



**QualiTest® Diagnostics**

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The following is a summary of findings from the October 2022 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

### #6 Combustion Blower

Motor has high vertical vibration at fan speed. Blower data shows some high amplitudes with 1, 2, and 3 x rpm being dominant in spectra. This is likely due some type of structural looseness and or bearing fit/shaft looseness. Outboard fan bearing has high 1 x rpm vibration. Shims were found to be loose at the outboard bearing and bolts were loose. USG personnel was informed immediately. Inspect unit as scheduling allows. Ensure sheaves are aligned properly. Rated as a **CLASS III** defect.

### #7 Combustion Blower

Vibration data indicates belt and sheave issues. Inspect motor base for looseness and ensure sheaves are aligned and belts are in good shape and tensioned properly. Rated as a **CLASS II** defect.

### #5 Expander Dust Collector

High 1 x rpm vibration is still present and indicates imbalance of the fan wheel. 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

1 x and 2 x fan rpm vibration appears to be dominant in the fan inboard vertical spectral data. This is 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.

### #7 Expander Dust Collector

Motor has increased vibration that appears to be near motor rpm. This may be sheave/belt related. **Fan also has elevated 1 x rpm vibration and likely needs to be cleaned.** 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 data shows increased 1 x rpm vibration and may be due to build up on fan wheel. Inspect and clean fan wheel as soon as practical. Rated as a **CLASS II** defect.

### Hydrapulper

Drive motor data shows some signs of bearing defect(s) in the motor and possible rotor bar issue. Gearbox also shows some signs of internal wear. This is being monitored closely. Rated as a **CLASS II** defect for now.

## 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 has 1 x rpm motor horizontal vibration with some 2 x rpm vibration in motor verticals. This is an indication of structural or misalignment issue. Coupling may also, have issue. **Inspect/repair frame/base, inspect coupling and re-align motor to less than .003" offset and angularity.** Rated as a **CLASS II** defect.

### #2 White Water Loop Pump

Motor still has some vibration that is likely due to sheave or structural issue. Pump also has some high 1, 2, and 3 x rpm vibration. This may be due to looseness of the pump and or bent shaft. Inspect unit for these issues as time allows. Rated as a **CLASS II** defect.

## ***Fiberglass***

### #1 Oven Circ. Fan

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 fan. Also, motor 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***

### Machine Chest Pump 3B

Motor is showing signs of bearing defects in the motor bearings. Rated as a **CLASS II** defect.

### #2 Former White-Water Pit Pump

**Motor was not running but the following still applies:** Motor data shows non-synchronous peaks in spectra with elevated 1k-20khz amplitude. This is indication of motor bearing defects. Rated as a **CLASS II** defect.

### Vacuum Pumps (1,2, and 3)

We are 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. We suspect the bearings are starting to develop electrical fluting of the races. This is a common issue with AC motors being operated by VFD's that do not having grounding protection. We highly recommend letting us install an Aegis Grounding ring inside the motor at the drive end and installing an insulated bearing on the outboard end of the motor. This will help tremendously with fluting issues. This should be done as soon as scheduling allows. Rated as **CLASS II** defects.

### 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 as soon as scheduling allows.** Rated as a **CLASS II** defect for now.

## ***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 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 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 III** defect.

### **#3 Finishing Baghouse Dust Collector**

Motor data is beginning 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. Inspect motor bearings, sheaves and belts soon. Ensure sheaves do not have face run-out and are aligned properly. 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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