



QualiTest® Diagnostics

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September 30, 2019

General Recycling

Subject: September vibration survey

Most of the machines surveyed were found to be in good condition with the exception of the following:

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

Shredder

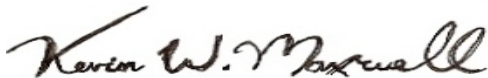
4 x motor rpm vibration is still dominant which usually indicates some type of coupling issue. Inspect coupling as downtime allows. We will continue to monitor this closely. Rated as a **CLASS I** defect.

Conveyor 11

The motor axial still shows some high sub-synchronous vibrations. It is recommended to inspect all fasteners and motor base/structure soon. Ensure belts and sheaves are aligned properly and not excessively worn. Conveyor bearings are also showing signs of defect/wear especially the ODE bearing. Rated as a **CLASS III** defect.

As always, it has been a pleasure to serve General Recycling. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



ISO Certified Vibration Analyst, Category III



QualiTest® Diagnostics

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Abbreviated Last Measurement Summary

Database: nucorja9.rbm

Station: Scrap Yard

MEASUREMENT POINT -----	OVERALL LEVEL -----	HFD / VHFD -----
SHREDDER - SHREDDER		(19-Sep-19)
	OVERALL LEVEL	1K-20KHz
MOH	.197 In/Sec	.087 G-s
MOV	.120 In/Sec	.066 G-s
MIV	.142 In/Sec	.051 G-s
MIH	.224 In/Sec	.075 G-s
MIA	.124 In/Sec	.086 G-s

CYCLONE	- CYCLONE	(19-Sep-19)
	OVERALL LEVEL	1K-20KHz
MOH	.124 In/Sec	.322 G-s
MIH	.107 In/Sec	.104 G-s
MIA	.081 In/Sec	.168 G-s
EIH	.147 In/Sec	.285 G-s
EOH	.183 In/Sec	.022 G-s
MIV	.131 In/Sec	.105 G-s

M3	- MAG DRUM	(19-Sep-19)
	OVERALL LEVEL	1K-20KHz
MOH	.134 In/Sec	.100 G-s
MIH	.116 In/Sec	.120 G-s
MIA	.084 In/Sec	.093 G-s
GIH	.116 In/Sec	.279 G-s
GOH	.026 In/Sec	.223 G-s
IDB	.116 In/Sec	.114 G-s
ODB	.136 In/Sec	.0049 G-s

NUMBER 11	- NUMBER 11	(19-Sep-19)
	OVERALL LEVEL	1K-20KHz
MOH	.632 In/Sec	.251 G-s
MIH	.578 In/Sec	.294 G-s
MIA	.393 In/Sec	.243 G-s
EIH	.327 In/Sec	.726 G-s
EIA	.289 In/Sec	1.138 G-s
EOH	.218 In/Sec	.148 G-s

SAIRCOMP	- NEW SEPARATOR SOUTH AIR COMP	(19-Sep-19)
	OVERALL LEVEL	1K-20KHz
MOH	.126 In/Sec	.054 G-s
MIH	.072 In/Sec	.927 G-s
MIA	.065 In/Sec	1.508 G-s
EIH	.068 In/Sec	.985 G-s
EIA	.080 In/Sec	.999 G-s
EOH	.104 In/Sec	.890 G-s

NAIRCOMP	- NEW SEPARATOR NORTH AIR COMP	(19-Sep-19)
	OVERALL LEVEL	1K-20KHz
MOH	.093 In/Sec	.499 G-s
MIH	.089 In/Sec	.825 G-s
MIA	.083 In/Sec	.989 G-s
EIH	.069 In/Sec	1.559 G-s
EIA	.083 In/Sec	.949 G-s
EOH	.114 In/Sec	.902 G-s

Clarification Of Vibration Units:

Acc	-->	G-s	RMS
Vel	-->	In/Sec	PK