HI-SPEED INDUSTRIAL SERVICE QualiTest® Diagnostics

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November 30, 2023

John Wright
USG-Greenville
Greenville, MS

John,

The following is a summary of findings from the November 2023 monthly vibration survey at the USG Greenville, MS Plant. Please let us know if there are any questions or comments.

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

Perlite

#6 Combustion Blower
Motor axial vibration has increased. Looks like a sub-synchronous vibration is the dominant vibration. This could be a belt harmonic. Check sheaves and belts ensuring belt tension is set correctly and sheaves are aligned. Rated as a **CLASS II** defect.

#8 Combustion Blower
Fan data shows some high 1 x fan rpm vibration indicative of fan imbalance. Fan should be trim balanced as time allows. Rated as a **CLASS II** defect.

#5 Expander Dust Collector
The motor was not running but the following may still apply: High 1 x rpm vibration remains dominant and indicates imbalance of the fan wheel. Amplitude is over 1 ips-pk. Fan wheel needs to be inspected as scheduling allows**. A field balance is likely necessary.** Rated as a **CLASS III** defect.

#6 Expander Dust Collector
Fan axial vibration is lower this survey, but issues still remain. 1-4 x rpm vibration that can still be seen in spectral data is likely due to a combination of imbalance, deteriorated grout around the fan base, and internal bearing looseness. Inspect and clean fan wheel. Inspect fan bearings for looseness by performing a lift check of the fan shaft. Should not have more than .004" lift max. Base needs to be re-grouted in the near future. Rated as a **CLASS II** defect.

#7 Expander Dust Collector
Motor has a beat vibration that appears to be near motor/fan rpm. This may be sheave/belt related**.** Check sheaves and belts for wear and misalignment and check all base fasteners. Check angularity and offset alignment. Rated as a **CLASS II** defect.

#8 Expander Dust Collector
Fan bearing data shows high vertical vibration. Data shows vibration to be at 1 x fan rpm. This may be due to base looseness but also may be fan imbalance. It is recommended to check the fan base for looseness and check the fan for build-up soon. Rated as a **CLASS II** defect.

Hydropulper
Drive motor data shows some signs of bearing defect(s) in the motor and possible rotor issue. Gearbox also shows some signs of internal wear. Motor may need to be swapped out at the next major downtime. We will continue to monitor closely. Rated as a **CLASS II** defect.

Mix-up/Reclaim

Ultra-Sorter Screen
Screen bearings are showing signs of wear. Screen bearings may need to be replaced in the near future. We will continue to monitor this issue closely. Rated as a **CLASS II** defect.

Dump Chest Agitator
Motor vibration has increased again this survey. Data shows a high 1 x motor rpm vibration with a high 2 x rpm in the DE of the motor. This is likely a coupling/alignment issue. Inspect coupling asap and ensure motor is aligned properly. Motor may have also bearing fit looseness/wear. Rated as a **CLASS III** defect.

#1 White Water Loop Pump
Motor is starting to show signs of bearing defects. Low level as of now but this will need attention in the next few months. Rated as a **CLASS II** defect.

#2 White Water Loop Pump
The motor was not running but the following may still apply: Pump data shows defects are present in the pump. Pump is also loose from the base. Pump needs attention as soon as practical. Rated as a **CLASS III** defect.

White Water Mix-up Pump
Motor data is showing some signs of bearing issues. Spectral data suggests fluting of the bearings. This is common with motors that operate on VFD's. Motor will need grounding protection if fluting exists. Rated as a **CLASS II** defect.

Fiberglass

#1 Oven Circ. Fan
The motor and fan inboard side has high vibration at fan speed. This may be due to some type of sheave issue. Inspect sheaves and belts soon. Ensure sheaves do not have face run-out and offset and angularity alignment is good. Ensure belts are tensioned properly. Rated as **CLASS II** defect.

#2 Oven Circ Fan
Data shows some 1, 2, and 3 x rpm vibrations present in the fan. The motor also has high vibration at 1 x fan rpm. Fan shaft may be bent and or worn. Rated as a **CLASS II** defect.

Board Line 3

Vacuum Pump MOTORS (1,2, and 3)
We are still seeing some mid to high frequency noise floor in the motor spectra on all three motors with Vac Pump Motor #1 being the highest amplitude of vibration. This issue appears to be stable; however, we suspect possible fluting of the motor bearings may be starting to develop. This is a common issue with AC motors being operated by VFD's that do not having grounding protection. We recommend installing an Aegis Grounding ring inside the motor at the drive end and installing an insulated bearing on the outboard end of the motor. **There are also signs of lubrication issue in #1 MOTOR. Ensure motors have adequate amounts of grease. Rated as CLASS I defect.**
NOTE that #1 Vacuum Motor is a CLASS II defect.

#3 Vacuum Pump
DE pump bearing spectral data indicates defects are present in the DE pump bearing. We will continue to monitor this closely. Rated as a **CLASS II** defect.

Wet End Combustion Blower
Blower bearings are continuing to trend upward on defect frequency vibration. Acceleration has had a steady increase in amplitude. These are signs of bearing defects/wear. **Bearings should be scheduled for replacement as soon as practical.** Rated as a **CLASS III** defect for now.

White Water Pump (outside)
Motor/Pump base is loose to concrete and is causing a very high vertical vibration at 12 Hz (amplitude is 1.7 ips-pk) which appears to be pump speed. Base needs to be anchored soon. Rated as a **CLASS III** defect.

Finishing

Kiln Lube Oil Pump
The pump is showing signs of wear. Impacting can be seen in the vibration data along with pump vane harmonics. We will continue to monitor this closely. Rated as a **CLASS II** defect.

Blue Oven 1 Zone 1 Circulation Fan 1
Fan end fan bearing (outboard) data is showing signs of defects/wear. Motor and fan also have some 1 x rpm vibrations. Fan bearings will need attention soon. Also, ensure sheaves are aligned properly and belts are in good shape and properly tightened. Rated as a **CLASS II** defect.

Blue Oven 1 Zone 1 Circulation Fan 2
Outboard (ODE) fan bearing data is showing defects in the bearing. Vibration has increased in noise and vibration amplitude. This fan will need attention soon. Rated as a **CLASS III** defect.

Blue Oven 1 Zone 2 Circulation Fan 1 and 2
Motor and fan vibrations remain high. Vibration is at fan speed in the motor and fan. This may be due to build-up on the fan. Inspect fan wheel for build- up and damage ASAP. Inspect sheaves and belts as well. Rated as a **CLASS III** defect.

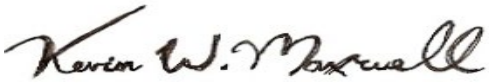
#1 Finishing Baghouse Dust Collector
The drive motor has some vertical vibration. This may be due to a sheave or belt issue. This could also be a spring issue. Ensure sheaves have minimal offset and angular misalignment. Ensure belts do not have defects. Check springs to ensure they are set properly and ensure all motor fasteners are tight. Rated as a **CLASS II** defect.

#3 Finishing Baghouse Dust Collector
Fan bearing data is starting to show some peaks in spectra that are non-synchronous and appear to be bearing defect frequencies. Data of the motor and fan also indicate some possible drivetrain issues such as sheave misalignment and or belt issues. For now, inspect, sheaves and belts as scheduling allows. Ensure sheaves do not have face run-out and are aligned to spec. Check base springs to ensure they are in good shape and set properly. Rated as a **CLASS II** defect.

Hi-Pressure Water Pump
Motor data still shows signs of bearing defects and/or lube issue. Ensure motor bearings are getting adequate amount of grease. This will continue to be monitored closely. Rated as a **CLASS II** defect.

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

Sincerely,



ISO Certified Vibration Analyst, Category III

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