



QualiTest® Diagnostics

7030 Ryburn Dr. Millington, TN

Phone: (901) 873-5300

Fax: (901) 873-5301

www.gohispeed.com

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Will Ledbetter
USG-Greenville
Greenville, MS

The following is a summary of findings from the June 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

#6 Expander Dust Collector

Fan data is indicating mechanical looseness the base and bearing bolts needs checked.
Rated as a **CLASS II** defect.

#7 Expander Dust Collector

Motor data is indicating that bearing may need to be greased. Data is also showing increase in amplitude indicating bearing is near the end of its life. Rated as a **CLASS III** defect.

#8 Expander Dust Collector

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

#5 Combustion Blower

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

#6 Combustion Blower

Bearing needs replaced as soon as possible the waveform is showing high bearing impacting Rated as a **CLASS III** defect.

#7 Combustion Blower

The fan bearings were recently changed on this unit; however, vibration remains high. There appears to be ½ rpm harmonics in the fan spectra. This typically indicates fit looseness. Shaft may be worn. Ensure sheave hub is tight and perform lift check of fan shaft with dial indicator to confirm shaft defection. Also ensure fan is tight on shaft. **Unit needs attention as scheduling allows.** Rated as **CLASS III** a defect

#8 Combustion Blower

Blower data is indicating that bearing may need to be greased. Data also shows some signs of minor defects in the bearings. 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. Bearings need to be replaced 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 fan rpm vibration has dropped from 1 ips-pk to .6 ips at the fan inboard vertical. 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 III** defect.

Hydrapulper

The 1gearbox continues to show some signs of gear issue and possible bearing issue. Drive motor is also showing some signs of bearing defect(s) in the motor and rotor bar issue. This motor will likely need attention soon. Rated as a **CLASS II** defect for now.

Mix-up/Reclaim

White Water Mix-up Pump

Pump is very noisy and pump amplitude has increased substantially this month. Drive end of pump shaft is physically moving around which indicates that the bearing is wiped. **Replace pump ASAP**. Rated as a **CLASS IV DEFECT**.

Dump Chest Agitator

Agitator Gearbox frame and gearbox were physically rocking back and forth. Frame is likely cracked. Motor still has a significant 1 x rpm motor horizontal vibration. 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 III** 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 was found to be cracked last month, and it is unclear if this issue has been repaired. Motor vibration has decreased some; however, 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.

#2 White Water Loop Pump

Pump was not in service this month. If no actions have been taken, then the following still applies: Vibration data of the motor indicates defects are present in the motor bearing. Motor needs to be replaced as soon as practical. Rated as a **CLASS III** 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.

#3 Mix Tank Discharge Pump

Motor data shows some rotor bar issues we will continue to monitor this. Rated as a **CLASS I** defect.

Fiberglass

#2 Oven Circulation Fan

Motor has high 1 x rpm vibration in the vertical direction. Ensure all fasteners are tight and check sheaves for issues such as wear and misalignment. Rated as a **CLASS III** defect.

Board Line 3

Machine Chest Pump 3B

Motor is starting to show signs of bearing defects in the motor bearings. We will monitor this closely. Rated as a **CLASS III** defect.

Board Line Main Drive

Overall amplitude has doubled since last 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. **An online and offline PdMA test should be performed during the July shutdown also clarify this issue Should be scheduled**. 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

Pump was not in service this month. If no actions have been taken, then the following still applies:

Vibration spectra of the motor signs of bearing defects of the drive end bearing. Acceleration has increased from .54 G To 9.54 G's motor needs replaced as scheduling allows. Rated as a **CLASS III** defect.

#2 Former White-Water Pit Pump

Motor high frequency acceleration. Motor is showing strong signs of bearing defects in the spectral data. 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 Pumps (1,2, and 3)

We are seeing some mid to high frequency noise floor in the motor spectra on all three motors. 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.

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. The pump has a high 1x at vain pass tis is typically due to vain restriction pump needs to be cleaned Rated as a **CLASS II** defect.

Vacuum Pump #3

Motor vibration data has been showing some possible lubrication issues; however, data is showing signs of bearing defects likely present in the outboard motor bearing. Motor may need attention in the near future. 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. **BLOWER NEEDS ATTENTION SOON** These are signs of bearing defects/wear. **Bearings should be scheduled for replacement as soon as scheduling allows.** Rated as a **CLASS III** defect for now.

Finishing

#3 Finishing Baghouse Dust Collector

This fan had a failure earlier this year and damaged the inner cone and fan wheel. New bearings are showing some noise floor in the mid frequency range. This type of vibration should not be present with new bearings unless they are dry or defective. The motor is also showing signs of a rotor bar issue. We will monitor this issue closely. For now, ensure bearings have adequate grease. 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 III** 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. Sheave 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,

Chris E Senter

ISO Certified Vibration Analyst, Category I



Cell: 901-430-2620

Email: csenter@gohispeed.com

