HI-SPEED INDUSTRIAL SERVICE

MILLINGTON, TN

September 25, 2020

Plaskolite

Subject: September 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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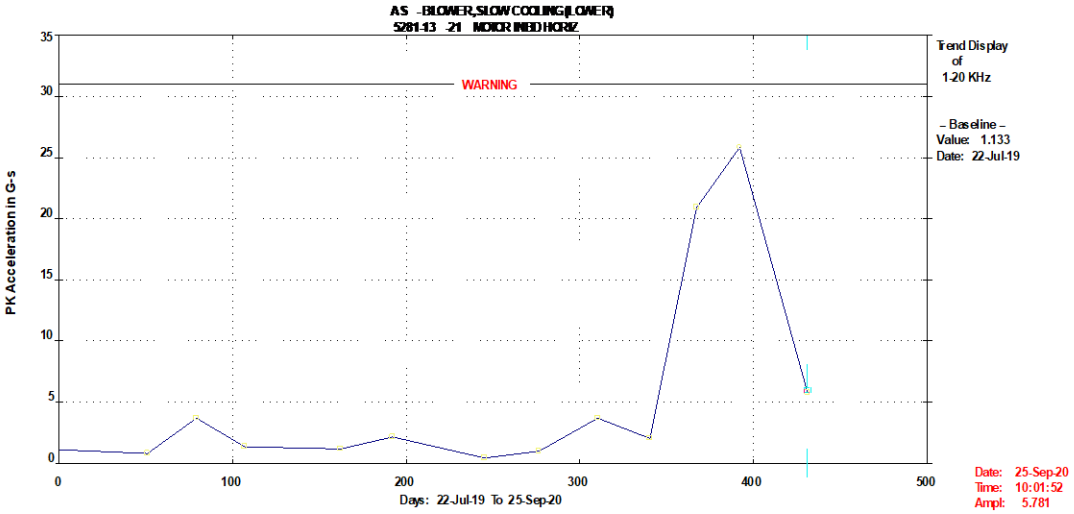
Data

Blower Slow Cooling (Lower)

The RPM and the acceleration overall have dropped to about 900 and 8 g's RMS respectively for the unit and drive end bearing. Speed affects vibrations. It appears fluting is still the issue; however, there is a slight possibility of rotor bar issues. Even though the acceleration has significantly dropped, bearing damage needs to be addressed in the near future. Replace the bearings or complete motor as time allows. Take steps to reduce bearing fluting going forward. **Rated a Class II Defect.**



Blower Slow Cooling (Upper)

The acceleration overall shows over 3 g's RMS for the drive end bearing. Speed affects vibration amplitude. We will keep an eye on this one. No Immediate action required. **Rated a Class II Defect.**

West Syrup Cool Pump

A dominant 35 Hz vibration in the inboard end of the pump suggests vane pass. The vibration peak has 3 Hz sidebands which suggests there is looseness on the output shaft, possibly the impeller or coupling. Overall amplitude is over 0.56"/sec velocity peak. This is the largest vibration for this point trend. Flow restrictions or other process issues could exacerbate the defect. **Rated a Class III Defect.**

Vertical Hot water pumps

Pumps 4, 5 (East) has vibrations at almost 0.5"/sec velocity peak respectfully. **Rated a Class I Defect.**

Overall vibrations follow:

Abbreviated Last Measurement Summary

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Database: mmaold.rbm
Station: PLASKOLITE MEMPHIS
Route No. 3: PLASKOLITE NEW
Report Date: 25-Sep-20 16:16

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
5285-09 - FAN,COOLING TWR WEST	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
W1 - CELL FRAME -WEST END N-S DIR	.015 In/Sec	.054 G-s
W2 - CELL FRAME -WEST END E-W DIR	.028 In/Sec	.020 G-s
5285-11 - FAN,COOLING TWR MIDDLE	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
M1 - CELL FRAME -MIDDLE N-S DIR	.0084 In/Sec	.044 G-s
M2 - CELL FRAME -MIDDLE E-W DIR	.0087 In/Sec	.081 G-s
5285-21 - RETURN AIR FAN 100 AREA	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
11 - MOTOR OUTBD HORIZ	.056 In/Sec	.056 G-s
21 - MOTOR INBD HORIZ	.064 In/Sec	.030 G-s
23 - MOTOR INBD AXIAL	.062 In/Sec	.0070 G-s
71 - FAN INBD (ON FRAME UNDER BRG)	.059 In/Sec	.029 G-s
81 - FAN OUTBD (ON FRAME UNDER BRG)	.075 In/Sec	.020 G-s
S1100 - FLARE BLOWER	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
11 - MOTOR FLARE STACK END HORIZ	.014 In/Sec	.013 G-s
12 - MOTOR FLARE STACK END VERT	.014 In/Sec	.012 G-s
13 - MOTOR FLARE STACK END AXIAL	.012 In/Sec	.013 G-s
5214-04 - EAST SYRUP COOL PUMP	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
11 - MOTOR OUTBOARD HORIZONTAL	.038 In/Sec	.061 G-s
21 - MOTOR INBOARD HORIZONTAL	.036 In/Sec	.139 G-s
23 - MOTOR INBOARD AXIAL	.014 In/Sec	.146 G-s
31 - GEARBOX INPUT HORIZONTAL	.051 In/Sec	
61 - GEARBOX OUTPUT SHAFT HORIZ	.062 In/Sec	
71 - PUMP COUPLING END HORIZ	.101 In/Sec	.056 G-s
81 - PUMPIMPELLER END HORIZ	.066 In/Sec	.030 G-s
5214-03 - MIDDLE SYRUP COOL PUMP	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
11 - MOTOR OUTBOARD HORIZONTAL	.061 In/Sec	.092 G-s
21 - MOTOR INBOARD HORIZONTAL	.050 In/Sec	.133 G-s
23 - MOTOR INBOARD AXIAL	.040 In/Sec	.089 G-s
31 - GEARBOX INPUT HORIZONTAL	.135 In/Sec	
61 - GEARBOX OUTPUT SHAFT HORIZ	.150 In/Sec	
71 - PUMP COUPLING END HORIZ	.068 In/Sec	.0088 G-s
81 - PUMP IMPELLER END HORIZ	.053 In/Sec	.049 G-s
5214-01 - WEST SYRUP COOL PUMP	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz

11 - MOTOR OUTBOARD HORIZONTAL	.112 In/Sec	.111 G-s
21 - MOTOR INBOARD HORIZONTAL	.081 In/Sec	.150 G-s
23 - MOTOR INBOARD AXIAL	.092 In/Sec	.064 G-s
31 - GEARBOX INPUT HORIZONTAL	.159 In/Sec	
61 - GEARBOX OUTPUT HORIZ	.169 In/Sec	
71 - PUMP CPLG END HORIZ	.561 In/Sec	.158 G-s
81 - PUMP IMPELLER END HORIZ	.283 In/Sec	.039 G-s

5282-02 - PUMP #1 HOT WATER 5282-02	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
11 - #1 Hot Water Pump Mtr Top N-S	.082 In/Sec	1.172 G-s
12 - #1 Hot Water Pump Mtr Top E-W	.099 In/Sec	1.009 G-s

5282-05 - PUMP #4 HOT WATER 5282-05	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
11 - #4 Hot Water Pump Mtr Top N-S	.463 In/Sec	.557 G-s
12 - #4 Hot Water Pump Mtr Top E-W	.389 In/Sec	1.268 G-s

5282-06 - PUMP #5 HOT WATER 5282-06	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
11 - #5 Hot Water Pump Mtr Top N-S	.475 In/Sec	.809 G-s
12 - #5 Hot Water Pump Mtr Top E-W	.304 In/Sec	.856 G-s

5283-01 - BLOWER, EDGE WATER REMOVAL	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
11 - MOTOR OUTBOARD HORIZONTAL	.080 In/Sec	.133 G-s
21 - MOTOR INBOARD HORIZONTAL	.090 In/Sec	.115 G-s
23 - MOTOR AXIAL	.071 In/Sec	.116 G-s
71 - BLOWER COUPLING END HORIZONTAL	.046 In/Sec	.489 G-s
81 - BLOWER WHEEL END HORIZONTAL	.084 In/Sec	.465 G-s

5281-12 - BLOWER,SLOW COOLING (UPPER)	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
11 - MOTOR OUTBD HORIZ	.047 In/Sec	2.621 G-s
21 - MOTOR INBD HORIZ	.044 In/Sec	3.092 G-s
23 - MOTOR INBD AXIAL	.034 In/Sec	1.082 G-s
71 - FAN INBD (ON PILLOWBLOCK FOOT)	.039 In/Sec	.398 G-s
81 - FAN OUTBD (ON PILLOWBLOCK FOOT)	.046 In/Sec	.325 G-s

5281-13 - BLOWER,SLOW COOLING (LOWER)	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
11 - MOTOR OUTBD HORIZ	.082 In/Sec	2.941 G-s
21 - MOTOR INBD HORIZ	.099 In/Sec	5.781 G-s
21H - MOTOR INBD HORIZ	.281 In/Sec	
23 - MOTOR INBD AXIAL	.073 In/Sec	1.866 G-s
71 - FAN INBD (ON PILLOWBLOCK FOOT)	.027 In/Sec	.213 G-s
81 - FAN OUTBD (ON PILLOWBLOCK FOOT)	.024 In/Sec	.167 G-s

5281-14 - BLOWER,RAPID COOLING (UPPER)	(25-Sep-20)	
	OVERALL LEVEL	1-20 KHz
11 - MOTOR OUTBD HORIZ	.124 In/Sec	.689 G-s
21 - MOTOR INBD HORIZ	.227 In/Sec	2.295 G-s
23 - MOTOR INBD AXIAL	.144 In/Sec	.333 G-s
71 - FAN INBD (ON PILLOWBLOCK FOOT)	.022 In/Sec	.089 G-s
81 - FAN OUTBD (ON PILLOWBLOCK FOOT)	.020 In/Sec	.115 G-s

5281-08 - BLOWER,RAPID COOLING (LOWER) (25-Sep-20)

		OVERALL LEVEL	1-20 KHz
11	- MOTOR OUTBD HORIZ	.068 In/Sec	.227 G-s
21	- MOTOR INBD HORIZ	.055 In/Sec	.925 G-s
23	- MOTOR INBD AXIAL	.092 In/Sec	.914 G-s
71	- FAN INBD (ON PILLOWBLOCK FOOT)	.023 In/Sec	.077 G-s
81	- FAN OUTBD (ON PILLOWBLOCK FOOT)	.020 In/Sec	.081 G-s

5281-10 - 200 BELT DRIVE, POLYMERIZER (25-Sep-20)

		OVERALL LEVEL	1-20 KHz
11	- MOTOR OUTBOARD HORIZ	.029 In/Sec	.552 G-s
21	- MOTOR INBD HORIZ	.036 In/Sec	.275 G-s
33	- GEARBOX INPUT AXIAL	.038 In/Sec	.164 G-s
31	- GEARBOX INPUT HORIZ	.017 In/Sec	.204 G-s
61	- GEARBOX OUTPUT HORIZ	.0051 In/Sec	.061 G-s
71	- INBOARD PILLOWBLOCK	.0031 In/Sec	.0022 G-s
81	- OUTBOARD PILLOWBLOCK	.0029 In/Sec	.0019 G-s

Clarification Of Vibration Units:

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