



QualiTest® Diagnostics

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August 16, 2022

Archaea Energy
North Shelby Plant
Millington, TN

The following is a summary of findings from the August 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

303 Flare Blower

The vibrations previously seen in this blower seem to have subsided. We will continue to monitor this closely.

451A Vacuum Pump MOTOR

The bearing frequencies previously seen are not present in recent data. Greasing the motor bearings likely helped this issue, or bearing was improperly loaded. We will continue to monitor this closely.

451C Vacuum Pump MOTOR

Motor has faint signs of a bearing issue taking place in DE bearing. Ensure motor has adequate amount of grease. Rated as a **CLASS I** defect.

506 A Product Compressor

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 (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.056 In/Sec	.736 G-s
MOV	.300 In/Sec	.222 G-s
MIH	.096 In/Sec	.671 G-s
MIV	.193 In/Sec	.206 G-s
MIA	.030 In/Sec	.430 G-s
EIH	.172 In/Sec	.233 G-s
EIV	.072 In/Sec	.250 G-s
EIA	.061 In/Sec	.308 G-s
EOH	.135 In/Sec	.215 G-s
EOV	.321 In/Sec	.342 G-s
101A COMP - 101A FEED COMPRESSOR (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.036 In/Sec	.185 G-s
MIH	.043 In/Sec	.234 G-s
MIA	.037 In/Sec	.229 G-s
IIH	.076 In/Sec	.926 G-s
IIA	.147 In/Sec	1.081 G-s
IOH	.081 In/Sec	.950 G-s
OIH	.092 In/Sec	1.167 G-s
OIA	.078 In/Sec	1.019 G-s
OOH	.086 In/Sec	.963 G-s

HX132A FAN - HX132A GAS OIL COOLER FAN (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
EIH	.054 In/Sec	.033 G-s
EOH	.070 In/Sec	.045 G-s
451A PUMP - 451A VACCUM PUMP (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.078 In/Sec	.851 G-s
MOV	.090 In/Sec	.382 G-s
MIH	.113 In/Sec	.797 G-s
MIV	.129 In/Sec	.643 G-s
MIA	.059 In/Sec	.296 G-s
EIH	.192 In/Sec	.373 G-s
EIV	.105 In/Sec	.384 G-s
EIA	.113 In/Sec	.266 G-s
EOH	.185 In/Sec	.804 G-s
EOV	.149 In/Sec	.359 G-s
HX453A FAN - HX453A VAC PUMP OIL COOL FAN (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.184 In/Sec	.236 G-s
MIH	.101 In/Sec	.143 G-s
451B PUMP - 451B VACCUM PUMP (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.041 In/Sec	.757 G-s
MOV	.057 In/Sec	.139 G-s
MIH	.063 In/Sec	.594 G-s
MIV	.064 In/Sec	.284 G-s
MIA	.029 In/Sec	.212 G-s
EIH	.138 In/Sec	1.380 G-s
EIV	.110 In/Sec	.344 G-s
EIA	.107 In/Sec	.358 G-s
EOH	.194 In/Sec	.422 G-s
EOV	.225 In/Sec	.139 G-s
HX453B FAN - HX453B VAC PUMP OIL COOL FAN (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.170 In/Sec	.242 G-s
MIH	.097 In/Sec	.197 G-s
451C PUMP - 451C VACCUM PUMP (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.079 In/Sec	.918 G-s
MOV	.093 In/Sec	.167 G-s
MIH	.099 In/Sec	1.454 G-s
MIV	.141 In/Sec	.257 G-s
MIA	.049 In/Sec	.199 G-s
EIH	.137 In/Sec	1.225 G-s
EIV	.130 In/Sec	.317 G-s
EIA	.102 In/Sec	.303 G-s
EOH	.126 In/Sec	.831 G-s
EOV	.140 In/Sec	.219 G-s
HX453C FAN - HX453C VAC PUMP OIL COOL FAN (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.099 In/Sec	.328 G-s
MIH	.091 In/Sec	.112 G-s
451D PUMP - 451D VACCUM PUMP (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.074 In/Sec	.759 G-s
MOV	.083 In/Sec	.303 G-s
MIH	.093 In/Sec	.888 G-s
MIV	.085 In/Sec	.458 G-s
MIA	.047 In/Sec	.434 G-s
EIH	.185 In/Sec	.669 G-s
EIV	.121 In/Sec	.091 G-s
EIA	.122 In/Sec	.075 G-s

EOH	.207 In/Sec	.434 G-s
EOV	.162 In/Sec	.294 G-s
HX453D FAN - HX453D VAC PUMP OIL COOL FAN (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.185 In/Sec	.091 G-s
MIH	.199 In/Sec	.078 G-s
506A COMP - 506A PRODUCT COMPRESSOR (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.116 In/Sec	.645 G-s
MIH	.079 In/Sec	1.140 G-s
MIA	.161 In/Sec	.863 G-s
IIH	.812 In/Sec	1.001 G-s
IIA	.256 In/Sec	1.153 G-s
IOH	.669 In/Sec	2.295 G-s
OIH	.461 In/Sec	2.568 G-s
OOH	.854 In/Sec	2.745 G-s
HX507A FAN - HX507A GAS COOL FAN (08-Aug-22)		
	OVERALL LEVEL	1K-20KHz
MOH	.142 In/Sec	.107 G-s
MIH	.149 In/Sec	.085 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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