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June 25, 2025

NUCOR Melt Shop

Subject: June 2025 vibration survey

Below is a summary report for the Melt Shop monthly vibration survey that was performed on 06/23/25. Most of the machines surveyed were found to be in good condition except for 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.

As always, it has been a pleasure to serve NUCOR Steel Flowood-Jackson, MS. If there are any comments or questions, do not hesitate to contact us.

Sincerely,

ISO Certified Vibration Analyst, Category III

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Defects

Middle Caster Mold Water Pump

Pump was down this survey; however, the following likely still applies: Vibration data shows issues in the pump. Data suggests looseness/wear of the pump bearings/fits. Impeller and other pump internals may also have wear. The pump will likely need attention soon. Rated as a **CLASS II** defect.

East Caster Mold Water Pump

Pump has some vibrations associated with vane pass. This could be an issue with the impeller. We are monitoring this closely. Rated as a **CLASS I** defect.

East Booster Pump

Pump was down this survey; however, the following likely still applies: Motor vibration data indicates defects are present in the motor bearings. Inspect motor as scheduling allows. Rated as a **CLASS III** defect.

Cooling Tower #1 Supply Pump

Pump has some elevated 1 x rpm DE vibration (horizontal and axial). For now, it is recommended to inspect pump coupling, alignment, and all pump fasteners as scheduling allows. Rated as a **CLASS II** defect.

Cooling Tower #4 Supply Pump

Pump data shows some signs of bearing defects/wear in the ODE pump bearing. Inspect pump as scheduling allows. Rated as a **CLASS III** defect.

Cooling Tower #5 Supply Pump

Pump has some elevated 1 x rpm axial vibration. For now, it is recommended to inspect couplings, alignment, and all pump fasteners as scheduling allows. Rated as a **CLASS II** defect.

Cooling Tower #6 Supply Pump

The pump vibration data still indicates that there is bearing wear, and possibly cavitation in the pump. Inspect ODE pump bearing. Ensure the pump has no inlet restrictions and is operating in the correct part of the curve. Impeller may have excessive wear. Rated as a **CLASS II** defect.

Spray Chamber Exhaust Fan

Overall, the unit looks better. Motor does have some 1 motor rpm vibration. Inspect all motor base mounts/fasteners and sheave alignment. Rated as a **CLASS I** defect.

Middle Caster Oscillator Drive

Drive was not in service. If no actions have been taken, then the following likely still applies: Overall vibration has increased in this unit. Unit has visible movement. Gear drive appears to be loose to the base. Inpsect all fasteners asap. Rated as a **CLASS III** defect.

Abbreviated Last Measurement Summary

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Database: nucorja9.rbm
Station: Melt Shop

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
WCMWP - WEST CASTER MOLD WATER PUMP (23-Jun-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.082 In/Sec	.127 G-s
MIH	.081 In/Sec	.340 G-s
MIA	.100 In/Sec	.414 G-s
PIA	.284 In/Sec	.623 G-s
PIH	.226 In/Sec	.624 G-s
POH	.307 In/Sec	.540 G-s
ECMWP - EAST CASTER MOLD WATER PUMP (23-Jun-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.117 In/Sec	.382 G-s
MIH	.106 In/Sec	.449 G-s
MIA	.074 In/Sec	.818 G-s
PIA	.171 In/Sec	2.500 G-s
PIH	.134 In/Sec	1.355 G-s
POH	.151 In/Sec	1.895 G-s
WBOSTRP - WEST Booster PUMP (23-Jun-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.070 In/Sec	.814 G-s
MIH	.045 In/Sec	.369 G-s
MIA	.051 In/Sec	.238 G-s
PIA	.082 In/Sec	.239 G-s
PIH	.130 In/Sec	1.681 G-s
POH	.245 In/Sec	2.947 G-s
ECSWP 1LFT - EAST CASTER SPRAY WP 1 LEFT (23-Jun-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.077 In/Sec	.142 G-s
MIH	.078 In/Sec	.264 G-s
MIA	.067 In/Sec	.110 G-s
MCSWP 2LFT - MID CASTER SPRAY WP 2 LEFT (23-Jun-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.102 In/Sec	.453 G-s
MIH	.071 In/Sec	.825 G-s
MIA	.063 In/Sec	.174 G-s
MCSWP 3RT - MID CASTER SPRAY WP 3 RIGHT (23-Jun-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.070 In/Sec	.220 G-s
MIH	.064 In/Sec	.382 G-s
MIA	.073 In/Sec	.295 G-s
WCSWP 4RT - WEST CASTER SPRAY WP 4 RIGH (23-Jun-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.157 In/Sec	.171 G-s
MIH	.135 In/Sec	.730 G-s
MIA	.087 In/Sec	.781 G-s
ESERVOHYDP - EAST SERVO Hyd PUMP (23-Jun-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.041 In/Sec	.267 G-s
MIH	.082 In/Sec	.884 G-s
PIV	.147 In/Sec	.443 G-s

WSERVOHYDP - WEST SERVO Hyd PUMP (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.119 In/Sec	.220 G-s
MIH	.095 In/Sec	.357 G-s
PIV	.171 In/Sec	1.218 G-s

SERVOHRECP - SERVO Hyd RECIRC PUMP (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.092 In/Sec	.175 G-s
MIH	.081 In/Sec	.924 G-s
PIV	.127 In/Sec	.876 G-s

N2DECKHYDP - North 2ND DECK Hyd PUMP (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.178 In/Sec	.371 G-s
MIH	.100 In/Sec	.420 G-s
PIV	.233 In/Sec	3.707 G-s

2DEKRECIP - 2ND DECK L&S Hyd RECIRC PUM (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.073 In/Sec	.192 G-s
MIH	.107 In/Sec	.239 G-s
PIV	.183 In/Sec	1.135 G-s

S2DECKHYDP - SOUTH 2ND DECK Hyd PUMP (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.087 In/Sec	.560 G-s
MIH	.031 In/Sec	1.370 G-s
PIV	.516 In/Sec	3.637 G-s

1SUPLYP - #1 Supply Pump (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.108 In/Sec	.219 G-s
MIH	.163 In/Sec	.177 G-s
MIA	.225 In/Sec	.112 G-s
PIA	.630 In/Sec	.571 G-s
PIH	.410 In/Sec	.469 G-s
POH	.234 In/Sec	.595 G-s

2SUPLYP - #2 Supply Pump (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.067 In/Sec	.661 G-s
MIH	.067 In/Sec	.757 G-s
MIA	.093 In/Sec	.436 G-s
PIA	.198 In/Sec	.257 G-s
PIH	.254 In/Sec	.333 G-s
POH	.250 In/Sec	.734 G-s

4SUPLYP - #4 Supply Pump (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.046 In/Sec	.918 G-s
MIH	.055 In/Sec	.609 G-s
MIA	.080 In/Sec	.449 G-s
PIA	.251 In/Sec	.986 G-s
PIH	.168 In/Sec	.595 G-s
POH	.298 In/Sec	2.809 G-s

5SUPLYP - #5 Supply Pump (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.065 In/Sec	1.042 G-s
MIH	.108 In/Sec	.463 G-s
MIA	.151 In/Sec	.413 G-s
PIA	.909 In/Sec	.664 G-s
PIH	.307 In/Sec	1.118 G-s
POH	.364 In/Sec	1.457 G-s

6SUPLYP - #6 Supply Pump (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.054 In/Sec	.207 G-s
MIH	.081 In/Sec	.132 G-s

MIA	.074 In/Sec	.087 G-s	
PIA	.134 In/Sec	.369 G-s	
PIH	.174 In/Sec	.251 G-s	
POH	.215 In/Sec	1.502 G-s	

CBRA - CASTER BAGHOUSE REVERSE AIR (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.017 In/Sec	.387 G-s
MIH	.021 In/Sec	.250 G-s
MIA	.017 In/Sec	.029 G-s
FIH	.023 In/Sec	.318 G-s
FOH	.037 In/Sec	.192 G-s

CBID - CASTER BAGHOUSE ID FAN (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.029 In/Sec	.058 G-s
MOV	.017 In/Sec	.081 G-s
MIH	.034 In/Sec	.036 G-s
MIV	.027 In/Sec	.175 G-s
MIA	.017 In/Sec	.157 G-s
FIA	.048 In/Sec	.658 G-s
FIH	.055 In/Sec	.932 G-s
FIV	.030 In/Sec	.600 G-s
FOH	.073 In/Sec	2.296 G-s
FOV	.020 In/Sec	1.977 G-s
FOA	.064 In/Sec	1.917 G-s

FRAF - Furnace REVERSE AIR Fan (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.051 In/Sec	.728 G-s
MIH	.034 In/Sec	1.023 G-s
MIA	.023 In/Sec	1.171 G-s
FIA	.044 In/Sec	.160 G-s
FIH	.038 In/Sec	.259 G-s
FOH	.032 In/Sec	.297 G-s

EFBHF - East Furnace Bag House Fan (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.082 In/Sec	.330 G-s
MIH	.080 In/Sec	.589 G-s
MIA	.086 In/Sec	.801 G-s
FIA	.121 In/Sec	1.254 G-s
FIH	.136 In/Sec	1.448 G-s
FOH	.125 In/Sec	1.233 G-s

WFBHF - WEST Furnace Bag House Fan (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.170 In/Sec	.349 G-s
MIH	.203 In/Sec	.279 G-s
MIA	.078 In/Sec	.266 G-s
FIA	.118 In/Sec	.643 G-s
FIH	.162 In/Sec	1.095 G-s
FOH	.110 In/Sec	.940 G-s

MIDCHYDP - MIDDLE CASTER Hyd PUMP (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.082 In/Sec	.234 G-s
MIH	.081 In/Sec	.358 G-s
PIH	.108 In/Sec	.847 G-s

SCHYDP - SOUTH CASTER Hyd PUMP (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.057 In/Sec	.254 G-s
MIH	.058 In/Sec	.529 G-s
PIH	.161 In/Sec	.988 G-s

SCEXFAN - SPRAY CHAMBER EXHAUST Fan (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.458 In/Sec	.194 G-s
MIH	.542 In/Sec	.283 G-s

MIA	.254 In/Sec	.494 G-s
FIH	.151 In/Sec	.961 G-s
FOH	.244 In/Sec	.789 G-s

ENARCOHYDP - EAST NARCO Hyd PUMP (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.043 In/Sec	.028 G-s
MIH	.039 In/Sec	.070 G-s
PIV	.091 In/Sec	.347 G-s

NC OCILLA - North Caster Oscillator (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.120 In/Sec	.106 G-s
MIH	.119 In/Sec	.220 G-s
MIA	.098 In/Sec	.118 G-s
GIA	.117 In/Sec	.453 G-s
GIH	.110 In/Sec	.061 G-s
GOH	.109 In/Sec	.711 G-s

SC OCILLA - South Caster Oscillator (23-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.071 In/Sec	.106 G-s
MIH	.056 In/Sec	.140 G-s
MIA	.046 In/Sec	.100 G-s
GIA	.054 In/Sec	.130 G-s
GIH	.056 In/Sec	.033 G-s
GOH	.058 In/Sec	.110 G-s

Clarification Of Vibration Units:

Acc --> G-s RMS

Vel --> In/Sec PK