

September 18, 2019

TMK-IPSCO

Subject: September vibration service report

Most of the machines surveyed were found to be in good condition with the exception of the following:

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.

This completes our assessment of your equipment for this survey. Thank you for your business and don't hesitate to call if you have any comments or questions.

Sincerely,

David W. Shook
Service Manager

QualiTest® Diagnostics
Division of **Hi-Speed Industrial Service**
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Detailed Defects

Heat Treat South Quench Pump

Vibrations have dropped to normal after replacement.
No further action required.

Observations

Heat Treat North Quench Pump

Unit vibrations are up somewhat, even after the repairs for the close South Pump. Check for debris lodged in the impeller, and flow rates if possible.

Rated a Class I Defect.

Heat Treat Hydro Hydraulics #2, #3 Pump (Large South and Middle Pump)

Pump axial at vane/piston pass overall fundamental or first harmonic have increased for the South pump and dropped slightly for the middle pump. Inspect the system for proper operation. We will keep an eye on this one. **Rated Class II for the South Pump, and Class I for the Middle Pump.**

#2 Upsetter

Vibration in the motor at what appears to be shaft speed have increased in 2 measurements. The vibration is at 14 Hz or about 840 RPM. We recommend inspecting the drive train in the near future. Check all bolts, sheaves, belts and tension and alignment during the next downtime as time becomes available. **Rated a Class II Defect.**