



**QualiTest® Diagnostics**

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The following is a summary of findings from the February 2021 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

**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

## Perlite

### #8 Expander Dust Collector

Motor has high amplitude/high frequency/non-synchronous vibration. **Drive end bearing is showing signs of significant defects/wear. Motor needs attention very soon.** Rated as a **CLASS III** defect.

### #7 Expander Dust Collector

Fan has very high 1 x rpm vibration. Overall amplitude is over 2.0 ips-pk. Fan was balanced on 7/31/20. **Fan likely has build-up and needs cleaning ASAP.** Rated as a **CLASS IV** defect.

### #5 Combustion Blower

Blower bearing spectral data is showing excessive looseness in the outboard bearing while both bearings are showing strong sign of wear. **Unit needs attention soon.** Rated as a **CLASS III** defect.

### #7 Combustion Blower

Very similar to #5 but slightly lower amplitude, blower bearing spectral data is showing excessive looseness in the outboard bearing while both bearings are showing strong sign of wear. **Unit needs attention soon.** Rated as a **CLASS III** defect.

### #5 Expander Dust Collector

High 1 x rpm vibration is still present and indicates imbalance of the fan wheel. **Amplitude in DE fan bearing was at .8 ips-pk.** Fan wheel needs to be inspected and cleaned as scheduling allows. A filed balance may be needed if fan is clean and vibration persists. Rated as a **CLASS III** defect.

### #6 Expander Dust Collector

1 x fan rpm vibration remains above low alarm limit. This is most likely due to a combination of imbalance and deteriorated grout around the fan base. Inspect and clean fan wheel. Base needs to be re-grouted in the near future. Rated as a **CLASS II** defect.

### Hydrapulper

Pulper had quite a bit of vibration this survey. Entire unit was shaking. Gearbox data shows some gear type issues with the output side. Unit was heavily loaded during testing which may be some the reason for the high vibration. Drive motor is also showing some signs of bearing defect(s) in the motor and possible rotor bar issue. This motor will likely need attention soon. Rated as a **CLASS II** defect for now.

## Mix-up/Reclaim

### Dump Chest Agitator

**Gearbox frame and gearbox were physically rocking back and forth. Frame is likely cracked.** Overall vibration has decreased but remains at an alarm level. Motor still has a significant increase in 2 x rpm motor axial vibration. This is a strong indication of angular misalignment. Coupling may also have issue. **Inspect coupling and re-align motor to less than .003" offset and angularity.** Rated as a **CLASS II** defect.

### Starch Blower

The high pressure blower has had an increase in acceleration throughout the blower. There are several high amplitude harmonics of blower rpm present as well. This is a good indication of internal wear of the blower. Blower will need attention SOON. Rated as a **CLASS III** defect.

### Ultra-Sorter Screen

**Motor base is broke and needs repairing SOON.** Screen bearings are showing signs of wear. Bearings may need to be replaced in the near future. We will continue to monitor this issue closely. Rated as a **CLASS II** defect.

### #2 East Well Water Pump

Pump data shows defects are present in the pump bearings. Pump needs attention as scheduling allows. Rated as a **CLASS II** defect for now.

## ***Board Line 3***

### Board Line Main Drive

Overall amplitude increased from **.88 ips-pk** last month to **1.0 ips-pk** this month. We have suspected this issue to be possible resonance; however, electrical vibrations are indicating that this issue may in fact be related to rotor bar issues. We will perform further analysis on site next month to help clarify this issue. **An online and offline PdMA test could also clarify this issue.** We could perform the online test while we are onsite next month For now this is rated as a **CLASS II** defect.

### #1 Former White-Water Pit Pump

Vibration spectra of the motor signs of bearing defects of the drive end bearing. Inspect motor as scheduling allows. Rated as a **CLASS II** defect.

### #2 Former White-Water Pit Pump

High frequency acceleration has increased quite a bit this survey. Motor is showing strong signs of bearing defects in the spectral data. **MOTOR NEEDS ATTENTION SOON.** Rated as a **CLASS III** defect.

### Seal Water Return Pump

Motor base is loose and is causing some unnecessary motor vibration. Ensure all fasteners are tight and ensure sheave alignment is good. Rated as a **CLASS II** defect.

### Vacuum Pump #3

Data suggests motor bearings need lubrication. Ensure motor bearings have adequate grease asap. Rated as a **CLASS II** defect.

### Vacuum Pump #2

Motor has a higher than normal 1 x motor rpm vibration. This is likely due to the motor base not being secured properly to the concrete base. Motor base needs to be anchored properly. Rated as a **CLASS II** defect.

### Wet End Combustion Blower

Blower bearings are continuing to trend upward on defect frequency vibration. Acceleration has also increased again this survey. These are signs of bearing defects/wear. **Bearings should be scheduled for replacement SOON.** Rated as a **CLASS II** defect for now.

## Finishing

### #3 Finishing Baghouse Dust Collector

Excessive imbalance of the fan due to the baghouse issue has caused the bearings to have excessive wear. Fan bearing data shows mechanical looseness. Perform a lift check of the fan shaft to confirm. Rated as a **CLASS II** defect.

### 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 monitor this closely. Rated as a **CLASS II** defect.

### Blue Oven 1 Zone 1 Circulation Fan 1

Vibration data indicates that the fan is out of balance. It is recommended to inspect the fan wheel for build-up and damage. 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

Vibration data of the fan bearing indicates bearing faults more so in the bottom fan bearing. It is recommended to replace fan bearings as scheduling allows. Rated as a **CLASS II** defect.

### Blue Oven 1 Exhaust Fan

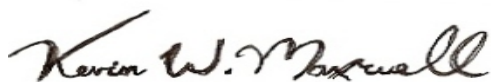
Data shows imbalance of the fan. Fan shaft may also be bent. Sheaves misalignment may also influence this vibration. Sheaves should be checked for misalignment and wear and perform a field balance of the fan. Rated as a **CLASS II** defect.

### Blue Oven 1 Zone 2 Circulation Fan 1 and 2

Motor and fan vibrations remain higher than normal. 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 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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