HI-SPEED INDUSTRIAL SERVICE QualiTest® Diagnostics

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July 21, 2020

Grenada Manufacturing
Grenada, MS

Please find attached our report covering the July 2020 vibration survey. All machinery appeared to be satisfactory condition during the survey except for the following machine(s).

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 mo.). Repair during normal maintenance scheduling. Continue to monitor.

Class III ; Defect (s) present that may cause failure in short term (less than 2 mo.). 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

Presses

2200 Ton Verson
Motor is still showing some signs of electrical issues. Clutch bearings are also starting to show some slight wear/defects. We will continue to monitor this closely. Rated as a **CLASS I** defect.

200 Ton Clearing
Press was not in operation during this survey.

Niagra Press
Press was not in operation during this survey.

400 Ton Stamtec
Clutch/Flywheel unit shows some signs of bearing issue. Unit needs to be inspected as scheduling allows. Rated as a **CLASS II** defect.

300 Ton Seyi
Press was not in operation during this survey.

600 Ton Stamtec
Press was not in operation during this survey.

600 Ton Minster
Press was not in operation during this survey.

USI Press
Press was not in operation during this survey.

1500 Ton Verson
Press was not in operation during this survey.

150 Ton Minster
Press motor appeared to be within acceptable vibration limits during this survey. No problems noted.

200 Ton Minster (near main entrance)
Data suggest belts and sheave issue. Data also suggests fit looseness of the motor/clutch. It is recommended to inspect the sheaves for wear and misalignment and ensure belts are properly tightened and not worn or defective. Motor may have rotor/drum imbalance. Rated as a **CLASS II** defect.

1200 Ton Clearing (Rheem Press)
Press motor appeared to be within acceptable vibration limits during this survey. No problems noted.

Blow Press 1
There appears to be a sharp impact being seen in the motor axial waveform data. This may be a belt or sheave issue. It is highly recommended to inspect the belts/sheaves for issues as soon as practical. If no issues can be found there, then this may be an internal issue in the motor and/or clutch/flywheel. Rated as a **CLASS III** defect.

Tandem Line #1

#1 Press

Press was not in operation during this survey; however, the following most likely still applies: Motor/clutch looks better since replacing the unit; however, there is still some higher than normal 1 x rpm vibration in the motor/clutch. This may be due to imbalance of the rotor/drum or clutch spider assembly. The sheave may also be out of alignment. It is recommended to check the sheave alignment and ensure sheave has minimal face run-out. Rated as a **CLASS II** defect.

#2 Press

Motor/Clutch appeared to be within acceptable vibration limits during this survey. No problems noted.

#3 Press

Back end of motor has increased vibration. Spectral data shows several rpm harmonics present. This may be due to mechanical looseness of the motor/clutch assembly. Motor/clutch will likely need attention soon. Rated as a **CLASS III** defect.

#4 Press

Motor/Clutch appeared to be within acceptable vibration limits during this survey. No problems noted.

#5 Press

Data suggest belts and sheave issue. It is recommended to inspect the sheave and flywheel for wear and misalignment and ensure belts are properly tightened and not worn or defective. Ensure flywheel assembly isn't loose. Rated as a **CLASS II** defect.

Tandem Line #2

F McKay

Press was not in operation during this survey; however, the following most likely still applies: 1 x and 2 x rpm vibration is still present in the motor and clutch horizontals. Data indicates possible imbalance or eccentric clutch drum of the motor/clutch unit. Mechanical looseness of the fits and housings may also contribute to this type of vibration. The sheaves may also be misaligned or worn. It is recommended to inspect the clutch drum and motor rotor for imbalance and eccentricity, inspect the fits and housings for wear, inspect all fasteners for looseness, and inspect the sheaves for wear and misalignment as soon as scheduling allows. Ensure belts are properly tight and not worn. Rated a **CLASS II** defect.

G McKay

Press was not in operation during this survey.

H McKay

Press was not in operation during this survey; however, the following most likely still applies: Data suggest belts and sheave issue. It is recommended to inspect the sheaves for wear and misalignment and ensure belts are properly tightened and not worn or defective. There may also be some bearing fit wear in the motor/clutch. Rated as a **CLASS II** defect.

I McKay

Press was not in operation during this survey; however, the following most likely still applies: Clutch and motor spectral data show signs of bearing defects as well.as looseness/wear in the motor fits or other internal parts. Unit needs attention soon. Rated as a **CLASS III** defect.

Tandem Line #3

Bliss Press #1
Press was not in operation during this survey.

Bliss Press #2
Press was not in operation during this survey.

Bliss Press #3
Press was not in operation during this survey; however, the following most likely still applies: Data of the motor shows harmonics of what may be flywheel rpm or belt frequency. Motor and Flywheel sheave and belts should be inspected for wear and defects as scheduling allows. Rated as a **CLASS II** defect.
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Bliss Press #4
Press motor appeared to be within acceptable vibration limits during this survey. No problems noted.

Bliss Press #5
Press motor appeared to be within acceptable vibration limits during this survey. No problems noted.

Compressors

Gardner Denver Air Compressor
Press was not in operation during this survey; however, the following most likely still applies: Vibration data shows internal wear of compressor. Inspect compressor for wear soon. Rated as a **CLASS III** defect.

NEW Quincy Compressor East
Spectral data indicates high 1 x rpm vibration in the motor with amplitudes exceeding 1.0 ips-pk. This could be due to misalignment, coupling issue, loose or soft foot, and or flexible structure. Structure/frame is not bolted down or grouted in and is causing this unit to be sensitive to vibrations. **Inspect for these issues soon.** Rated as a **CLASS III** defect.

NEW Quincy Compressor Middle
1 x input rpm vibration has increased in the compressor. Inspect the coupling for issues and ensure motor and compressor are aligned properly. Rated as a **CLASS II** defect.

NEW Quincy Compressor West
Spectral data indicates high 1 x rpm vibration in the motor especially in the axial direction. This could be due to misalignment, imbalance of the couplings, loose or soft foot, and or flexible structure. Structure/frame is not bolted down or grouted in and may be contributing to this vibration. Compressor data is also showing some signs of internal defects/wear. Inspect for these issues soon. Rated as a **CLASS II** defect.

Abbreviated Last Measurement Summary

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Database: gstamp.rbm
Station: Tandem Line # 1

MEASUREMENT POINT		OVERALL LEVEL	HFD / VHFD
#2	- #2	(14-Jul-20)	
		OVERALL LEVEL	1 - 20 KHz
	MOH	.187 In/Sec	.110 G-s
	MIH	.171 In/Sec	.307 G-s
	CIA	.107 In/Sec	.360 G-s
	CIH	.162 In/Sec	1.390 G-s
#3	- #3	(14-Jul-20)	
		OVERALL LEVEL	1 - 20 KHz
	MOH	.407 In/Sec	.330 G-s
	MIH	.167 In/Sec	.259 G-s
	CIA	.190 In/Sec	.270 G-s
	CIH	.276 In/Sec	.387 G-s
#4	- #4	(14-Jul-20)	
		OVERALL LEVEL	1 - 20 KHz
	MOH	.255 In/Sec	.107 G-s
	MIH	.222 In/Sec	.135 G-s
	CIA	.105 In/Sec	.081 G-s
	CIH	.227 In/Sec	.263 G-s
#5 east	- #5 East	(14-Jul-20)	
		OVERALL LEVEL	1 - 20 KHz
	MOH	.222 In/Sec	.037 G-s
	MIH	.154 In/Sec	.066 G-s
	CIA	.082 In/Sec	.059 G-s
	CIH	.216 In/Sec	.049 G-s

Database: gstamp.rbm
Station: Tandem Line #3

MEASUREMENT POINT		OVERALL LEVEL	HFD / VHFD
Press4	- Press # 4 1000 TON BLISS	(14-Jul-20)	
		OVERALL LEVEL	1 - 20 KHz
	MOV	.081 In/Sec	.103 G-s
	MOH	.072 In/Sec	.032 G-s
	MIV	.072 In/Sec	.105 G-s
	MIH	.090 In/Sec	.074 G-s
	MIA	.071 In/Sec	.032 G-s
Press5	- Press # 5 1000 TON BLISS	(14-Jul-20)	
		OVERALL LEVEL	1 - 20 KHz
	MOV	.041 In/Sec	.113 G-s
	MOH	.091 In/Sec	.103 G-s
	MIV	.045 In/Sec	.237 G-s
	MIH	.051 In/Sec	.256 G-s
	MIA	.046 In/Sec	.151 G-s

Database: gstamp.rbm
Station: PRESSES

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
2200VERSON - 2200 Ton Verson		(14-Jul-20)
	OVERALL LEVEL	1 - 20 KHz
MOV	.177 In/Sec	.161 G-s
MOH	.121 In/Sec	.405 G-s
MIH	.082 In/Sec	.412 G-s
MIV	.069 In/Sec	.213 G-s
MIA	.123 In/Sec	.167 G-s
JIA	.114 In/Sec	.187 G-s
JIV	.050 In/Sec	.259 G-s
JIH	.068 In/Sec	.153 G-s
JOH	.091 In/Sec	.225 G-s
JOV	.045 In/Sec	.244 G-s
CIV	.038 In/Sec	.129 G-s
CIH	.035 In/Sec	.124 G-s
COH	.087 In/Sec	.028 G-s
COV	.068 In/Sec	.030 G-s
400STAMTEC - 400 Ton Stamtec		(14-Jul-20)
	OVERALL LEVEL	1 - 20 KHz
MOH	.126 In/Sec	.482 G-s
MIH	.134 In/Sec	.131 G-s
MIA	.182 In/Sec	.131 G-s
CIH	.110 In/Sec	.108 G-s
CIA	.102 In/Sec	.377 G-s
COH	.109 In/Sec	.069 G-s
150MNSTR - 150 Ton Minster		(14-Jul-20)
	OVERALL LEVEL	1 - 20 KHz
MOH	.145 In/Sec	.104 G-s
MIH	.074 In/Sec	.108 G-s
MIA	.108 In/Sec	.145 G-s
FBH	.011 In/Sec	.038 G-s
MIV	.127 In/Sec	.162 G-s
200MNSTR - 200 Ton Minster		(14-Jul-20)
	OVERALL LEVEL	1 - 20 KHz
MOH	.313 In/Sec	.230 G-s
MIH	.286 In/Sec	.279 G-s
MIA	.215 In/Sec	.114 G-s
FBH	.012 In/Sec	.029 G-s
MIV	.294 In/Sec	.068 G-s
RHEEMPRESS - 1200 TON CLEARING (RHEEM)		(14-Jul-20)
	OVERALL LEVEL	1 - 20 KHz
MOH	.033 In/Sec	.186 G-s
MIH	.033 In/Sec	.103 G-s
MIA	.028 In/Sec	.136 G-s
BLOWPRESS1 - BLOW PRESS 1		(14-Jul-20)
	OVERALL LEVEL	1 - 20 KHz
MOH	.035 In/Sec	.188 G-s
MIH	.030 In/Sec	.304 G-s
MIA	.033 In/Sec	.638 G-s
QUINCYEAST - QUINCY EAST AIR COMPRESSOR		(14-Jul-20)
	OVERALL LEVEL	1 - 20 KHz
MOH	1.142 In/Sec	.237 G-s
MIH	.909 In/Sec	.217 G-s
MIA	.338 In/Sec	.274 G-s
CIH	.107 In/Sec	.915 G-s
CIA	.109 In/Sec	.766 G-s

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            COH                      .121 In/Sec      1.361 G-s


      QUINCYMID  - QUNICY MIDDLE AIR COMPRESSOR  (14-Jul-20)
                                  OVERALL LEVEL     1 - 20 KHz
            MOH                    .071 In/Sec       .139 G-s
            MIH                    .096 In/Sec       .721 G-s
            MIA                    .082 In/Sec       .441 G-s
            CIH                    .190 In/Sec       .832 G-s
            CIA                    .235 In/Sec       .685 G-s
            COH                    .160 In/Sec       .784 G-s

      QUINCYWEST - QUNICY WEST AIR COMPRESSOR    (14-Jul-20)
                                  OVERALL LEVEL     1 - 20 KHz
            MOH                    .526 In/Sec       .917 G-s
            MIH                    .611 In/Sec       .488 G-s
            MIA                    .094 In/Sec       .508 G-s
            CIH                    .247 In/Sec       .906 G-s
            CIA                    .172 In/Sec       .664 G-s
            COH                    .207 In/Sec      1.000 G-s

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   Clarification Of Vibration Units:
      Acc       -->  G-s       RMS
      Vel       -->  In/Sec    PK
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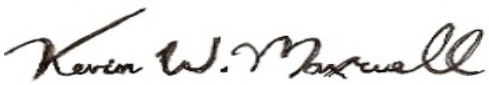
As always, it is a pleasure to serve the Grenada Manufacturing operation. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



ISO Certified Vibration Analyst, Category III

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