HI-SPEED INDUSTRIAL SERVICE QualiTest® Diagnostics

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June 14th, 2023

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The following is a summary of findings from the June 2023 WEEK 2 vibration survey at the H2O2 Plant that was performed on June 12th, 2023.

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.

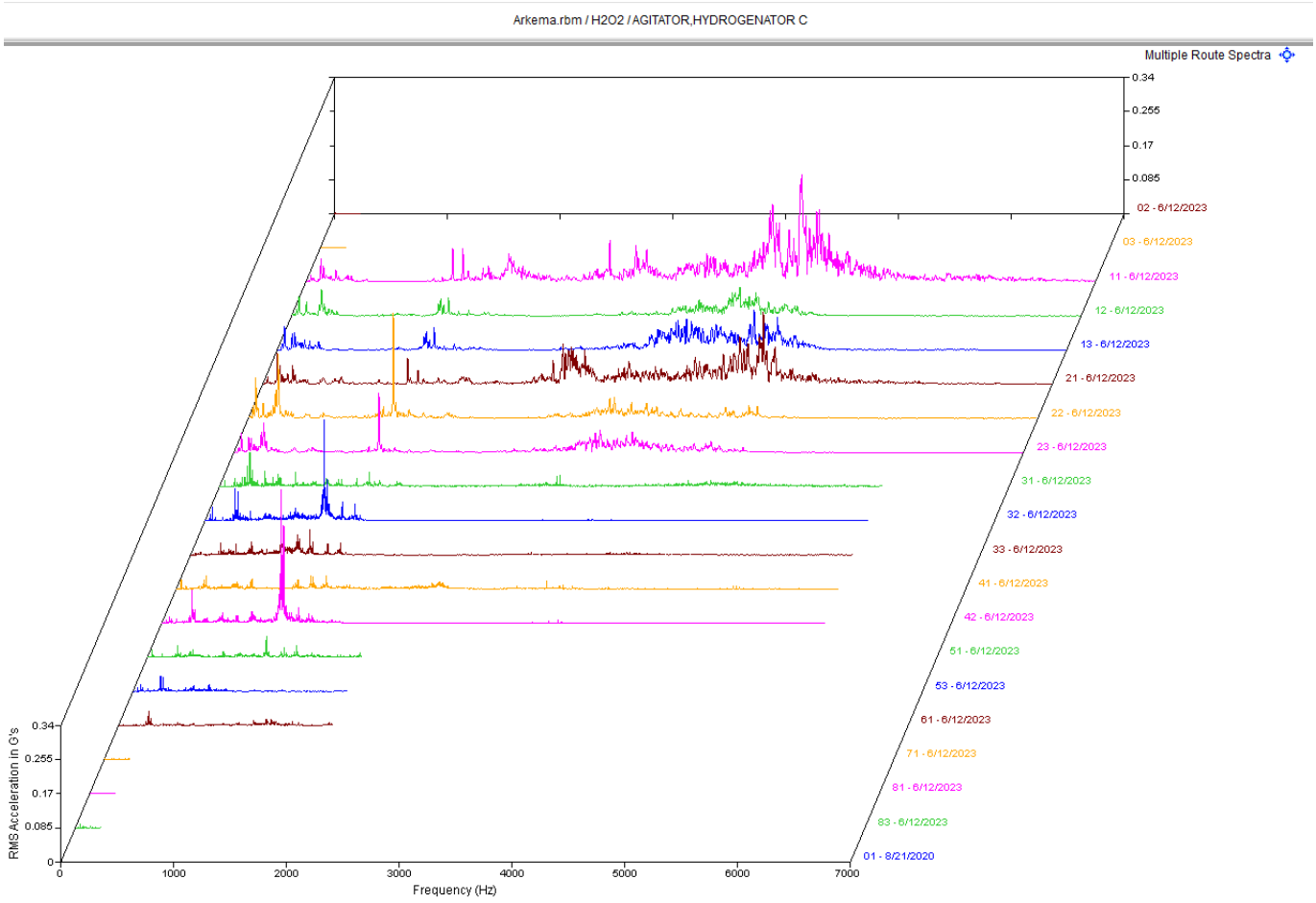
CLASS II: Defect (s) present that may cause problem in long term (2-6 months). Repair during normal maintenance scheduling. Continue to monitor.

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

Defect Summary

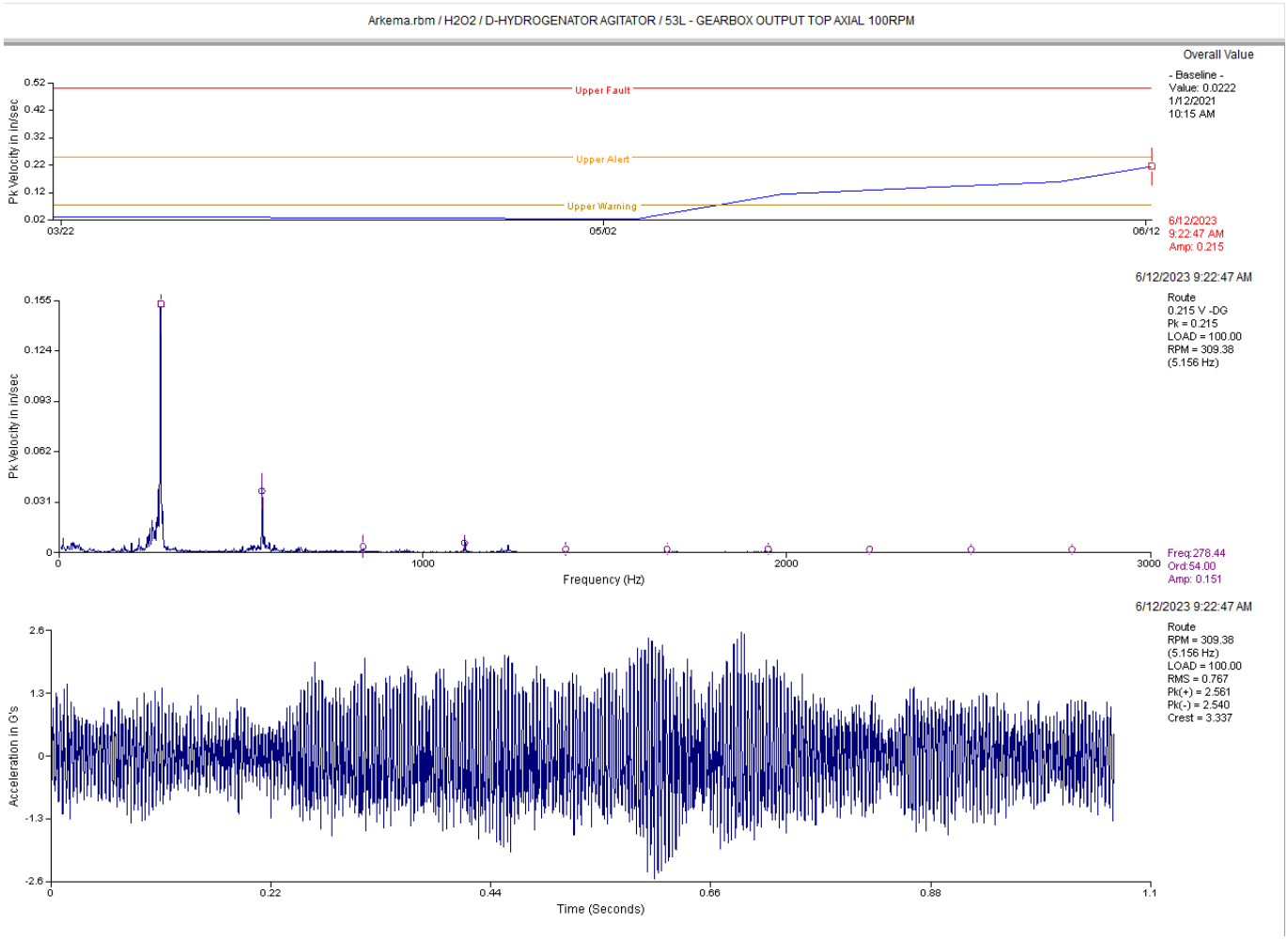
Agitator, Hydrogenator C CLASS II



Observation:
Data above is a multipoint spectral waterfall. Notice the noise floor in the motor data. Data points labeled 11-23.

Recommendation:
Motor data suggests a possible lubrication issue in the motor. May also be rolling element defects in bearings. For now, it is recommended that the motor receives an adequate amount of grease.

D Hydrogenator Agitator CLASS I



Observation:

Data above is output top axial. Peaks in the spectrum appear to be related to a gear mesh frequency fundamental with harmonics thereof. This may be due to heavy tooth load.

Recommendation:

Ensure gear drive is not heavily loaded due to process issues. Will continue to monitor closely.

Abbreviated Last Measurement Summary

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Database: Arkema.rbm
Station: PEROXIDE
Route No. 2: ARK WK 2

MEASUREMENT POINT		OVERALL LEVEL	HFD / VHFD
2130-1old	- C Concentrator Vacuum Pump	(12-Jun-23)	
		OVERALL LEVEL	1-20 KHz
11		.085 In/Sec	.396 G-s
21		.085 In/Sec	.697 G-s
23		.129 In/Sec	.431 G-s
71		.139 In/Sec	1.869 G-s
81		.193 In/Sec	.562 G-s
83		.155 In/Sec	1.158 G-s
7000-01	- AGITATOR,HYDROGENATOR C	(12-Jun-23)	
		OVERALL LEVEL	1-20 KHz
02		.047 In/Sec	.020 G-s
03		.038 In/Sec	.011 G-s
11		.074 In/Sec	1.838 G-s
12		.104 In/Sec	.553 G-s
13		.110 In/Sec	.791 G-s
21		.090 In/Sec	.935 G-s
22		.188 In/Sec	.522 G-s
23		.094 In/Sec	.478 G-s
31		.069 In/Sec	.334 G-s
32		.100 In/Sec	.808 G-s
33		.043 In/Sec	.285 G-s
41		.063 In/Sec	.294 G-s
42		.098 In/Sec	.772 G-s
51		.052 In/Sec	.187 G-s
53		.047 In/Sec	.054 G-s
61		.033 In/Sec	.255 G-s
71		.059 In/Sec	.358 G-s
81		.020 In/Sec	.227 G-s
83		.039 In/Sec	.974 G-s
57	- A/B Concentr Vac Pmp-var RPM	(12-Jun-23)	
		OVERALL LEVEL	1-20 KHz
11		.070 In/Sec	.360 G-s
12		.082 In/Sec	.216 G-s
21		.054 In/Sec	.567 G-s
23		.068 In/Sec	.409 G-s
71		.114 In/Sec	.981 G-s
81		.396 In/Sec	.976 G-s
83		.126 In/Sec	1.140 G-s
2130-1	- FLASH VAP VAC PUMP-var speed	(12-Jun-23)	
		OVERALL LEVEL	1-20 KHz
11		.045 In/Sec	.274 G-s
12		.076 In/Sec	.574 G-s
21		.039 In/Sec	.545 G-s
22		.136 In/Sec	.431 G-s
23		.101 In/Sec	.371 G-s
71		.079 In/Sec	1.373 G-s
72		.101 In/Sec	.941 G-s
81		.078 In/Sec	1.091 G-s
82		.083 In/Sec	.817 G-s
83		.057 In/Sec	.701 G-s
C-203	- C-203 Comp	(12-Jun-23)	
		OVERALL LEVEL	1-20 KHz
11		.054 In/Sec	2.255 G-s
12		.055 In/Sec	1.980 G-s
21		.064 In/Sec	2.547 G-s

	22	.029 In/Sec	.848 G-s
	23	.020 In/Sec	.323 G-s
		OVERALL LEVEL	1-20 KHZ
	71M	.050 In/Sec	2.737 G-s
	72M	.045 In/Sec	.964 G-s
	73M	.069 In/Sec	1.056 G-s
	81M	.052 In/Sec	14.36 G-s
	82M	.060 In/Sec	1.664 G-s
	71F	.054 In/Sec	13.95 G-s
	72F	.060 In/Sec	1.384 G-s
	73F	.046 In/Sec	1.015 G-s
	81F	.064 In/Sec	11.23 G-s
	82F	.042 In/Sec	1.620 G-s

C-202 - C-202 Comp (12-Jun-23)

	OVERALL LEVEL	1-20 KHz
11	.120 In/Sec	4.333 G-s
12	.155 In/Sec	.962 G-s
21	.065 In/Sec	.358 G-s
22	.064 In/Sec	.267 G-s
23	.041 In/Sec	.181 G-s
	OVERALL LEVEL	1-20 KHZ
71M	.060 In/Sec	4.471 G-s
72M	.055 In/Sec	1.095 G-s
73M	.082 In/Sec	1.336 G-s
81M	.079 In/Sec	20.45 G-s
82M	.050 In/Sec	1.545 G-s
71F	.033 In/Sec	5.297 G-s
72F	.068 In/Sec	1.144 G-s
73F	.034 In/Sec	1.423 G-s
81F	.036 In/Sec	13.93 G-s
82F	.053 In/Sec	2.245 G-s

new AC - INSTRUMENT AIR COMPRESSOR (12-Jun-23)

	OVERALL LEVEL	1-20 KHz
11	.100 In/Sec	1.067 G-s
12	.092 In/Sec	.714 G-s
13	.060 In/Sec	.624 G-s
21	.076 In/Sec	1.407 G-s
22	.063 In/Sec	1.245 G-s
23	.042 In/Sec	1.179 G-s
	OVERALL LEVEL	1-20 KHZ
71F	.077 In/Sec	11.44 G-s
72F	.099 In/Sec	5.575 G-s
73F	.123 In/Sec	3.926 G-s
81F	.155 In/Sec	6.363 G-s
82F	.334 In/Sec	8.489 G-s
83F	.188 In/Sec	6.730 G-s
71M	.086 In/Sec	12.06 G-s
72M	.200 In/Sec	11.30 G-s
73M	.159 In/Sec	10.58 G-s
81M	.133 In/Sec	5.470 G-s
82M	.163 In/Sec	8.217 G-s
83M	.142 In/Sec	11.09 G-s

201-08A - COMPRESSOR,NASH A 201-08A (12-Jun-23)

	OVERALL LEVEL	1-20 KHz
11	.055 In/Sec	.120 G-s
12	.043 In/Sec	.133 G-s
13	.105 In/Sec	.072 G-s
21	.044 In/Sec	.098 G-s
22	.060 In/Sec	.124 G-s
23	.138 In/Sec	.121 G-s
71	.159 In/Sec	.679 G-s
72	.162 In/Sec	.240 G-s
73	.127 In/Sec	.228 G-s
81	.153 In/Sec	.195 G-s
82	.191 In/Sec	.073 G-s
83	.110 In/Sec	.110 G-s

202-05 - NASH SEAL LIQUID PUMP-A (12-Jun-23)

	OVERALL LEVEL	1-20 KHz
11	.017 In/Sec	.112 G-s
21	.017 In/Sec	.243 G-s
23	.017 In/Sec	.080 G-s
71	.023 In/Sec	.062 G-s
72	.022 In/Sec	.051 G-s

9002-10 - D-HYDROGENATOR AGITATOR (12-Jun-23)

	OVERALL LEVEL	1-20 KHz
11	.061 In/Sec	.291 G-s
21	.065 In/Sec	.699 G-s
23	.078 In/Sec	.147 G-s
	OVERALL LEVEL	1-20 KHZ
31	.175 In/Sec	.890 G-s
31L	.206 In/Sec	.801 G-s
	OVERALL LEVEL	1-20 KHz
51	.162 In/Sec	.268 G-s
51L	.162 In/Sec	.268 G-s
52	.040 In/Sec	.299 G-s
52L	.260 In/Sec	.504 G-s
53	.228 In/Sec	.120 G-s
53L	.215 In/Sec	.203 G-s
81	.035 In/Sec	.025 G-s
82	.032 In/Sec	.093 G-s
83	.036 In/Sec	.026 G-s

9003-01 - D-HYDRO PRIMARY FILT FD PUMP (12-Jun-23)

	OVERALL LEVEL	1-20 KHz
11	.044 In/Sec	.768 G-s
21	.049 In/Sec	.423 G-s
23	.049 In/Sec	.084 G-s
71	.090 In/Sec	.267 G-s
72	.112 In/Sec	.341 G-s

9001-01 - D-HYDRO SECOND. FILT FD PUMP (12-Jun-23)

	OVERALL LEVEL	1-20 KHz
11	.046 In/Sec	.607 G-s
21	.047 In/Sec	.627 G-s
23	.036 In/Sec	.362 G-s
71	.068 In/Sec	.488 G-s
72	.122 In/Sec	.432 G-s

192-03 - Two Stage Water Pump A-WEST (12-Jun-23)

	OVERALL LEVEL	1-20 KHz
11	.061 In/Sec	.455 G-s
21	.075 In/Sec	.797 G-s
23	.049 In/Sec	.387 G-s
71	.130 In/Sec	1.493 G-s
72	.071 In/Sec	.775 G-s

191-07 - M MIX BED WATER PUMP 191-07 (12-Jun-23)

	OVERALL LEVEL	1-20 KHz
11	.093 In/Sec	.751 G-s
21	.080 In/Sec	1.649 G-s
23	.081 In/Sec	.261 G-s
71	.283 In/Sec	.278 G-s
72	.273 In/Sec	.078 G-s

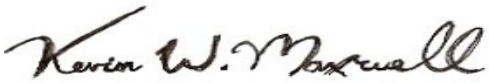
Clarification Of Vibration Units:

Acc --> G-s PK

Vel --> In/Sec PK

As always, it has been a pleasure to serve Arkema. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



ISO Certified Vibration Analyst, Category III

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