



QualiTest® Diagnostics

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March 10, 2023

Archaea Energy
North Shelby Plant
Millington, TN

The following is a summary of findings from the March 2023 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

506 A Product Compressor

Motor drive end bearing data is showing some high acceleration that is being watched closely. This may be a bearing issue with the DE of the motor .Overall compressor vibration is lower this survey; however, compressor has had higher vibration since rebuilding unit. We will continue to monitor this very closely. Rated as a **CLASS I** defect.

HX507C Gas Cool Fan

Equipment was not in service during this survey; however the following still applies: Motor vibration has increased from .24 ips to .55 ips. 3 x rpm is dominant in spectrum. Inspect fan hub and motor shaft for run-out and ensure all fasteners are tight. 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 (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.080 In/Sec	.671 G-s
MOV	.072 In/Sec	.228 G-s
MIH	.127 In/Sec	.595 G-s
MIV	.064 In/Sec	.208 G-s
MIA	.087 In/Sec	.398 G-s
EIH	.154 In/Sec	.928 G-s
EIV	.066 In/Sec	.572 G-s
EIA	.071 In/Sec	.587 G-s
EOH	.097 In/Sec	.210 G-s
EOV	.238 In/Sec	.195 G-s
RINSE COMP - RINSE COMPRESSOR (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.087 In/Sec	1.625 G-s
MIH	.119 In/Sec	1.708 G-s
MIA	.146 In/Sec	.380 G-s
IIH	.123 In/Sec	.791 G-s
IIA	.153 In/Sec	.211 G-s
IOH	.135 In/Sec	.494 G-s
OIH	.126 In/Sec	.940 G-s
OIA	.153 In/Sec	.326 G-s
OOH	.121 In/Sec	.719 G-s
VAC COMP - VACUUM COMPRESSOR (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.134 In/Sec	1.562 G-s
MIH	.081 In/Sec	.925 G-s
MIA	.073 In/Sec	.196 G-s
IIH	.071 In/Sec	.493 G-s
IIA	.095 In/Sec	.256 G-s
IOH	.101 In/Sec	2.020 G-s
OIH	.074 In/Sec	.562 G-s
OIA	.114 In/Sec	.673 G-s

OOH	.095 In/Sec	1.281 G-s
101B COMP - 101B FEED COMPRESSOR (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.204 In/Sec	.252 G-s
MIH	.149 In/Sec	.255 G-s
MIA	.041 In/Sec	.302 G-s
IIH	.100 In/Sec	1.592 G-s
IIA	.288 In/Sec	1.726 G-s
IOH	.104 In/Sec	1.753 G-s
OIH	.097 In/Sec	1.224 G-s
OIA	.119 In/Sec	2.196 G-s
OOH	.118 In/Sec	3.085 G-s
HX132B FAN - HX132B GAS OIL COOLER FAN (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.083 In/Sec	.025 G-s
MIH	.078 In/Sec	.129 G-s
EIH	.108 In/Sec	.088 G-s
EOH	.140 In/Sec	.028 G-s
451A PUMP - 451A VACCUM PUMP (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.063 In/Sec	1.072 G-s
MOV	.086 In/Sec	1.039 G-s
MIH	.063 In/Sec	.389 G-s
MIV	.103 In/Sec	.595 G-s
MIA	.047 In/Sec	.141 G-s
EIH	.222 In/Sec	.336 G-s
EIV	.148 In/Sec	.292 G-s
EIA	.121 In/Sec	.203 G-s
EOH	.221 In/Sec	.502 G-s
EOV	.212 In/Sec	.303 G-s
HX453A FAN - HX453A VAC PUMP OIL COOL FAN (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.157 In/Sec	.141 G-s
MIH	.095 In/Sec	.074 G-s
451B PUMP - 451B VACCUM PUMP (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.044 In/Sec	.407 G-s
MOV	.072 In/Sec	.295 G-s
MIH	.063 In/Sec	.412 G-s
MIV	.063 In/Sec	.256 G-s
MIA	.036 In/Sec	.160 G-s
EIH	.200 In/Sec	.343 G-s
EIV	.139 In/Sec	.295 G-s
EIA	.122 In/Sec	.385 G-s
EOH	.190 In/Sec	.622 G-s
EOV	.215 In/Sec	.259 G-s
HX453B FAN - HX453B VAC PUMP OIL COOL FAN (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.091 In/Sec	.218 G-s
MIH	.096 In/Sec	.114 G-s
451C PUMP - 451C VACCUM PUMP (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.110 In/Sec	.566 G-s
MOV	.110 In/Sec	.102 G-s
MIH	.129 In/Sec	.619 G-s
MIV	.189 In/Sec	.286 G-s
MIA	.083 In/Sec	.161 G-s
EIH	.142 In/Sec	.559 G-s
EIV	.107 In/Sec	.290 G-s
EIA	.092 In/Sec	.177 G-s
EOH	.141 In/Sec	.487 G-s
EOV	.167 In/Sec	.223 G-s

HX453C FAN - HX453C VAC PUMP OIL COOL FAN (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.121 In/Sec	.191 G-s
MIH	.076 In/Sec	.109 G-s

451D PUMP - 451D VACCUM PUMP (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.180 In/Sec	1.505 G-s
MOV	.182 In/Sec	.832 G-s
MIH	.180 In/Sec	1.096 G-s
MIV	.162 In/Sec	.264 G-s
MIA	.047 In/Sec	.316 G-s
EIH	.201 In/Sec	.659 G-s
EIV	.143 In/Sec	.105 G-s
EIA	.111 In/Sec	.103 G-s
EOH	.164 In/Sec	.632 G-s
EOV	.175 In/Sec	.402 G-s

HX453D FAN - HX453D VAC PUMP OIL COOL FAN (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.215 In/Sec	.123 G-s
MIH	.275 In/Sec	.075 G-s

506A COMP - 506A PRODUCT COMPRESSOR (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.051 In/Sec	1.203 G-s
MIH	.064 In/Sec	3.954 G-s
MIA	.130 In/Sec	3.880 G-s
IIH	.239 In/Sec	1.431 G-s
IIA	.185 In/Sec	1.557 G-s
IOH	.229 In/Sec	3.174 G-s
OIH	.416 In/Sec	1.840 G-s
OOH	.310 In/Sec	1.817 G-s

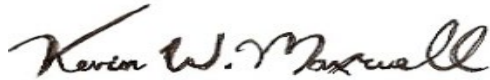
HX507A FAN - HX507A GAS COOL FAN (10-Mar-23)		
	OVERALL LEVEL	1K-20KHz
MOH	.166 In/Sec	.104 G-s
MIH	.238 In/Sec	.071 G-s

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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