HI-SPEED INDUSTRIAL SERVICE QualiTest® Diagnostics

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September 6, 2019

Cascades Tissue
Memphis, TN

The following is a summary of findings from the August 2019 monthly vibration survey of the Paper Machine area. The Paper Machine was operating at around **3100** FPM during this month's survey.

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

Defects

Reel Drum
Vibration is somewhat lower this survey. There are still some rpm harmonics present in both bearings which indicates some looseness is present. We will monitor this closely. Rated as a **CLASS I** defect.

W4 Wire Roll
There appears to be signs of mechanical looseness in the roll bearings. This bearing was replaced during the last shutdown. Both bearings have this type of vibration and amplitudes are similar. A thorough inspection of the bearings and housings is recommended. Rated as a **CLASS II** defect.

Wire Roll 5
Tending side bearing has a significant increase in 1 x rpm amplitude this survey. This may be a structural issue or resonance. For now, ensure that the mounts and structure for the roll are not loose or having any other issues. Rated as a **CLASS II** defect.

Roto Jet Pump (Basement)
Motor and pump both appear to have increased vibration at around 2 x rpm. This may be belt/sheave related, bit could also be structural. Ensure sheaves are aligned properly with minimal angularity and offset and check belt for wear/defects. Ensure base is secure and that there are no cracks or other looseness. If all checks good, then the pump may have restricted flow. Ensure that the pump has proper suction and discharge pressures. Rated as a **CLASS II** defect.

Primary Screen #2
Gearbox is showing signs of a gear issue such wear or excessive backlash. Drive end motor bearing has excessively high temperature. Motor may also have some misalignment. We will monitor this closely. Rated as a **CLASS II** defect.

Suction Press Vacuum Pump #1
Vibration data of the motor drive end bearing is suggesting a lubrication issue and also signs of bearing wear/defects. For now ensure that the drive end motor bearing had adequate grease SOON. We will monitor this closely. Rated as a **CLASS II** defect for now.

Fresh Water Booster Pump
4 x rpm vibration remains higher than normal. Data still shows signs of misalignment or coupling issue. Ensure couplings are in good order and offset and angularity is less than .003" and motor does not have a soft foot condition. Rated as a **CLASS II** defect.

Couch Helper Pump B
Pump was not running this survey; however, the following still applies: This pump rarely runs which is most likely the reason why the motor data is showing defects in the motor bearings. Ambient vibration can cause false brinelling in bearings that do not rotate for a long period of time. Motor needs attention in the near future. We will monitor this closely. Rated as a **CLASS II** defect.

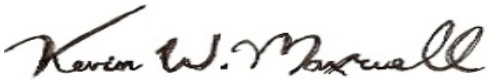
Suction Press Roll Drive Motor
Tach unit at the ODE of the motor appears to have increased vibration. Data suggests wear of the tach and or coupling assembly. Inspect the tach and coupling soon. Rated as a **CLASS II** defect.

Hood Exhaust Fan

Drive end fan bearing is showing signs of distress. Ensure belts are not too tight and that the bearing has clean adequate amounts of grease. Bearing temp seems high. Rated as a **CLASS II** defect.

As always, it has been a pleasure to serve the Cascades Tissue Memphis, TN Plant. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



ISO Certified Vibration Analyst, Category III

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