

July 13, 2021

IFF

Subject: June MS2P area vibration 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 feel free to call if you have any comments or questions.

Sincerely,

David W Shook

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Senior Reliability Specialists

Hi-Speed Industrial Service
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MS2P

14-4007 CIP WTR RINSE TANK HEAT PUMP

Pump input vibration shows a 1x and 2x RPM vibration. Check the coupling and alignment as well as all fasteners and the structure. **Rated a Class II Defect.**

15-3050 FLAKE BIN EXHAUST FAN

Fan shows lower frequency shaft speed harmonic and non-synchronous vibrations. Inspect the fan unit for shaft and bearings for looseness. Check drive train components for wear and alignment. Ensure all fasteners are tight. **Rated a Class I Defect.**

15-3133 #9 CENTRIFUGE DEFOAMER PUMP

Unit data shows a sub synchronous vibration for multiple points. Ensure the structure is sound and all fasteners are tight. **Rated a Class II Defect.**

15-3137 #8 CENTRIFUGE DEFOAMER PUMP

Motor data shows possible multiple 3x RPM harmonics, but the speed does not seem to match database numbers. There could be a coupling or alignment issue, or possibly a bad outer race defect. An outside possibility could be a pump issue, but not likely. Inspect the motor installation. Be prepared to change out the motor. **Rated a Class II Defect.**

15-3141 #9 1ST EXT SHARPLE CENTRIFUGE

Centrifuge inboard bearing shows multiple harmonics in both velocity and acceleration, with acceleration over 17g's RMS overall. The unit belts are also most likely attenuating the amplitudes due to belt tension. The bearings are in bad shape and should be inspected very soon. Inspect the bearing fasteners also to be sure they are tight and not causing excessive movement. **Rated a Class IV Defect.**

15-3149 #6 2ND EXT CENT SHARPLES

The centrifuge inboard bearing shows a strong shaft speed vibration and a few low harmonics. The unit should be cleaned and flushed. Check the bearing fasteners and sheave alignment. Bearing could be slightly loose also. **Rated a Class III Defect.**

15-3151 #8 1ST EXT CENT SHARPLES

Vibration data for the motor shows non-synchronous vibrations in the data that we suspect show early distress in the bearings. Ensure the bearings are lubricated properly if applicable. **Rated a Class I Defect.**

15-3161 #7 1ST EXT CENT SHARPLES

Vibration data at the time of the survey shows a strong shaft speed vibration in the centrifuge bearings as well as a few harmonics. Clean and flush the centrifuge, inspect the bearing fasteners and ensure the bearings are not cocked or have excessive clearances. **Rated a Class III Defect.**

15-3207 #7 CENTRIFUGE DEFOAMER PUMP

The motor data shows what we believe to be a resonant vibration in multiple measurements if the unit is not on a VFD. Vibrations at 17 and 14 Hz are dominant in a few points. Inspect the unit for structural issues as well as possible pipe strain or loose or missing fasteners. **Rated a Class II Defect.**

15-3224 MS2P CLARIFIED TANK PUMP

The motor vibration data continues to show a dominant shaft speed vibration. Inspect the installation for loose fasteners, coupling defects and alignment. Look for any other damage in the unit. **Rated a Class II Defect.**

15-3237 E WASHING RESLURRY TANK PUMP

The motor vibration data continues to show a dominant shaft speed vibration. Inspect the installation for loose fasteners, coupling defects and alignment. Look for any other damage in the unit. **Rated a Class II Defect.**

15-3246 C-30 #1 WASHING CENTRIFUGE

The motor vibration data continues to show a dominant motor speed vibration, especially in axial measurements. Inspect the installation for loose fasteners, drive train wear, eccentricity, and alignment. Look for any other damage in the unit. **Rated a Class II Defect.**

15-3266 C-30 #3 WASHING CENTRIFUGE

The motor vibration data continues to show a dominant centrifuge speed vibration. Inspect the installation for loose fasteners, drive train wear, eccentricity, and alignment. Look for any other damage or defects in the unit. **Rated a Class II Defect.**

15-3276 C-30 #4 WASHING CENTRIFUGE

The motor vibration data continues to show a dominant centrifuge speed vibration. Inspect the installation for loose fasteners, drive train wear, eccentricity, and alignment. Look for any other damage or defects in the unit. **Rated a Class I Defect.**

15-3289 W WASHING RESLURRY TANK PUMP

Vibration data for the motor shows very strong motor 1x RPM vibrations throughout the motor. Check all fasteners and structures, the coupling or drive train components for defects, wear, eccentricity, and alignment. **Rated a Class III Defect.**

15-3296 #4 CONCENTRAT CENT SHARPLES

Centrifuge has elevated shaft speed vibration in the inboard bearing and a few harmonics of a lesser shaft speed vibration in the outboard bearing. Clean and flush the unit. Check the outboard bearing for slight looseness or for being cocked. **Rated a Class II Defect.**

15-3304 #2 CONCENTRAT CENT SHARPLES

The centrifuge input bearing is showing modulation in the time waveform above the spectrum F-MAX. Overall acceleration us also up. Consider adjusting the AP set to help identify these higher frequencies. Clean and flush the centrifuge. Inspect the inboard bearing. **Rated a Class II Defect.**

15-3320 #3 CONCENTRAT CENT SHARPLES

Centrifuge has elevated shaft speed vibration in the inboard bearing including a few harmonics. Clean and flush the unit. Check the outboard bearing for slight looseness or for being cocked. **Rated a Class II Defect.**

15-3352 MS2P SOUTH CHILL TANK PUMP

Both the motor and pump seem to be suffering from what are most likely strong bearing defects. Replacement of the motor and pump is recommended before the end of the year. **Rated a Class II Defect.**

15-3475 E VACUUMIZER DISCHARGE PUMP

A 6x RPM vibration dominated the inboard pump measurement. Vane pass is suspected. Check the pump operational parameters to ensure pump is in proper part of the curve. Check all fasteners also. **Rated a Class II Defect.**

15-3562 E HYDROLISIS DISCHARGE PUMP

Pump has a large increase in 1x RPM vibration. Inspect the unit for loose fastener sand a coupling issue first. The pump impeller could be worn, damaged, or have something stuck on it also. **Rated a Class II Defect.**

15-3712 MS2P BLENDER ASP FAN

First data on unit. Spectrum shows a few vibration peaks of interest. We suspect drive train issues and possible imbalance. Ensure all fasteners are tight and structures are free of defects. Inspect drive train components for wear and alignment. Please make sure fan motor and speed is correct in the database. **Rated a Class III Defect.**

15-3843 2P FD FILTER TRANSFER BLOWER

The motor data shows that possible early bearing defect frequencies are present. There is also some blower shaft speed vibrations in the motor. Ensure the motor bearings are lubricated if applicable. Check drive train components for wear, eccentricity, alignment, and ensure all structures and fasteners are good. **Rated a Class II Defect.**

15-3844 MS2P FEED DRYER EXHAUST FAN

Motor data suggests wear in drive train components. Inspect as time allows. Check fasteners. **Rated a Class I Defect.**

15-3847 MS2P FEED DRYER INLET FAN

Motor data suggests the bearings are in distress. Be prepared to change out the motor in the future. **Rated a Class II Defect.**

15-3848 FEED DRYER COMBUSTION FAN

First data. Strong vibration at 25 Hz in motor. Please confirm that database shaft speeds are correct for the motor and fan. Inspect all aspects of the unit soon. **Rated a Class III Defect.**
Note: Vibration tech notated a guarding issue for this unit.

15-3862 MS2P FEED MILL RCVR VENT FAN

First data. Dominant suspected motor speed vibration in motor. Multiple other vibration close by in the spectrum. Please confirm that database shaft speeds are correct for the motor and fan. Inspect all aspects of the unit soon. **Rated a Class II Defect.**
Note: Vibration tech notated a guarding issue for this unit.

15-3863 FEED RECYC RECEIVER VENT FAN

First data. Vibration data for the inboard fan bearing shows a strong non-synchronous vibration with multiple harmonics. This analysis is based on the fan speed being correct in the database. We suspect outer race bearing defects. **Rated a Class II Defect.**

15-4019 CIP CAUSTIC RECIRC HEAT PUMP

Motor still has an elevated 1x RPM axial vibration. Inspect for coupling and alignment issues. Perform a run out check and ensure all fasteners are tight. **Rated a Class II Defect.**

15-4085 #1 CONCENTRATI CENT SHARPLES

Centrifuge inboard bearing shows a shaft speed vibration and multiple low harmonics. Clean and flush the centrifuge. Check the bearing fasteners and make sure the bearing is not cocked and that drive belts and sheaves are aligned and tensioned properly. **Rated a Class II Defect.**

15-4203 HOT WATER PUMP PRESS IND IN

Motor has a strong 1x RPM radial and axial vibration. Inspect for coupling and alignment issues. Perform a run out check and ensure all fasteners are tight. It will be a class 3 if the amplitude rises next time. **Rated a Class II Defect.**

15-4460 WASTE WATER HEAT RECOVERY PUMP

Motor has an elevated 1x RPM vibration, and the pump shows multiple harmonics of the same fundamental vibration. The pump bearing fits could be loose, and there could be a coupling or alignment issue as well as loose fasteners. Inspect the unit. **Rated a Class II Defect.**

15-8008 MS2P STATIC FLUID BED FAN

Unit has a dominant vibration near what could be 1200 RPM in the motor. Please adjust the data base to reflect accurate motor and fan speeds. Fan bearings show possible early defect frequencies. Inspect the unit fasteners and drive train. **Rated a Class II Defect.**

15-8064 #1 CMC NE BAGHOUSE BLOWER

Harmonics of blower shaft speed have increased recently. We suspect early wear or higher loading. Information only. **Rated a Class I Defect.**

15-8069 NW & NE BH CONE HEATER FAN

Motor has a very high fan speed vibration, especially in the axial. Inspect the unit drive train components for wear, eccentricity, and alignment. Ensure all fasteners are tight and structures are sound. **Rated a Class III Defect.**

15-8074 #4 CMC SE BAGHOUSE BLOWER

Harmonics of blower shaft speed have increased recently. We suspect early wear or higher loading. Information only. **Rated a Class I Defect.**

15-8089 SW & SE BH CONE HEATER FAN

Motor has a very high fan speed vibration, especially in the vertical. Inspect the unit drive train components for wear, eccentricity, and alignment. Ensure all fasteners are tight and structures are sound. **Rated a Class II Defect.**

15-8100 MS2P VF BAGHOUSE EXHAUST FAN

Unit has a dominant vibration near 25 Hz in the fan. Please adjust the data base to reflect accurate motor and fan speeds. Inspect the unit. Check all fasteners and drive train components. **Rated a Class II Defect.**

15-9241 W VACUUMIZER PUMP

Pump has what looks like high 4x RPM vibration which is pump pass we assume. Inspect the pump for high loading. **Rated a Class III Defect.**