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February 18, 2025

North Shelby Plant
Millington, TN

The following is a summary of findings from the February 2025 monthly vibration survey at the North Shelby site.

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.

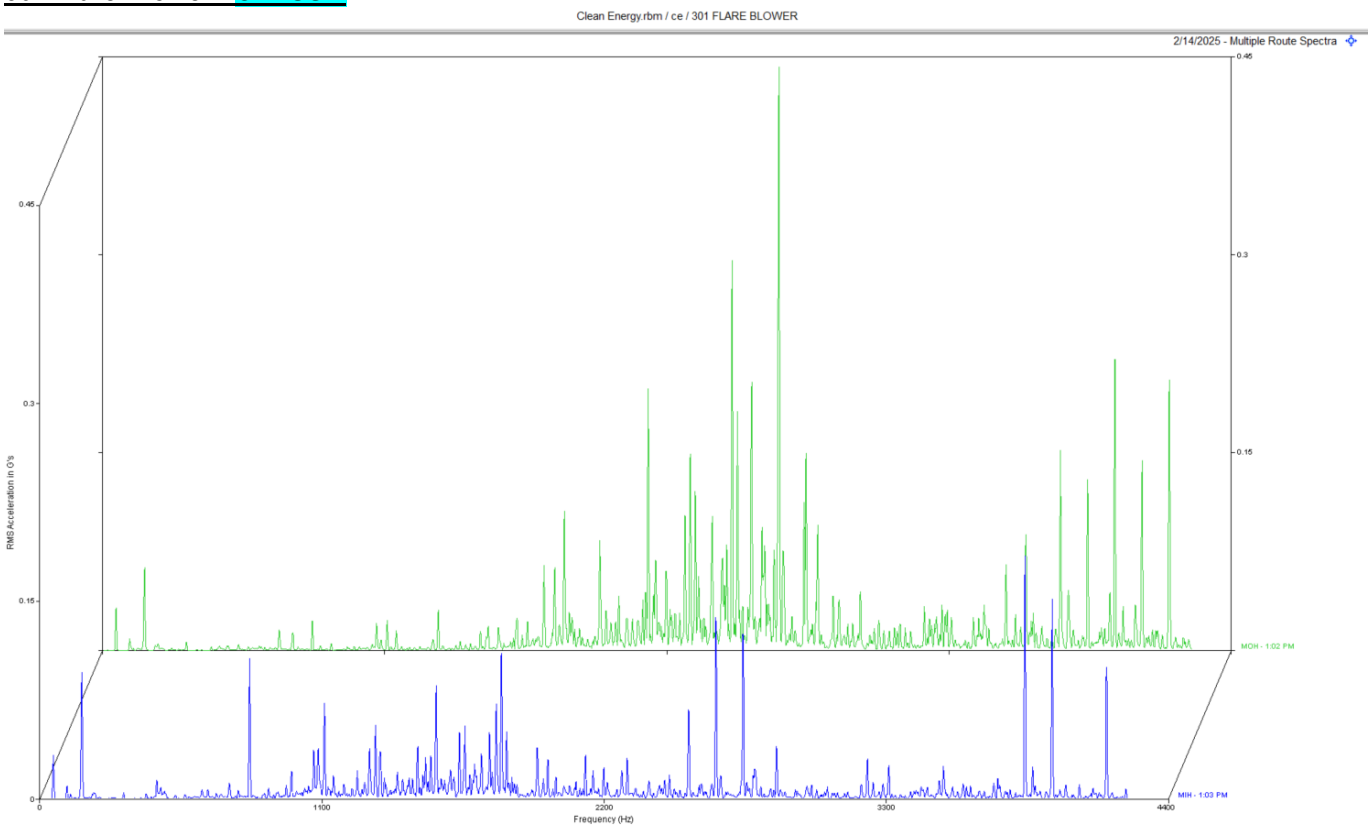
Class II: Defect (s) present that may cause problem in long term (2-6 months). Repair during normal maintenance scheduling. Continue to monitor.

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

Defects

301 Flare Blower CLASS II



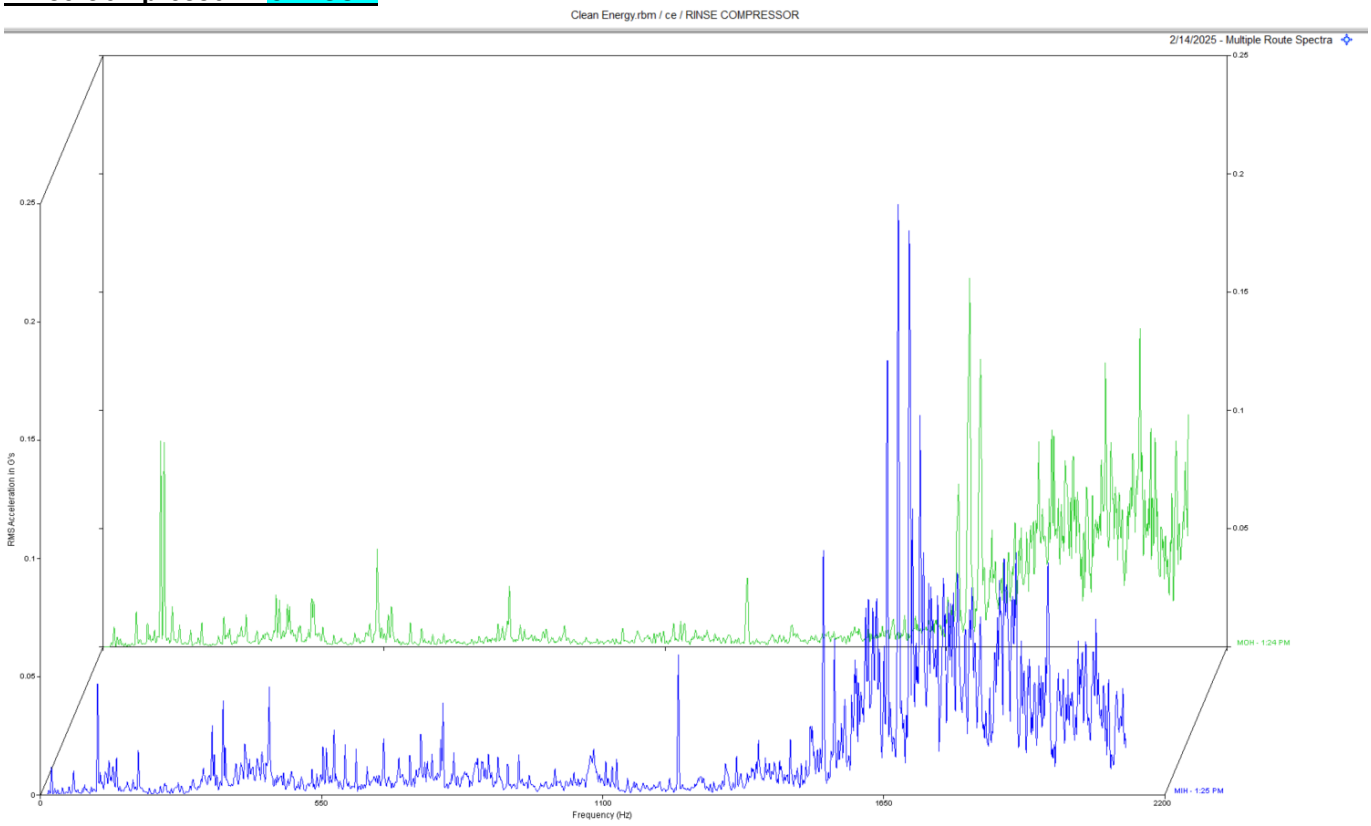
Observations:

Data above is the motor outboard horizontal. There appear to be several harmonics of a non-synchronous frequency present in the spectra that line up with outer race defect fundamental and its harmonics. This is indication of bearing defects in the motor.

Recommendations:

Motor should be replaced in the next few months. This issue appears to be at a low level at this time. We are monitoring this closely.

Rinse Compressor **CLASS II**



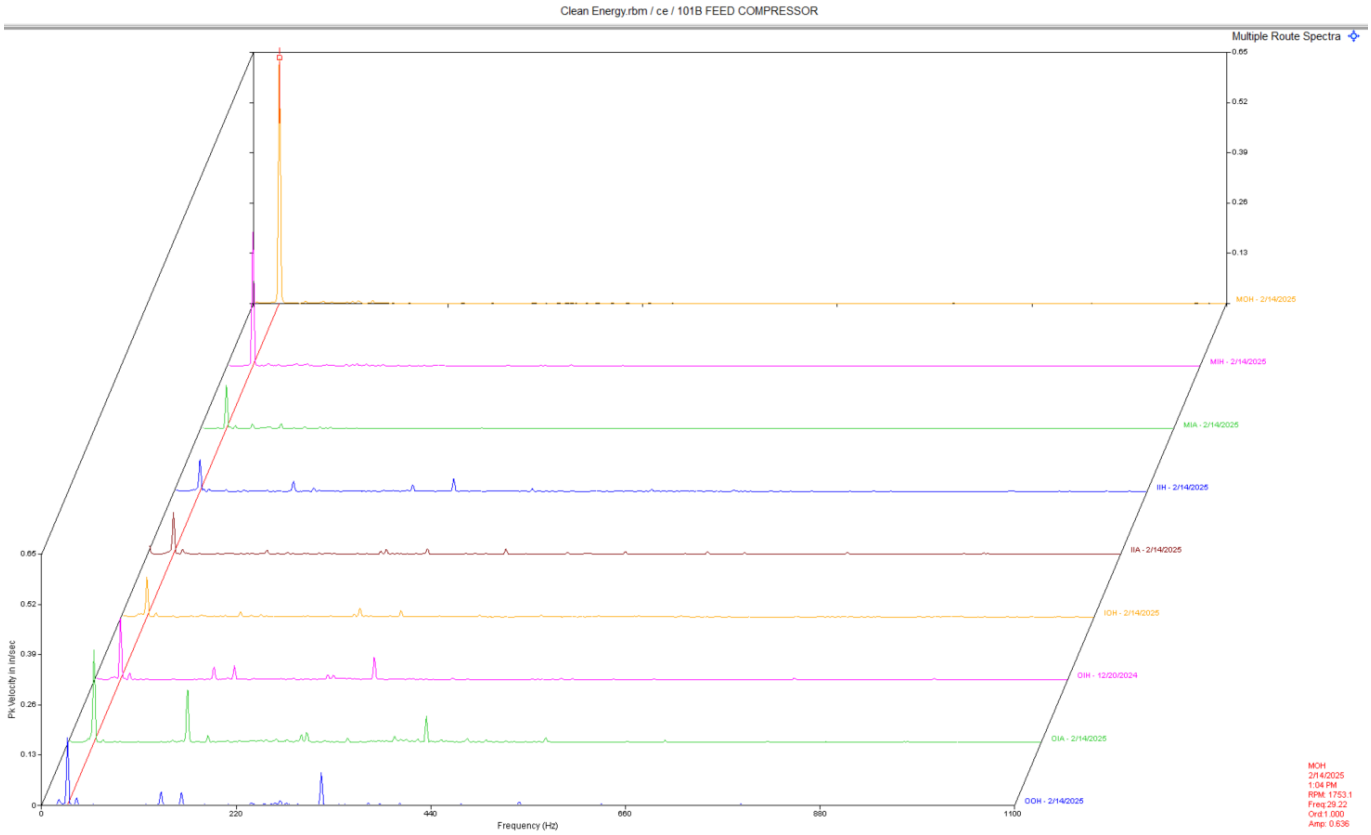
Observations:

Drive motor data shows some high frequency vibration. Motor is also making a squealing type noise. The last reading showed amplitude to be 2.1 g's on average. Spectral data shows a noise floor 1500-5000 hz range. Peak to peak waveform amplitude is 16 to 18 g's.

Recommendations:

Vibration characteristics indicate a lube issue or bearing wear. Motor likely needs attention during next extended shutdown. We are monitoring this closely. Rated as a **CLASS II** defect for now.

Feed Compressor B CLASS I



Observations:

New motor data still shows motor to have elevated 1 x rpm vibration.

Recommendations:

The 1 x rpm vibration may be due to process load and or imbalance. There could also be an issue with the motor side of the coupling. It is recommended to run the motor solo, if possible, to help diagnose issue. It may also be necessary to recheck alignment, fasteners at next opportunity.

Abbreviated Last Measurement Summary

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Database: Clean Energy.rbm
Area: millington plant

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
301 FLARE - 301 FLARE BLOWER	(14-Feb-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.074 In/Sec	.944 G-s
MOV	.155 In/Sec	.244 G-s
MIH	.083 In/Sec	.494 G-s
MIV	.118 In/Sec	.218 G-s
MIA	.055 In/Sec	.284 G-s
EIH	.126 In/Sec	.315 G-s
EIV	.103 In/Sec	.249 G-s
EIA	.059 In/Sec	.164 G-s
EOH	.112 In/Sec	.369 G-s
EOV	.107 In/Sec	.155 G-s
RINSE COMP - RINSE COMPRESSOR	(14-Feb-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.119 In/Sec	2.478 G-s
MIH	.093 In/Sec	1.554 G-s
MIA	.095 In/Sec	.483 G-s
IIH	.094 In/Sec	1.178 G-s
IIA	.105 In/Sec	.234 G-s
IOH	.095 In/Sec	.782 G-s
OIH	.070 In/Sec	.976 G-s
OIA	.101 In/Sec	.229 G-s
OOH	.115 In/Sec	.814 G-s
VAC COMP - VACUUM COMPRESSOR	(14-Feb-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.158 In/Sec	1.908 G-s
MIH	.147 In/Sec	2.023 G-s
MIA	.063 In/Sec	.336 G-s
IIH	.106 In/Sec	.472 G-s
IIA	.068 In/Sec	.101 G-s
IOH	.105 In/Sec	.808 G-s
OIH	.075 In/Sec	.627 G-s
OIA	.091 In/Sec	.143 G-s
OOH	.105 In/Sec	.652 G-s
COOLFAN1 - COOLING FAN 1	(14-Feb-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.019 In/Sec	.401 G-s
MOV	.029 In/Sec	.082 G-s
MIH	.015 In/Sec	.238 G-s
MIV	.022 In/Sec	.079 G-s
MIA	.024 In/Sec	.056 G-s
COOLFAN2 - COOLING FAN 2	(14-Feb-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.053 In/Sec	.617 G-s
MOV	.127 In/Sec	.099 G-s
MIH	.087 In/Sec	.599 G-s
MIV	.122 In/Sec	.238 G-s
MIA	.170 In/Sec	.229 G-s
EIH	.079 In/Sec	.490 G-s
EIV	.104 In/Sec	.213 G-s
EIA	.148 In/Sec	.204 G-s
EOH	.093 In/Sec	.174 G-s

	EOV	.094 In/Sec	.106 G-s

101B COMP - 101B FEED COMPRESSOR (14-Feb-25)

	OVERALL LEVEL	1K-20KHz
MOH	.648 In/Sec	.741 G-s
MIH	.353 In/Sec	.357 G-s
MIA	.119 In/Sec	.287 G-s
IIH	.105 In/Sec	1.788 G-s
IIA	.123 In/Sec	1.064 G-s
IOH	.118 In/Sec	1.137 G-s
OIA	.304 In/Sec	.771 G-s
OOH	.209 In/Sec	1.851 G-s

451A PUMP - 451A VACCUM PUMP (14-Feb-25)

	OVERALL LEVEL	1K-20KHz
MOH	.081 In/Sec	.703 G-s
MOV	.080 In/Sec	.309 G-s
MIH	.100 In/Sec	.557 G-s
MIV	.123 In/Sec	.623 G-s
MIA	.072 In/Sec	.428 G-s
EIH	.220 In/Sec	3.154 G-s
EIV	.151 In/Sec	.549 G-s
EIA	.120 In/Sec	1.112 G-s
EOH	.133 In/Sec	.487 G-s
EOV	.136 In/Sec	.088 G-s

HX453A FAN - HX453A VAC PUMP OIL COOL FAN (14-Feb-25)

	OVERALL LEVEL	1K-20KHz
MOH	.185 In/Sec	.119 G-s
MIH	.118 In/Sec	.048 G-s

451B PUMP - 451B VACCUM PUMP (14-Feb-25)

	OVERALL LEVEL	1K-20KHz
MOH	.053 In/Sec	.411 G-s
MOV	.089 In/Sec	.156 G-s
MIH	.071 In/Sec	.449 G-s
MIV	.087 In/Sec	.225 G-s
MIA	.037 In/Sec	.074 G-s
EIH	.203 In/Sec	.336 G-s
EIV	.160 In/Sec	.101 G-s
EIA	.136 In/Sec	.107 G-s
EOH	.198 In/Sec	.624 G-s
EOV	.173 In/Sec	.157 G-s

HX453B FAN - HX453B VAC PUMP OIL COOL FAN (14-Feb-25)

	OVERALL LEVEL	1K-20KHz
MOH	.178 In/Sec	.220 G-s
MIH	.124 In/Sec	.147 G-s

451C PUMP - 451C VACCUM PUMP (14-Feb-25)

	OVERALL LEVEL	1K-20KHz
MOH	.074 In/Sec	1.144 G-s
MOV	.113 In/Sec	.255 G-s
MIH	.098 In/Sec	.662 G-s
MIV	.142 In/Sec	.321 G-s
MIA	.079 In/Sec	.189 G-s
EIH	.128 In/Sec	.511 G-s
EIV	.120 In/Sec	.118 G-s
EIA	.078 In/Sec	.163 G-s
EOH	.132 In/Sec	.653 G-s
EOV	.121 In/Sec	.164 G-s

HX453C FAN - HX453C VAC PUMP OIL COOL FAN (14-Feb-25)

	OVERALL LEVEL	1K-20KHz
MOH	.131 In/Sec	.512 G-s
MIH	.116 In/Sec	.165 G-s

451D PUMP - 451D VACCUM PUMP (14-Feb-25)

	OVERALL LEVEL	1K-20KHz
MOH	.067 In/Sec	.888 G-s

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            MOV                      .078 In/Sec       .531 G-s
            MIH                      .087 In/Sec      1.206 G-s
            MIV                      .085 In/Sec       .298 G-s
            MIA                      .062 In/Sec       .384 G-s
            EIH                      .115 In/Sec       .408 G-s
            EIV                      .120 In/Sec       .099 G-s
            EIA                      .086 In/Sec       .110 G-s
            EOH                      .166 In/Sec       .659 G-s
            EOV                      .157 In/Sec       .194 G-s

      HX453D FAN - HX453D VAC PUMP OIL COOL FAN  (14-Feb-25)
                                 OVERALL LEVEL     1K-20KHz
            MOH                      .201 In/Sec       .130 G-s
            MIH                      .242 In/Sec       .107 G-s

      506A COMP  - 506A PRODUCT COMPRESSOR       (14-Feb-25)
                                 OVERALL LEVEL     1K-20KHz
            MOH                      .040 In/Sec       .333 G-s
            MIH                      .060 In/Sec       .251 G-s
            MIA                      .054 In/Sec       .216 G-s
            IIH                      .155 In/Sec       .959 G-s
            IIA                      .169 In/Sec      1.423 G-s
            IOH                      .223 In/Sec      3.770 G-s
            OIH                      .308 In/Sec      1.011 G-s
            OOH                      .268 In/Sec      1.760 G-s

      HX507A FAN - HX507A GAS COOL FAN           (14-Feb-25)
                                 OVERALL LEVEL     1K-20KHz
            MOH                      .109 In/Sec       .166 G-s
            MIH                      .114 In/Sec       .132 G-s

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   Clarification Of Vibration Units:
      Acc      -->  G-s      RMS
      Vel      -->  In/Sec   PK
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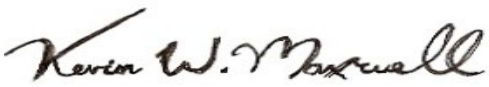
As always, it has been a pleasure to serve North Shelby-Archaea Energy. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



ISO Certified Vibration Analyst, Category III

HI-SPEED INDUSTRIAL SERVICE

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