



QualiTest® Diagnostics

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Archaea Energy
North Shelby Plant
Millington, TN

The following is a summary of findings from the September 2022 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

Hi-Speed Industrial Service tests and inspects industrial machinery and equipment and makes recommendations concerning maintenance and repairs based on its experience in the field of industrial repair and maintenance. The information contained herein is provided as an opinion only, not as a guaranty or warranty of the matters discussed herein.

Defects

Feed Compressor B

Compressor data is showing some elevated acceleration and possible non-synchronous vibrations that may be defect frequencies or possible harmonics of 2nd or 3rd stage of the compressor. This will be monitored closely. Compressor is also making a ticking type sound possibly caused by loaders. Rated as a **CLASS I** defect for now.

451A Vacuum Pump MOTOR

Outer race bearing defect frequencies are showing up again in the drive end of the motor. This appears to be minor as of now. This will be monitored closely. Rated as a **CLASS I** defect.

506 A Product Compressor

Unit was down this survey; however the following still applies; Compressor has had higher vibration since rebuilding unit. Spectral data shows vibration to be highest at 2 x rpm. The data on average show some rpm harmonics in the spectra, not a dominant 2 x rpm vibration. Process flow may influence vibration some; however, compressor may have internal issue. We will monitor this very closely. Rated as a **CLASS II** defect.

Abbreviated Last Measurement Summary *****

Database: Clean Energy.rbm
Area: millington plant

MEASUREMENT POINT -----	OVERALL LEVEL -----	HFD / VHFD -----
303 FLARE - 303 FLARE BLOWER (05-Oct-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.069 In/Sec	.635 G-s
MOV	.273 In/Sec	.198 G-s
MIH	.136 In/Sec	.943 G-s
MIV	.183 In/Sec	.239 G-s
MIA	.048 In/Sec	.501 G-s
EIH	.130 In/Sec	.470 G-s
EIV	.072 In/Sec	.195 G-s
EIA	.038 In/Sec	.292 G-s
EOH	.100 In/Sec	.153 G-s
EOV	.306 In/Sec	.104 G-s
101B COMP - 101B FEED COMPRESSOR (05-Oct-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.127 In/Sec	.143 G-s
MIH	.109 In/Sec	.200 G-s
MIA	.028 In/Sec	.246 G-s
IIH	.078 In/Sec	3.264 G-s
IIA	.181 In/Sec	2.548 G-s
IOH	.110 In/Sec	1.087 G-s
OIH	.089 In/Sec	1.802 G-s
OIA	.083 In/Sec	.934 G-s
OOH	.064 In/Sec	1.387 G-s

HX132B FAN - HX132B GAS OIL COOLER FAN (05-Oct-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.069 In/Sec	.045 G-s
MIH	.149 In/Sec	.118 G-s
EIH	.196 In/Sec	.084 G-s
EOH	.085 In/Sec	.035 G-s

451A PUMP - 451A VACCUM PUMP (05-Oct-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.093 In/Sec	.594 G-s
MOV	.106 In/Sec	1.124 G-s
MIH	.105 In/Sec	1.542 G-s
MIV	.123 In/Sec	1.151 G-s
MIA	.056 In/Sec	1.087 G-s
EIH	.192 In/Sec	.369 G-s
EIV	.137 In/Sec	.415 G-s
EIA	.131 In/Sec	.233 G-s
EOH	.204 In/Sec	.594 G-s
EOV	.161 In/Sec	.407 G-s

HX453A FAN - HX453A VAC PUMP OIL COOL FAN (05-Oct-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.243 In/Sec	.157 G-s
MIH	.170 In/Sec	.127 G-s

451B PUMP - 451B VACCUM PUMP (05-Oct-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.052 In/Sec	.774 G-s
MOV	.066 In/Sec	.512 G-s
MIH	.072 In/Sec	.532 G-s
MIV	.071 In/Sec	.281 G-s
MIA	.035 In/Sec	.314 G-s
EIH	.171 In/Sec	.566 G-s
EIV	.126 In/Sec	.288 G-s
EIA	.117 In/Sec	.280 G-s
EOH	.189 In/Sec	.507 G-s
EOV	.230 In/Sec	.162 G-s

HX453B FAN - HX453B VAC PUMP OIL COOL FAN (05-Oct-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.165 In/Sec	.261 G-s
MIH	.094 In/Sec	.166 G-s

451C PUMP - 451C VACCUM PUMP (05-Oct-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.093 In/Sec	1.300 G-s
MOV	.103 In/Sec	.208 G-s
MIH	.120 In/Sec	.703 G-s
MIV	.187 In/Sec	.258 G-s
MIA	.079 In/Sec	.155 G-s
EIH	.145 In/Sec	.726 G-s
EIV	.096 In/Sec	.294 G-s
EIA	.083 In/Sec	.314 G-s
EOH	.129 In/Sec	.577 G-s
EOV	.132 In/Sec	.242 G-s

HX453C FAN - HX453C VAC PUMP OIL COOL FAN (05-Oct-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.132 In/Sec	.153 G-s
MIH	.154 In/Sec	.105 G-s

451D PUMP - 451D VACCUM PUMP (05-Oct-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.098 In/Sec	1.592 G-s
MOV	.105 In/Sec	.428 G-s
MIH	.115 In/Sec	1.458 G-s
MIV	.091 In/Sec	.411 G-s
MIA	.054 In/Sec	.369 G-s
EIH	.185 In/Sec	.581 G-s

EIV	.178 In/Sec	.043 G-s
EIA	.166 In/Sec	.046 G-s
EOH	.170 In/Sec	.509 G-s
EOV	.168 In/Sec	.173 G-s

HX453D FAN - HX453D VAC PUMP OIL COOL FAN (05-Oct-22)

	OVERALL LEVEL	1K-20KHz
MOH	.259 In/Sec	.210 G-s
MIH	.322 In/Sec	.117 G-s

506C COMP - 506C PRODUCT COMPRESSOR (05-Oct-22)

	OVERALL LEVEL	1K-20KHz
MOH	.094 In/Sec	1.254 G-s
MIH	.084 In/Sec	1.834 G-s
MIA	.056 In/Sec	1.141 G-s
IIH	.155 In/Sec	.647 G-s
IIA	.162 In/Sec	1.865 G-s
IOH	.159 In/Sec	2.475 G-s
OIH	.331 In/Sec	2.926 G-s
OOH	.308 In/Sec	.817 G-s

HX507C FAN - HX507C GAS COOL FAN (05-Oct-22)


	OVERALL LEVEL	1K-20KHz
MOH	.214 In/Sec	.086 G-s
MIH	.243 In/Sec	.071 G-s

Clarification Of Vibration Units:

Acc	-->	G-s	RMS
Vel	-->	In/Sec	PK

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



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