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April 30, 2024

North Shelby Plant Millington, TN

The following is a summary of findings from the April 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.

Defects

Rinse Compressor

Drive motor data still shows some elevated 1-20 Khz. amplitude. The last reading showed amplitude to be 3 g's. Baseline amplitude was 1.3 g's. Spectral data shows a noise floor starting around the 1500 hz range. This may be a lube issue or early stage bearing wear. For now, ensure motor bearings have clean adequate amounts of grease. We are monitoring this closely. Rated as a **CLASS I** defect for now.

Vacuum Compressor

This month's data on the outboard (ODE) of the compressor shows some elevated vibration at the high frequency range. Waveform shows some slight impacting at 4 x rpm which is lobe pass of the compressor. This may be process related but could also be an internal issue in compressor. We will monitor this closely. Rated as a **CLASS I** defect.

Cooling Fan 2 (new belt driven cooling fan)

This is our first collection of this equipment. Data shows a dominant vibration at 37 hz. in the motor and fan. Fan speed was slow, so this peak is not 1 x rpm. The 37 hz. peak could be a harmonic of fan speed such as blade pass. We need to know the number of blades on the fan to help determine cause of this vibration. For now, it is recommend ed to perform a visual inspection of the fan assembly. Rated as a **CLASS I** defect.

101-B Feed Compressor

Equipment was not in service during this survey; however, the following still applies: Compressor data shows some high frequency acceleration amplitude with noise floor. Peaks in spectral data suggest possible wear of internal compressor components. We are watching this closely. Rated as a **CLASS I** defect.

506 B Product Compressor

Motor data continues to show defects are present in motor bearings. Motor will need to be swapped out as soon as practical. Rated as a **CLASS III** defect.

Abbreviated	Last	Measurement	Summary
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Database: Clean E Area: milling		
MEASUREMENT POINT	OVERALL LEVEL	hfd / Vhfd
301 FLARE - 301 FLARE BLOW	ER (24	l-Apr-24)
	OVERALL LEVEL	1K-20KHz
MOH	.067 In/Sec	1.062 G-s
MOV	.214 In/Sec	.295 G-s
MIH	.094 In/Sec	1.279 G-s
MIV	.139 In/Sec	.173 G-s
MIA	.024 In/Sec	.318 G-s
EIH	.131 In/Sec	.350 G-s
EIV	.062 In/Sec	.361 G-s
EIA	.099 In/Sec	.147 G-s
EOH	.102 In/Sec	.387 G-s
EOV	.220 In/Sec	.403 G-s
RINSE COMP - RINSE COMPRESS	OR (24	l-Apr-24)
	OVERALL LEVEL	1K-20KHz
MOH	.084 In/Sec	3.240 G-s
MIH	.089 In/Sec	2.533 G-s

MIA	.060 In/Sec	.354 G-s
IIH	.074 In/Sec	.719 G-s
IIA	.104 In/Sec	.164 G-s
IOH	.094 In/Sec	.722 G-s
OIH	.064 In/Sec	.569 G-s
	.004 11/Sec	.114 G-s
OIA	•	
OOH	.086 In/Sec	.789 G-s
VAC COMP	- VACUUM COMPRESSOR	(24 3mm 24)
VAC COMP	- VACOUM COMPRESSOR OVERALL LEVEL	(24-Apr-24) 1K-20KHz
MON		1.201 G-s
MOH	.091 In/Sec	
MIH	.100 In/Sec	1.887 G-s
MIA	.065 In/Sec	.247 G-s
IIH	.101 In/Sec	.680 G-s
IIA	.065 In/Sec	.162 G-s
IOH	.123 In/Sec	.808 G-s
OIH	.077 In/Sec	.846 G-s
OIA	.054 In/Sec	
OOH	.103 In/Sec	4.021 G-s
COOLFAN1	- COOLING FAN 1	(24-Apr-24)
	OVERALL LEVEL	
MOH	.033 In/Sec	.514 G-s
MOV	.041 In/Sec	.268 G-s
MIH	.038 In/Sec	.501 G-s
MIV	.019 In/Sec	.098 G-s
MIA	.024 In/Sec	.143 G-s
COOLFAN2	- COOLING FAN 2	(24-Apr-24)
	OVERALL LEVEL	1K-20KHz
MOH	.472 In/Sec	1.254 G-s
MOV	.186 In/Sec	.150 G-s
MIH	.296 In/Sec	.906 G-s
MIV	.216 In/Sec	.217 G-s
MIA	.355 In/Sec	.235 G-s
EIH	.172 In/Sec	.721 G-s
EIV	.511 In/Sec	.196 G-s
EIA	.159 In/Sec	.113 G-s
EOH	.188 In/Sec	.270 G-s
EOV	.695 In/Sec	.092 G-s
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101A COMP	- 101A FEED COMPRESSOR	(24-Apr-24)
	OVERALL LEVEL	_
MOH	.209 In/Sec	.310 G-s
MIH	.153 In/Sec	
MIA	.079 In/Sec	
IIH		.294 G-s
	.184 In/Sec	
TTA	.184 In/Sec .390 In/Sec	1.015 G-s
IIA IOH	.390 In/Sec	1.015 G-s 1.389 G-s
IOH	.390 In/Sec .225 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s
IOH OIH	.390 In/Sec .225 In/Sec .117 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s
IOH OIH OIA	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s
IOH OIH	.390 In/Sec .225 In/Sec .117 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s
IOH OIH OOH	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s
IOH OIH OOH	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24)
IOH OIH OIA OOH HX132A FAN	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz
IOH OIA OOH HX132A FAN EIH	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s
IOH OIH OIA OOH HX132A FAN	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s
IOH OIA OOH HX132A FAN EIH EOH	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s
IOH OIA OOH HX132A FAN EIH EOH	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec - 451A VACCUM PUMP	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s (24-Apr-24)
IOH OIA OOH HX132A FAN EIH EOH 451A PUMP	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec - 451A VACCUM PUMP OVERALL LEVEL	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s (24-Apr-24) 1K-20KHz
IOH OIH OIA OOH HX132A FAN EIH EOH 451A PUMP MOH	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec - 451A VACCUM PUMP OVERALL LEVEL .088 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s (24-Apr-24) 1K-20KHz .782 G-s
IOH OIH OIA OOH HX132A FAN EIH EOH 451A PUMP MOH	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec - 451A VACCUM PUMP OVERALL LEVEL .088 In/Sec .092 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s (24-Apr-24) 1K-20KHz .782 G-s .250 G-s
IOH OIA OOH HX132A FAN EIH EOH 451A PUMP MOH MOV MIH	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec - 451A VACCUM PUMP OVERALL LEVEL .088 In/Sec .092 In/Sec .110 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s (24-Apr-24) 1K-20KHz .782 G-s .250 G-s .403 G-s
IOH OIH OIA OOH HX132A FAN EIH EOH 451A PUMP MOH MOV MIH MIV	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec - 451A VACCUM PUMP OVERALL LEVEL .088 In/Sec .110 In/Sec .138 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s (24-Apr-24) 1K-20KHz .782 G-s .250 G-s .403 G-s .573 G-s
IOH OIH OIA OOH HX132A FAN EIH EOH 451A PUMP MOH MOV MIH MIV MIA	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec - 451A VACCUM PUMP OVERALL LEVEL .088 In/Sec .110 In/Sec .138 In/Sec .056 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s (24-Apr-24) 1K-20KHz .782 G-s .250 G-s .403 G-s .573 G-s .120 G-s
IOH OIH OIA OOH HX132A FAN EIH EOH 451A PUMP MOH MOV MIH MIV MIA EIH	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec - 451A VACCUM PUMP OVERALL LEVEL .088 In/Sec .1092 In/Sec .110 In/Sec .138 In/Sec .056 In/Sec .221 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s (24-Apr-24) 1K-20KHz .782 G-s .250 G-s .403 G-s .573 G-s .200 G-s
IOH OIH OIA OOH HX132A FAN EIH EOH 451A PUMP MOH MOV MIH MIV MIA EIH EIV	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec - 451A VACCUM PUMP OVERALL LEVEL .088 In/Sec .1092 In/Sec .138 In/Sec .056 In/Sec .221 In/Sec .129 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s (24-Apr-24) 1K-20KHz .782 G-s .250 G-s .403 G-s .573 G-s .120 G-s .200 G-s .091 G-s
IOH OIA OOH HX132A FAN EIH EOH 451A PUMP MOH MOV MIH MIV MIA EIH EIV EIA	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec - 451A VACCUM PUMP OVERALL LEVEL .088 In/Sec .105 In/Sec .129 In/Sec .105 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s (24-Apr-24) 1K-20KHz .782 G-s .250 G-s .403 G-s .573 G-s .120 G-s .200 G-s .091 G-s .078 G-s
IOH OIH OIA OOH HX132A FAN EIH EOH 451A PUMP MOH MOV MIH MIV MIA EIH EIV	.390 In/Sec .225 In/Sec .117 In/Sec .304 In/Sec .304 In/Sec .133 In/Sec - HX132A GAS OIL COOLER FAN OVERALL LEVEL .065 In/Sec .077 In/Sec - 451A VACCUM PUMP OVERALL LEVEL .088 In/Sec .1092 In/Sec .138 In/Sec .056 In/Sec .221 In/Sec .129 In/Sec	1.015 G-s 1.389 G-s 1.078 G-s 2.907 G-s .907 G-s 1.106 G-s (24-Apr-24) 1K-20KHz .048 G-s .104 G-s (24-Apr-24) 1K-20KHz .782 G-s .250 G-s .403 G-s .573 G-s .120 G-s .200 G-s .091 G-s

HX453A FAN - HX453A VAC PUMI	OIL COOL FAN (24	-Apr-24)
	OVERALL LEVEL	- 1K-20KHz
MOH	.187 In/Sec	.140 G-s
MIH	.132 In/Sec	.083 G-s
451B PUMP - 451B VACCUM PUN	(P) (24	l-Apr-24)
	OVERALL LEVEL	-
МОН	.043 In/Sec	.398 G-s
MOV	.065 In/Sec	
MIH	.060 In/Sec	.447 G-s
MIV	.098 In/Sec	.130 G-s
MIA	.064 In/Sec	.120 G-s
EIH	.178 In/Sec	.485 G-s
EIV	.149 In/Sec .131 In/Sec	.150 G-s
EIA	.131 In/Sec	.149 G-s
EOH	.181 In/Sec	
EOV	.179 In/Sec	.142 G-s
HX453B FAN - HX453B VAC PUMI	OIL COOL FAN (24	l-Apr-24)
	OVERALL LEVEL	1K-20KHz
MOH	.154 In/Sec .120 In/Sec	.205 G-s
MIH	.120 In/Sec	.153 G-s
451C PUMP - 451C VACCUM PUN	(D) (2/	l-Apr-24)
451C FOME 451C VACCOM FOR	OVERALL LEVEL	
МОН		
MOV	.094 In/Sec .101 In/Sec .111 In/Sec	.081 G-s
MIH	.111 In/Sec	.516 G-s
MIV	.144 In/Sec	.173 G-s
MIA	.073 In/Sec	.103 G-s
EIH	.153 In/Sec	.690 G-s
EIV	.098 In/Sec	
EIA	.099 In/Sec	.158 G-s
EOH	.152 In/Sec	.921 G-s
EOV	.166 In/Sec	.182 G-s
		.102 0 0
HX453C FAN - HX453C VAC PUMI		l-Apr-24)
	OIL COOL FAN (24	l-Apr-24) 1K-20KHz
HX453C FAN - HX453C VAC PUM	OIL COOL FAN (24 OVERALL LEVEL	l-Apr-24) 1K-20KHz .441 G-s
HX453C FAN - HX453C VAC PUME MOH MIH	OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec	I-Apr-24) 1K-20KHz .441 G-s .165 G-s
HX453C FAN - HX453C VAC PUMP MOH	POIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec	l-Apr-24) 1K-20KHz .441 G-s .165 G-s l-Apr-24)
HX453C FAN - HX453C VAC PUME MOH MIH	OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec	l-Apr-24) 1K-20KHz .441 G-s .165 G-s l-Apr-24)
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUM	<pre>? OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec</pre>	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUM MOH	<pre>? OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec</pre>	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUM MOH MOV	<pre>? OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .075 In/Sec</pre>	<pre>I-Apr-24) 1K-20KHz .441 G-s .165 G-s I-Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s</pre>
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUN MOH MOV MIH MIV MIA	<pre>? OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .075 In/Sec .062 In/Sec</pre>	<pre>I-Apr-24) 1K-20KHz .441 G-s .165 G-s I-Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s</pre>
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUN MOH MOV MIH MIV MIA EIH	<pre>? OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .075 In/Sec .062 In/Sec .167 In/Sec</pre>	<pre>Apr-24) 1K-20KHz .441 G-s .165 G-s A-Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s</pre>
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUN MOH MOV MIH MIV MIA EIH EIV	<pre>? OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .134 In/Sec</pre>	<pre>Apr-24) 1K-20KHz .441 G-s .165 G-s A-Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s</pre>
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUN MOH MOV MIH MIV MIA EIH EIV EIA	<pre>? OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .134 In/Sec .124 In/Sec</pre>	<pre>A-Apr-24) 1K-20KHz .441 G-s .165 G-s A-Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s</pre>
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUN MOH MOV MIH MIV MIA EIH EIV EIA EOH	 2 OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .134 In/Sec .124 In/Sec .169 In/Sec 	<pre>A-Apr-24) 1K-20KHz .441 G-s .165 G-s A-Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s</pre>
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUN MOH MOV MIH MIV MIA EIH EIV EIA	<pre>? OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .134 In/Sec .124 In/Sec</pre>	<pre>A-Apr-24) 1K-20KHz .441 G-s .165 G-s A-Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s</pre>
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUN MOH MOV MIH MIV MIA EIH EIV EIA EOH	 2 OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .167 In/Sec .124 In/Sec .169 In/Sec .153 In/Sec 2 OIL COOL FAN (24 	<pre>Apr-24) 1K-20KHz .441 G-s .165 G-s A-Apr-24) 1K-20KHz 1.278 G-s .318 G-s .318 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s .189 G-s </pre>
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUN MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV	 2 OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .167 In/Sec .124 In/Sec .153 In/Sec 2 OIL COOL FAN (24 OVERALL LEVEL 	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s .189 G-s
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUN MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV	POIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .167 In/Sec .124 In/Sec .153 In/Sec POIL COOL FAN (24 OVERALL LEVEL .241 In/Sec	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s .189 G-s
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUM MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453D FAN - HX453D VAC PUME	 2 OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec MP (24 OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .167 In/Sec .124 In/Sec .169 In/Sec .153 In/Sec 2 OIL COOL FAN (24 	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s .189 G-s
HX453C FAN - HX453C VAC PUMB MOH MIH 451D PUMP - 451D VACCUM PUM MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453D FAN - HX453D VAC PUMB MOH	<pre>? OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec .141 In/Sec .141 In/Sec .082 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .167 In/Sec .124 In/Sec .153 In/Sec</pre> ? ? OIL COOL FAN (24 OVERALL LEVEL .241 In/Sec .165 In/Sec	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s .189 G-s
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUM MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453D FAN - HX453D VAC PUME MOH MIH 506B COMP - 506B PRODUCT CO	<pre>? OIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec .141 In/Sec 0VERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .167 In/Sec .167 In/Sec .124 In/Sec .153 In/Sec</pre> ? ? OIL COOL FAN (24 OVERALL LEVEL .241 In/Sec .165 In/Sec	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s .189 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s
HX453C FAN - HX453C VAC PUMB MOH MIH 451D PUMP - 451D VACCUM PUM MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453D FAN - HX453D VAC PUMB MOH MIH 506B COMP - 506B PRODUCT CO MOH	POIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec .141 In/Sec OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .062 In/Sec .167 In/Sec .167 In/Sec .169 In/Sec .153 In/Sec POIL COOL FAN (24 OVERALL LEVEL .241 In/Sec .165 In/Sec OMPRESSOR (24 OVERALL LEVEL .137 In/Sec	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s .189 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s
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HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUM MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453D FAN - HX453D VAC PUME MOH MIH 506B COMP - 506B PRODUCT CO MOH MIH MIA IIH	POIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec OVERALL LEVEL .082 In/Sec .080 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .062 In/Sec .167 In/Sec .167 In/Sec .169 In/Sec .153 In/Sec POIL COOL FAN (24 OVERALL LEVEL .241 In/Sec .165 In/Sec OVERALL LEVEL .137 In/Sec .179 In/Sec .096 In/Sec	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s .189 G-s 4-Apr-24) 1K-20KHz .128 G-s .089 G-s 4-Apr-24) 1K-20KHz .128 G-s .089 G-s 4-Apr-24) 1K-20KHz .128 G-s .089 G-s
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUM MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453D FAN - HX453D VAC PUME MOH MIH 506B COMP - 506B PRODUCT CO MOH MIH IIA	POIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec .141 In/Sec OVERALL LEVEL .082 In/Sec .080 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .167 In/Sec .167 In/Sec .169 In/Sec .153 In/Sec POIL COOL FAN (24 OVERALL LEVEL .241 In/Sec .165 In/Sec OVERALL LEVEL .241 In/Sec .165 In/Sec OVERALL LEVEL .137 In/Sec .196 In/Sec .196 In/Sec	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s .189 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s I-Apr-24) 1K-20KHz .492 G-s 6.883 G-s 3.074 G-s .525 G-s 1.531 G-s
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUM MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453D FAN - HX453D VAC PUME MOH MIH 506B COMP - 506B PRODUCT CO MOH MIH MIA IIH IIA IOH	POIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec .141 In/Sec OVERALL LEVEL .082 In/Sec .080 In/Sec .089 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .167 In/Sec .167 In/Sec .169 In/Sec .153 In/Sec POIL COOL FAN (24 OVERALL LEVEL .241 In/Sec .165 In/Sec OVERALL LEVEL .241 In/Sec OVERALL LEVEL .241 In/Sec OVERALL LEVEL .241 In/Sec OVERALL LEVEL .137 In/Sec OVERALL LEVEL .137 In/Sec .196 In/Sec .196 In/Sec .244 In/Sec	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s .189 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s I-Apr-24) 1K-20KHz .492 G-s 6.883 G-s 3.074 G-s .525 G-s 1.531 G-s
HX453C FAN - HX453C VAC PUME MOH MIH 451D PUMP - 451D VACCUM PUM MOH MOV MIH MIV MIA EIH EIV EIA EOH EOV HX453D FAN - HX453D VAC PUME MOH MIH 506B COMP - 506B PRODUCT CO MOH MIH IIA	POIL COOL FAN (24 OVERALL LEVEL .154 In/Sec .141 In/Sec .141 In/Sec OVERALL LEVEL .082 In/Sec .080 In/Sec .080 In/Sec .089 In/Sec .062 In/Sec .167 In/Sec .167 In/Sec .167 In/Sec .169 In/Sec .153 In/Sec POIL COOL FAN (24 OVERALL LEVEL .241 In/Sec .165 In/Sec OVERALL LEVEL .241 In/Sec .165 In/Sec OVERALL LEVEL .137 In/Sec .196 In/Sec .196 In/Sec	 Apr-24) 1K-20KHz .441 G-s .165 G-s Apr-24) 1K-20KHz 1.278 G-s .318 G-s 1.780 G-s .237 G-s .824 G-s .433 G-s .172 G-s .136 G-s .529 G-s .189 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s I-Apr-24) 1K-20KHz .128 G-s .089 G-s I-Apr-24) 1K-20KHz .492 G-s 6.883 G-s 3.074 G-s .525 G-s 1.531 G-s 1.639 G-s 1.565 G-s

	ООН			.234	In/Sec	1.737	G-s	
нх507в	FAN - 1	нх507в (GAS COOL	FAN		(24-Apr-24	-	
				OVERA	LL LEVEL	1K-20	KHz	
	MOH			.100	In/Sec	.077	G-s	
	MIH			.130	In/Sec	.111	G-s	
Clarificat	cion Of	Vibrat	ion Unit:	s:				
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,

Kerin W. Maxuell

ISO Certified Vibration Analyst, Category III



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