HI-SPEED INDUSTRIAL SERVICE

MILLINGTON, TN

July 22, 2021

Plaskolite

Subject: July vibration report

Most of the machines surveyed were found to be in good condition, with 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,

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Data

Blower Slow Cooling (Lower)

The acceleration is still high at 21 g's RMS for the drive end bearing. Speed affects vibrations. It appears fluting is still the issue. We believe the bearing damage needs to be addressed in the future. Replace the bearings or complete motor as time allows. Take steps to reduce bearing fluting going forward. **Rated a Class III Defect.**

Blower Slow Cooling (Upper), and Both Rapid Cooling Blowers

The acceleration overalls are between 4 and 7 g's RMS for the drive end bearings. Fluting is suspected. Speed affects vibration amplitude. No Immediate action required. **Rated a Class I Defect.**

West Syrup Pump

Pump data shows a vibration at near 34 Hz which we believe to be pump impeller vane pass at about 1.7"/second velocity peak. Data also seems to indicate gear mesh vibrations are elevation the overall pump vibrations. Check for flow restrictions and make sure the couplings are in good working order. **Rated a Class III Defect.**

Hot Water Pumps 1, 3, 4

Overall vibrations are between 0.33 and 0.45"/second velocity peak overall. There appears to be two dominant vibrations; running speed and a resonant peak that are beating. Check all fasteners. The pumps could also be slightly worn. Water levels can also affect the vibrations. **Rated a Class I Defect.**

Overall vibration data follows:

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                    Abbreviated Last Measurement Summary
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               Database:  mmaold.rbm
               Station:   PLASKOLITE MEMPHIS
               Route No.  3:  PLASKOLITE NEW
               Report Date:  22-Jul-21   13:46

MEASUREMENT POINT     OVERALL LEVEL       HFD / VHFD      MACHINE SPEED
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5285-09     - FAN,COOLING TWR WEST          (22-Jul-21)
                       OVERALL LEVEL     1-20 KHz
       W1                .011 In/Sec       .027 G-s         430.0 RPM
       W2                .020 In/Sec       .018 G-s

5285-11     - FAN,COOLING TWR MIDDLE        (22-Jul-21)
                       OVERALL LEVEL     1-20 KHz
       M1                .020 In/Sec       .042 G-s         430.0 RPM
       M2                .021 In/Sec       .027 G-s
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5285-21 - RETURN AIR FAN 100 AREA (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.060 In/Sec	.064 G-s	1745.0 FPM
21	.081 In/Sec	.023 G-s	
23	.076 In/Sec	.026 G-s	
71	.066 In/Sec	.024 G-s	
81	.073 In/Sec	.027 G-s	

S1100 - FLARE BLOWER (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.027 In/Sec	.017 G-s	3450.0 FPM
12	.025 In/Sec	.016 G-s	
13	.021 In/Sec	.017 G-s	

5214-04 - EAST SYRUP COOL PUMP (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.031 In/Sec	.072 G-s	1180.0 RPM
21	.033 In/Sec	.084 G-s	
23	.037 In/Sec	.140 G-s	
31	.057 In/Sec		
61	.072 In/Sec		
71	.079 In/Sec	.018 G-s	
81	.049 In/Sec	.022 G-s	

5214-03 - MIDDLE SYRUP COOL PUMP (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.070 In/Sec	.104 G-s	1180.0 RPM
21	.057 In/Sec	.064 G-s	
23	.078 In/Sec	.013 G-s	
31	.188 In/Sec		
61	.193 In/Sec		
71	.093 In/Sec	.037 G-s	
81	.067 In/Sec	.017 G-s	

5214-01 - WEST SYRUP COOL PUMP (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.614 In/Sec	.464 G-s	1180.0 RPM
21	.734 In/Sec	.652 G-s	
23	.365 In/Sec	.096 G-s	
31	1.071 In/Sec		
61	1.413 In/Sec		
71	1.787 In/Sec	3.219 G-s	
81	1.382 In/Sec	.609 G-s	

5282-02 - PUMP #1 HOT WATER 5282-02 (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.446 In/Sec	1.540 G-s	1800.0 RPM
12	.369 In/Sec	.864 G-s	

5282-04 - PUMP #3 HOT WATER 5282-04 (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.248 In/Sec	.369 G-s	1800.0 RPM
12	.330 In/Sec	.388 G-s	

5282-05 - PUMP #4 HOT WATER 5282-05 (22-Jul-21)

	OVERALL LEVEL	1-20 KHz

11	.352 In/Sec	.478 G-s	1800.0 RPM
12	.327 In/Sec	.796 G-s	

5283-01 - BLOWER, EDGE WATER REMOVAL (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.113 In/Sec	.121 G-s	3600.0 RPM
21	.120 In/Sec	.141 G-s	
23	.094 In/Sec	.124 G-s	
71	.045 In/Sec	1.553 G-s	
81	.149 In/Sec	.827 G-s	

5281-12 - BLOWER,SLOW COOLING (UPPER) (22-Jul-21)

	OVERALL LEVEL	1-20 KHZ	
11	.089 In/Sec	2.409 G-s	1770.0 RPM
	OVERALL LEVEL	1-20 KHz	
21	.076 In/Sec	7.236 G-s	
23	.096 In/Sec	1.204 G-s	
71	.052 In/Sec	.770 G-s	
81	.055 In/Sec	.811 G-s	

5281-13 - BLOWER,SLOW COOLING (LOWER) (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.095 In/Sec	7.304 G-s	1770.0 RPM
21	.113 In/Sec	15.64 G-s	
	OVERALL LEVEL	1-20 KHZ	
21H	.804 In/Sec	21.36 G-s	
	OVERALL LEVEL	1-20 KHz	
23	.087 In/Sec	5.592 G-s	
71	.190 In/Sec	.549 G-s	
81	.176 In/Sec	.326 G-s	

5281-14 - BLOWER,RAPID COOLING (UPPER) (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.079 In/Sec	2.322 G-s	1770.0 RPM
21	.146 In/Sec	6.145 G-s	
23	.087 In/Sec	.914 G-s	
71	.060 In/Sec	.261 G-s	900.0 RPM
81	.065 In/Sec	.131 G-s	

5281-08 - BLOWER,RAPID COOLING (LOWER) (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.029 In/Sec	1.849 G-s	1770.0 RPM
21	.162 In/Sec	4.223 G-s	
23	.030 In/Sec	.880 G-s	
71	.029 In/Sec	.213 G-s	900.0 RPM
81	.028 In/Sec	.252 G-s	

5281-10 - 200 BELT DRIVE, POLYMERIZER (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.041 In/Sec	.685 G-s	1800.0 FPM
21	.038 In/Sec	.359 G-s	
33	.014 In/Sec	.045 G-s	
31	.036 In/Sec	.043 G-s	
61	.0071 In/Sec	.085 G-s	
71	.0040 In/Sec	.0022 G-s	
81	.0027 In/Sec	.0018 G-s	

Clarification Of Vibration Units:

Acc	**-->**	**G-s**	**PK**
Vel	**-->**	**In/Sec**	**PK**