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December 31, 2024

North Shelby Plant Millington, TN

The following is a summary of findings from the December 2024 monthly vibration survey at the North Shelby site.

QualiTest® uses a four-step rating system for defects.

<u>Class I</u>: Defect is present, but effect on reliability is not clear; no immediate action is required. Continue to normally monitor.

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

<u>Class III</u>: 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.

<u>Class IV</u>; 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.



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. Still low level at this time. We are monitoring this closely.

Unit was down this survey; however, the following still applies.



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, and check couplings at next opportunity.

451B Vacuum Pump CLASS II



Observations:

DE compressor data shows appearance of peaks that may related to ball spin frequency.

Recommendations:

The possible ball spin frequency peaks indicate roller defects of the bearing. Ensure bearings are lubed good and inspect bearings for defects as best as possible soon.

Product Compressor C CLASS III



Observations:

Trend data shows increase in G's in motor data. Spectral waterfall of motor DE shows an increase in nonsynchronous peaks over the past few surveys.

Recommendations:

Data indicates defects in motor bearings. Motor will need attention in the next couple of months.

Database: 0 Area: 1	Clean Energy.rbm millington plant	
MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
301 FLARE - 301 FLAN	RE BLOWER (2	0-Dec-24)
	OVERALL LEVEL	1K-20KHz
MOH	.074 In/Sec	1.329 G-s
MOV	.152 In/Sec	.210 G-s
MIH	.064 In/Sec	.676 G-s
MIV	.081 In/Sec	.147 G-s
MIA	.058 In/Sec	.220 G-s
EIH	.141 In/Sec	.251 G-s
EIV	.085 In/Sec	.385 G-s
EIA	.059 In/Sec	.095 G-s
EOH	.105 In/Sec	.260 G-s
EOV	.111 In/Sec	.132 G-s
RINSE COMP - RINSE CO	OMPRESSOR (2	2-Nov-24)
	OVERALL LEVEL	1K-20KHz
MOH	.115 In/Sec	2.026 G-s
MIP	.018 In/Sec	1 000 0 -
MIH	.123 In/Sec	4.009 G-S
MZP	.022 In/Sec	440 0 -
MIA	.085 In/Sec	.442 G-S
	.084 In/Sec	1.391 G-s
	.166 In/Sec	.199 G-s
IOH	.101 In/Sec	.584 G-S
OIH	.089 In/Sec	1.083 G-s
AIO	.114 In/Sec	.1// G-s
OOH	.107 In/Sec	.931 G-S
VAC COMP - VACUUM	COMPRESSOR (2	2-Nov-24)
	OVERALL LEVEL	1K-20KHz
MOH	.138 In/Sec	1.756 G-s
MIH	.065 In/Sec	1.361 G-s
MIA	.057 In/Sec	.155 G-S
11H TTD	.103 In/Sec	.595 G-S
	.050 In/Sec	.123 G-s
IOH	.131 In/Sec	.860 G-S
OIH	.096 In/Sec	.910 G-S
	.062 In/Sec	.21/ G-s
OOH	.100 In/Sec	.780 G-S
101B COMP - 101B FE	ED COMPRESSOR (2	0-Dec-24)
	OVERALL LEVEL	1K-20KHz
MOH	.696 In/Sec	.413 G-s
MIH	.358 In/Sec	.286 G-s
MIA	.141 In/Sec	.568 G-s
	.116 In/Sec	1.235 G-S
	.158 In/Sec	.789 G-S
IOH	.102 In/Sec	.943 G-S
OTH	.186 In/Sec	2.301 G-S
	.212 In/Sec	./50 G-s
* OOH	.209 In/Sec	1.648 G-s
HX132B FAN - HX132B	GAS OIL COOLER FAN (2 OVERALL LEVEL	0-Dec-24) 1к-20кн и
мон	0.71 Tr/Sec	020 C-e
мтн	097 Tr/Sec	183 0-0
МІН ЕТН	.097 In/Sec	.183 G-s

451A PUMP	-	451A	VACCUM	PUMP			(20-Dec-24)
					OVERA	LL LEVEI	1K-20KHz
MOH					.079	In/Sec	.855 G-s
MOV					.080	In/Sec	.285 G-s
МІН					.076	In/Sec	.581 G-s
MTV					103	Tn/Sec	450 G-s
мта					059	In/Sec	440 G-s
HIA ETU					1 6 0	In/Sec	.440 G 3
LIH					.100	In/Sec	4.011 G-S
EIV					.1/8	In/Sec	.524 G-S
EIA					.131	In/Sec	1.067 G-s
EOH					.117	In/Sec	.625 G-s
EOV					.137	In/Sec	.150 G-s
HX4535 FAN	_	HX453	A VAC			T. FAN	(20-Dec-24)
11145511 1114		1111-100	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		OVEDAI	T TEVET	1K-20KH4
MOH					210		109 6-6
MOII					122	In/Sec	.109 G-S
MIH					.125	In/Sec	.062 G-S
451B PUMP	_	451B	VACCUM	PUMP			(20-Dec-24)
					OVERA	LL LEVEL	1K-20KHz
MOH					069	In/Sec	338 G-s
MOV					093	In/Sec	174 C-s
MTH					110	In/Sec	.174 G 3
MIII					110	In/Sec	.401 G-S
MIV					.119	In/Sec	.180 G-S
MIA					.078	In/Sec	.073 G-s
EIH					.274	In/Sec	.417 G-s
EIV					.210	In/Sec	.239 G-s
EIA					.183	In/Sec	.276 G-s
* EOH					.202	In/Sec	.799 G-s
* EOV					.236	In/Sec	.158 G-s
						,	
HX453B FAN	-	HX453	BB VAC	PUMP (DIL COO	OL FAN	(20-Dec-24)
					OVERA	LL LEVEI	1K-20KHz
MOH					.142	In/Sec	.241 G-s
MIH					.120	In/Sec	.155 G-s
451C PUMP	_	451C	VACCUM	PUMP			(20-Dec-24)
451C PUMP	-	451C	VACCUM	PUMP	OVERAI	LL LEVEI	(20-Dec-24) 1K-20KHz
451C PUMP MOH	-	451C	VACCUM	PUMP	OVERAL	LL LEVEI In/Sec	(20-Dec-24) 1K-20KHz .725 G-s
451C PUMP MOH	-	451C	VACCUM	PUMP	OVERAL .246 161	LL LEVEI In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s 147 G-s
451C PUMP MOH MOV MTH	-	451C	VACCUM	PUMP	OVERAL .246 .161 296	LL LEVEI In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s 729 G-s
451C PUMP MOH MOV MIH	-	451C	VACCUM	PUMP	OVERAL .246 .161 .296	LL LEVEI In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s 284 C-c
451C PUMP MOH MOV MIH MIV	-	451C	VACCUM	PUMP	OVERAJ .246 .161 .296 .205	LL LEVEI In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s
451C PUMP MOH MOV MIH MIV MIA	-	451C	VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081	LL LEVEI In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s
451C PUMP MOH MOV MIH MIV MIA EIH	-	451C	VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081 .197	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV	-	451C	VACCUM	PUMP	OVERAJ .246 .161 .296 .205 .081 .197 .124	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA	-	451C	VACCUM	РИМР	OVERAJ .246 .161 .296 .205 .081 .197 .124 .101	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH	-	451C	VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOH	-	451C	VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV	-	451C	VACCUM	PUMP	OVERAL .246 .161 .296 .205 .081 .197 .124 .101 .144 .140	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN	-	451C HX453	VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 DIL COO	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN	-	451C HX453	VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 DIL COO OVERAI	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec DL FAN LL LEVEI	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH	-	451C HX453	VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OIL COO OVERAI .171	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec DL FAN LL LEVEI In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH	-	451C HX453	VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OIL COO OVERAI .171 .107	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec DL FAN LL LEVEI In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH	-	451C HX453	VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec DL FAN LL LEVEI In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH	-	451C HX453 451D	VACCUM 3C VAC	PUMP PUMP (PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec DL FAN LL LEVEI In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24)
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP	-	451C HX453 451D	VACCUM BC VAC	PUMP PUMP (PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec DL FAN LL LEVEI In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP	-	451C HX453 451D	VACCUM 3C VAC : VACCUM	PUMP PUMP (PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107 OVERAI .063	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP	-	451C HX453 451D	VACCUM 3C VAC : VACCUM	PUMP PUMP (PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107 OVERAI .063 .074	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec LL LEVEI In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH	-	451C HX453 451D	VACCUM 3C VAC : VACCUM	PUMP PUMP (PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUERAI .171 .107 OVERAI .063 .074 .082	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec LL LEVEI In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s 1.097 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP	-	451C HX453 451D	VACCUM	PUMP PUMP PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OIL COO OVERAI .171 .107 OVERAI .063 .074 .082 .085	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec LL LEVEI In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s 1.097 G-s .186 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP	-	451C HX453 451D	VACCUM	PUMP PUMP PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107 OVERAI .063 .074 .082 .085 .034	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .200 G-s .141 G-s .141 G-s .141 G-s .141 G-s .156 G-s .156 G-s .231 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP MOH MOV MIH MOV MIH	-	451C HX453 451D	VACCUM 3C VAC 1 VACCUM	PUMP PUMP PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107 OVERAI .063 .074 .082 .085 .034 .157	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s 1.097 G-s .186 G-s .289 G-s .432 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP MOH MIH MOV MIH MIA EIV	-	451C HX453 451D	VACCUM 3C VAC 1 VACCUM	PUMP PUMP PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107 OVERAI .063 .074 .082 .034 .157 .134	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s 1.097 G-s .186 G-s .289 G-s .432 G-s .068 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP MOH MOV MIH MIV MIA EIH EIY	-	451C HX453 451D	VACCUM 3C VAC	PUMP PUMP PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107 OVERAI .063 .074 .085 .034 .157 .134 .092	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s 1.097 G-s .186 G-s .289 G-s .432 G-s .068 G-s .092 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP MOH MOV MIH MIV MIA EIH EIV EIA EIN	-	451C HX453 451D	VACCUM BC VAC 1 VACCUM	PUMP PUMP PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107 OVERAI .063 .074 .082 .085 .034 .157 .134 .098	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s 1.097 G-s .186 G-s .289 G-s .432 G-s .688 G-s .092 G-s .092 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH	-	451C HX453 451D	VACCUM BC VAC I VACCUM	PUMP PUMP (PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107 OVERAI .063 .074 .082 .085 .034 .157 .134 .098 .136	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s 1.097 G-s .186 G-s .289 G-s .432 G-s .068 G-s .092 G-s .582 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOY	_	451C HX453 451D	VACCUM 3C VAC	PUMP PUMP PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OVERAI .171 .107 OVERAI .063 .074 .082 .085 .034 .157 .134 .098 .136 .130	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s 1.097 G-s .186 G-s .289 G-s .432 G-s .068 G-s .092 G-s .582 G-s .142 G-s
451C PUMP MOH MOV MIH MVV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP MOH MOH MIH MOH MIH EIV EIA EOH EOH EOH EIA EOH EIA EIA EIA EIA		451C HX453 451D	VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .171 .107 OVERAI .063 .074 .082 .085 .034 .157 .134 .098 .130 OUL COO	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s 1.097 G-s .186 G-s .289 G-s .432 G-s .068 G-s .092 G-s .582 G-s .142 G-s (20-Dec-24)
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOY EIA EOH EOY	-	451C HX453 451D	VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .063 .074 .082 .085 .034 .157 .134 .098 .136 .130	LL LEVEI In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz .352 G-s .231 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s 1.097 G-s .186 G-s .289 G-s .432 G-s .068 G-s .092 G-s .582 G-s .142 G-s
451C PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453C FAN MOH MIH 451D PUMP MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453D FAN	-	451C HX453 451D HX453	VACCUM BC VAC I VACCUM	PUMP	OVERAI .246 .161 .296 .205 .081 .197 .124 .101 .144 .140 OUL COO OVERAI .063 .074 .082 .085 .034 .157 .134 .098 .136 .130 OVERAI	LL LEVEI In/Sec	(20-Dec-24) 1K-20KHz .725 G-s .147 G-s .729 G-s .284 G-s .295 G-s .700 G-s .141 G-s .210 G-s .776 G-s .156 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .512 G-s (20-Dec-24) 1K-20KHz 1.002 G-s .186 G-s .289 G-s .432 G-s .068 G-s .092 G-s .582 G-s .142 G-s .142 G-s .141 G-s .156 G-s .289 G-s .142 G-s .142 G-s .141 G-s .156 G-s .289 G-s .142 G-s .141 G-s .156 G-s .156 G-s .156 G-s .166 G-s .186 G-s .186 G-s .182 G-s .142 G-s

MIH	.221	In/Sec .151	G-s			
506C COMP - 506C B	RODUCT COMPRESSO	R (20-Dec-24))			
	OVERAL	LL LEVEL 1K-201	KHz			
MOH	.152	In/Sec 1.612	G-s			
MIH	.158	In/Sec 5.915	G-s			
MIA	.101	In/Sec 1.996	G-s			
IIH	.216	In/Sec .872	G-s			
IIA	.208	In/Sec 1.326	G-s			
IOH	.220	In/Sec 3.240	G-s			
OIH	. 222	In/Sec 1.599	G-s			
OOH	.264	In/Sec .514	G-s			
HX507C FAN - HX507C	GAS COOL FAN	(20-Dec-24))			
	OVERA	LL LEVEL 1K-20	KHz			
MOH	.214	In/Sec .063	G-s			
MIH	.253	In/Sec .093	G-s			
Clarification Of Vibration Units:						
Acc> G-s	RMS					
Vel> In/Se	C 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,

--

Kevin W. Maxwell

ISO Certified Vibration Analyst, Category III



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