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January 23, 2025

George Young Georgia Pacific Cellulose Memphis, TN

George,

The following is a summary of findings from the vibration analysis on the ID Fan/Gearbox and the SM1 Feed Tank Agitator Drive that was performed on 1/21/25.

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.

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.

Defect Summary

ID Fan CLASS III



Observation:

Waterfall velocity spectra above (TOP DATA PLOT) is the fan and the gear box. MOH-MIA are the fan points. EIA-EIV are the gearbox points. Data shows quite a bit of rpm harmonic vibration in the fan (MOH-MIA). This is indicative of mechanical looseness. Gearbox velocity data appears to be much lower in amplitude than the fan. The second plot shows the same data points in acceleration. Notice that EIV which is Gearbox DE vertical shows some high frequency vibration. Some of these peaks appear to be non-synchronous, which indicates possible defects within the bearing. This appears to be minor at this time as there is very little velocity amplitude.

Recommendation:

The fan has excessive vibration. A lift check of the fan shaft using a dial indicator should be performed. There may be wear of the fan bearing/housing/shafts fits. The fan wheel and fan hub should also be inspected for cracks if possible. Also check fan shaft run-out using a dial indicator. Also, check couplings for visible defects/wear and ensure couplings are greased properly.



Observation:

Waterfall velocity spectra above (TOP DATA PLOT) is the motor and the gear box. MOH-MIA are the motor points. EIA-EIV are the gearbox points. Second plot are the same points in acceleration. There appears to be some gear mesh vibration according to spectral data. The first large peak in the EIA spectra is 14 x rpm. This is likely the gear mesh fundamental if the pinion gear has 14 teeth. There are also a first, second, and third harmonic of GMF. 2 x GMF appears to be dominant in the outboard end of the gearbox. This type of vibration typically indicates some wear and or internal misalignment of the gears. Amplitudes aren't very high, so severity is low at this time. Motor acceleration spectral data shows some peaks in higher frequency range. These peaks appear to be electrically related and are not really an issue here.

Recommendation:

Check gearbox oil and pull an oil sample if possible.

Database: Analysis1.rbm Area: ANALYSIS Report Date: 23-Jan-25 08:10

MEASUREMENT POINT	OVERALL	LEVEL	HFD /	VHFD
ACHINE 13 - ID FAN		(21-J	an-25)	
	OVERALL	LEVEL	1K-20F	Hz
MOH	.771 I	n/Sec	1.240	G-s
MOV	.848 I	n/Sec	.884	G-s
MIH	.969 I	n/Sec	1.524	G-s
MIV	1.220 I	n/Sec	.842	G-s
MIA	.530 I	n/Sec	1.060	G-s
EIA	.243 I	n/Sec	.617	G-s
EIH	.137 I	n/Sec	1.095	G-s
EIV	.092 I	n/Sec	1.665	G-s
MACHINE 15 - SM1 FEED 1	ANK AGITATOR	(21-	Jan-25)	
	OVERALL	LEVEL	1K-20F	Hz
MOH	.093 I	n/Sec	.790	G-s
MOV	.060 I	n/Sec	.485	G-s
MIH	.104 I	n/Sec	.705	G-s
MIV	.048 I	n/Sec	. 951	G-s
MIA	.142 I	n/Sec	.194	G-s
EIA	.154 I	n/Sec	. 389	G-s
EIH	.099 I	n/Sec	. 339	G-s
EIV	.056 I	n/Sec	.450	G-s
FOH	.190 I	n/Sec	.476	G-s
HOII				

Clarification Of Vibration Units:

Acc	>	G-s	RMS

Vel --> In/Sec PK

As always, it has been a pleasure to serve GP Cellulose Memphis Plant. 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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