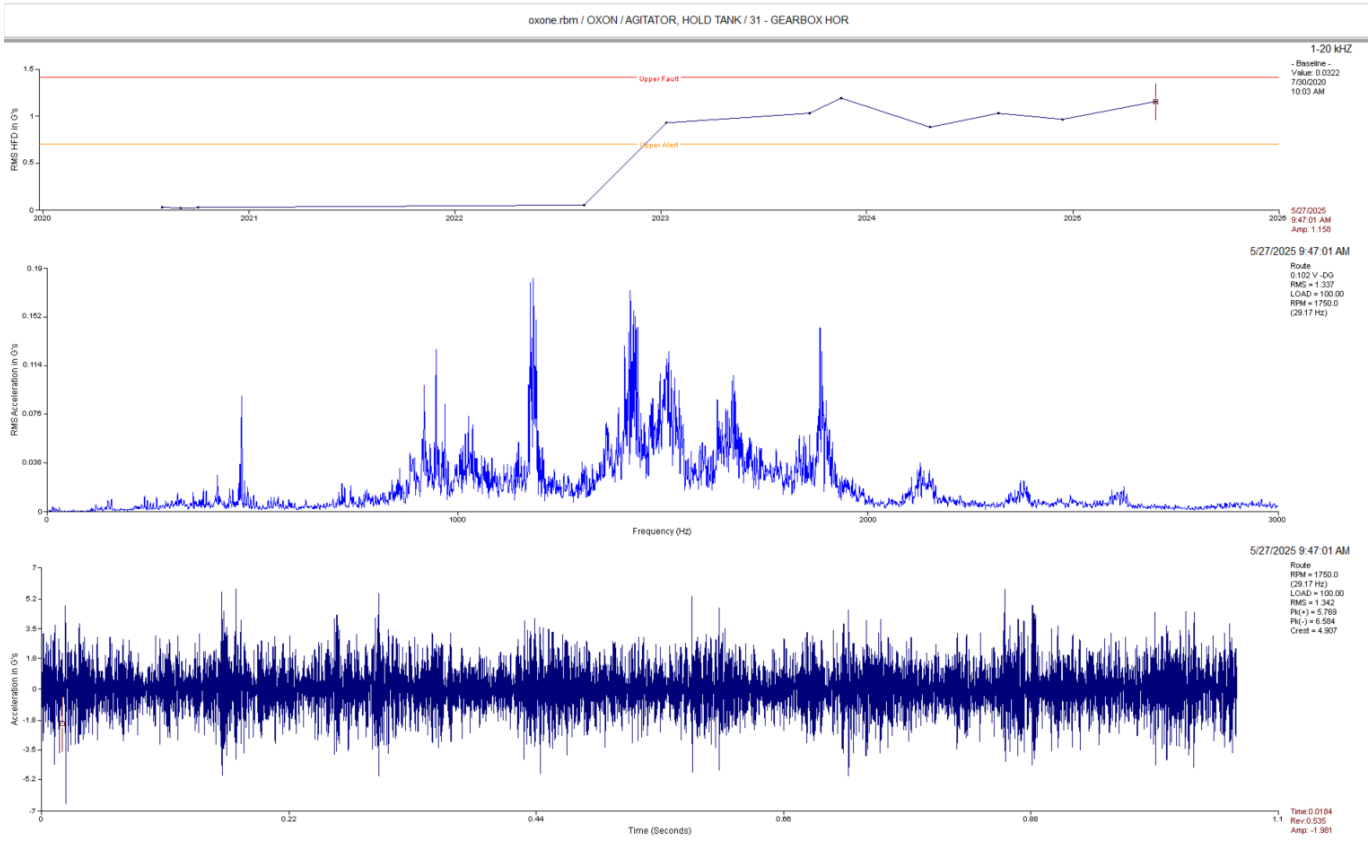
Observation:

Waterfall data of motor and blower shows synchronous peaks associated bearing fit looseness/wear. Motor data shows a non-synchronous peak at 6.2 orders with harmonics.

Recommendation:

Drive end blower bearing appears to have fit looseness wear. Motor also shows some low level bearing issue at the DE. Check DE blower bearing, motor bearings, and coupling for signs of wear as time allows.

Hold Tank Agitator CLASS II



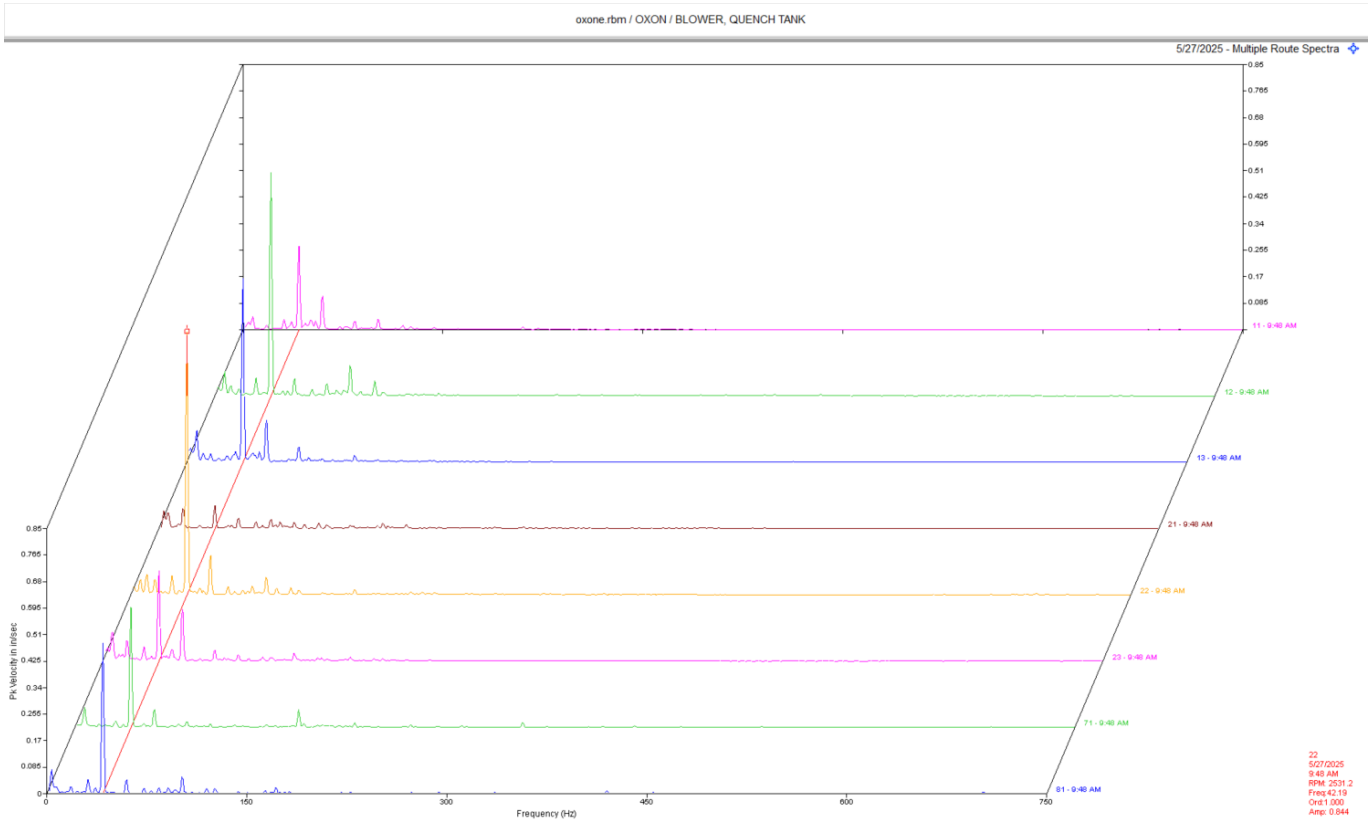
Observation:

Gearbox input side data shows random noise floor with non-synchronous and synchronous peaks associated with bearing and gear frequencies .

Recommendation:

Gearbox data is showing signs of defects and wear being apparent. Gearbox may need a fluid change and an oil analysis to help confirm severity of wear.

Quench Tank Blower CLASS II



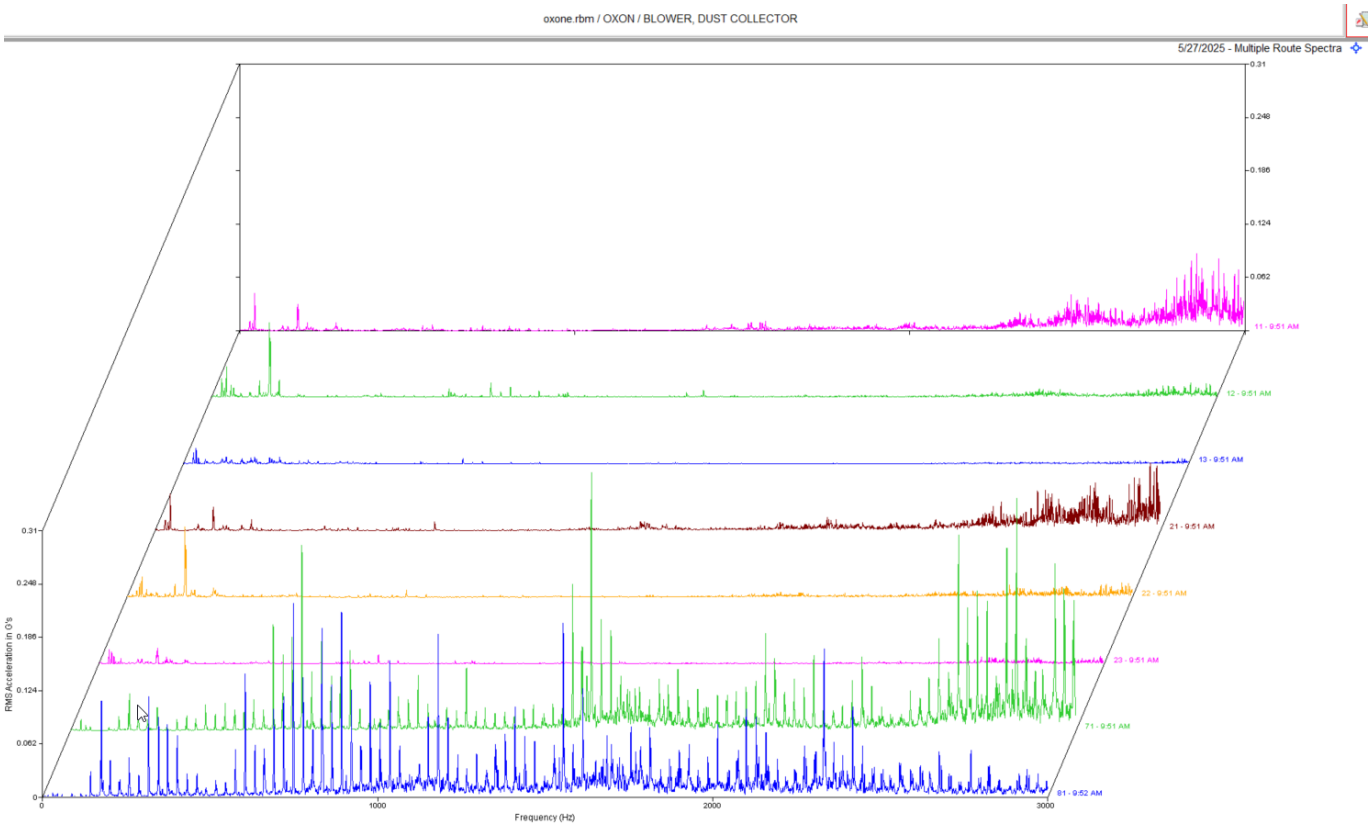
Observation:

Multipoint spectra shows a high vibration throughout the blower and motor. This peak appears to be 1 x blower rpm.

Recommendation:

Data suggests imbalance of the blower or possible sheave issue. Inspect blower wheel for buildup and or damage. Ensure sheaves are in good shape and properly aligned. Check all fasteners and ensure belts are also in good shape.

Dust Collector Blower CLASS III



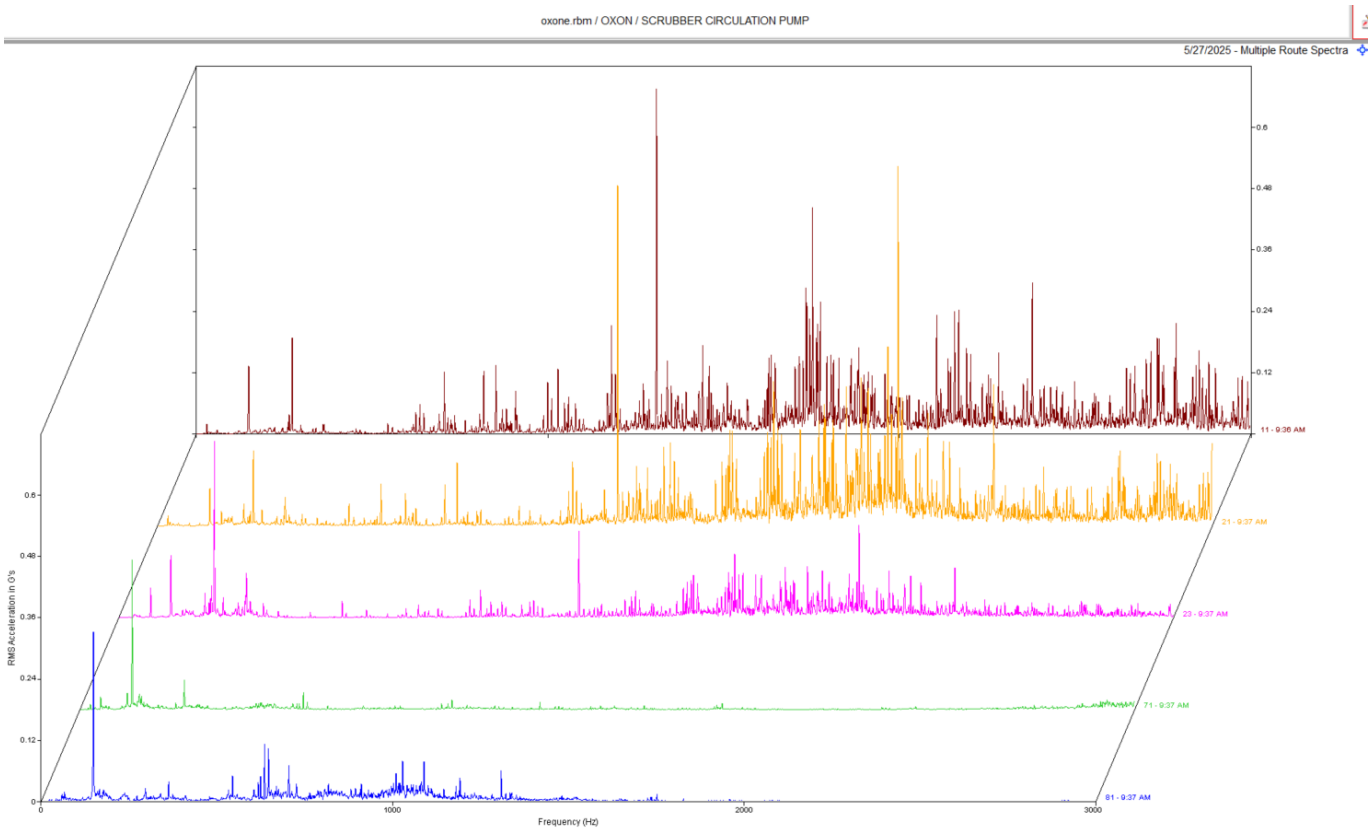
Observation:

Data the blower show excessive vibration in the blower bearings. Peaks in blower spectra are mostly synchronous which indicate excessive blower shaft and or bearing fit wear.

Recommendation:

Data indicates defects/wear in the blower bearings and or blower shaft. The blower is very noisy as well and will need attention very soon.

Scrubber Circulation Pump CLASS III



Observation:

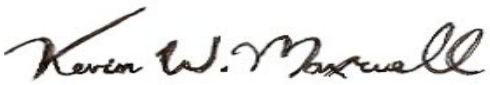
Waterfall spectra of motor and pump shows high amplitude acceleration and non-synchronous peaks in motor spectra.

Recommendation:

Motor bearings are showing signs of defect/wear. We are monitoring this closely. Motor should be replaced at next down time.

As always, it has been a pleasure to serve the Lanxess Oxone Memphis Plant. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



ISO Certified Vibration Analyst, Category III

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