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June 4, 2025

NUCOR Melt Shop

Subject: May 2025 vibration survey

Below is a summary report for the Melt Shop monthly vibration survey that was performed on 06/02/25. 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

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
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 Booster Pump
Pump was down this survey; however, the following 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
Data was not taken this month. If no actions have been taken, then the following likely still applies: Motor and fan both have high vibration again this survey. Belts could be slipping which is allowing the fan to operate at speeds near a resonance which causing high 1 x fan rpm vibration in the unit. High 1 x rpm vibration could also be structural issue and or fan imbalance. Inspect all motor base mounts/fasteners. Inspect fan for build-up and inspect belt tension soon. Rated as a **CLASS III** defect.

Middle Caster Oscillator Drive
Data was not taken this month. 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 (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.061 In/Sec	.269 G-s
MIH	.063 In/Sec	.452 G-s
MIA	.073 In/Sec	.198 G-s
PIA	.339 In/Sec	1.167 G-s
PIH	.311 In/Sec	1.012 G-s
POH	.319 In/Sec	.631 G-s

MCMWP - MID CASTER MOLD WATER PUMP (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.102 In/Sec	.490 G-s
MIH	.183 In/Sec	1.078 G-s
MIA	.207 In/Sec	1.971 G-s
PIA	.337 In/Sec	3.222 G-s
PIH	.247 In/Sec	2.618 G-s
POH	.228 In/Sec	3.120 G-s

WBOSTRP - WEST Booster PUMP (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.045 In/Sec	.396 G-s
MIH	.042 In/Sec	.498 G-s
MIA	.048 In/Sec	.264 G-s
PIA	.123 In/Sec	1.422 G-s
PIH	.084 In/Sec	.887 G-s
POH	.186 In/Sec	2.411 G-s

ECSWP 1LFT - EAST CASTER SPRAY WP 1 LEFT (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.080 In/Sec	.225 G-s
MIH	.062 In/Sec	.348 G-s
MIA	.117 In/Sec	.275 G-s

MCSWP 2LFT - MID CASTER SPRAY WP 2 LEFT (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.094 In/Sec	.349 G-s
MIH	.081 In/Sec	.969 G-s
MIA	.096 In/Sec	.260 G-s

WCSWP 4RT - WEST CASTER SPRAY WP 4 RIGH (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.200 In/Sec	.539 G-s
MIH	.147 In/Sec	.565 G-s
MIA	.117 In/Sec	.676 G-s

ESERVOHYDP - EAST SERVO Hyd PUMP (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.050 In/Sec	.555 G-s
MIH	.080 In/Sec	1.809 G-s
PIV	.123 In/Sec	.927 G-s

WSERVOHYDP - WEST SERVO Hyd PUMP (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.112 In/Sec	.219 G-s
MIH	.136 In/Sec	.300 G-s
PIV	.167 In/Sec	1.436 G-s

SERVOHRECP - SERVO Hyd RECIRC PUMP (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.086 In/Sec	.376 G-s
MIH	.076 In/Sec	.870 G-s

PIV		.159 In/Sec	1.332 G-s

2DEKRECIP - 2ND DECK L&S Hyd RECIRC PUM (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.087 In/Sec	.210 G-s
MIH	.145 In/Sec	.310 G-s
PIV	.246 In/Sec	1.706 G-s

M2DECKHYDP - MIDDLE 2ND DECK Hyd PUMP (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.118 In/Sec	.394 G-s
MIH	.138 In/Sec	.159 G-s
PIV	1.027 In/Sec	.019 G-s

S2DECKHYDP - SOUTH 2ND DECK Hyd PUMP (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.118 In/Sec	.105 G-s
MIH	.087 In/Sec	1.123 G-s
PIV	.501 In/Sec	5.095 G-s

1SUPLYP - #1 Supply Pump (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.121 In/Sec	.154 G-s
MIH	.171 In/Sec	.155 G-s
MIA	.209 In/Sec	.112 G-s
PIA	.572 In/Sec	.621 G-s
PIH	.394 In/Sec	.417 G-s
POH	.224 In/Sec	.455 G-s

2SUPLYP - #2 Supply Pump (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.062 In/Sec	.679 G-s
MIH	.068 In/Sec	.951 G-s
MIA	.088 In/Sec	.432 G-s
PIA	.204 In/Sec	.371 G-s
PIH	.207 In/Sec	.429 G-s
POH	.242 In/Sec	1.448 G-s

4SUPLYP - #4 Supply Pump (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.041 In/Sec	.971 G-s
MIH	.065 In/Sec	.599 G-s
MIA	.091 In/Sec	.498 G-s
PIA	.216 In/Sec	.797 G-s
PIH	.172 In/Sec	.740 G-s
POH	.288 In/Sec	3.147 G-s

5SUPLYP - #5 Supply Pump (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.063 In/Sec	1.064 G-s
MIH	.119 In/Sec	.601 G-s
MIA	.143 In/Sec	.535 G-s
PIA	.782 In/Sec	.873 G-s
PIH	.331 In/Sec	1.003 G-s
POH	.428 In/Sec	.907 G-s

6SUPLYP - #6 Supply Pump (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.048 In/Sec	.206 G-s
MIH	.089 In/Sec	.156 G-s
MIA	.074 In/Sec	.135 G-s
PIA	.136 In/Sec	.371 G-s
PIH	.160 In/Sec	.234 G-s
POH	.186 In/Sec	1.072 G-s

CBRA - CASTER BAGHOUSE REVERSE AIR (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.023 In/Sec	.232 G-s
MIH	.027 In/Sec	.242 G-s
MIA	.018 In/Sec	.128 G-s

	FIH	.018 In/Sec	.048 G-s
	FOH	.058 In/Sec	.236 G-s

CBID - CASTER BAGHOUSE ID FAN (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.053 In/Sec	.089 G-s
MOV	.023 In/Sec	.134 G-s
MIH	.042 In/Sec	.120 G-s
MIV	.029 In/Sec	.136 G-s
MIA	.015 In/Sec	.126 G-s
FIA	.037 In/Sec	.616 G-s
FIH	.057 In/Sec	1.438 G-s
FIV	.032 In/Sec	.713 G-s
FOH	.073 In/Sec	1.218 G-s
FOV	.021 In/Sec	1.782 G-s
FOA	.068 In/Sec	2.095 G-s

FRAF - Furnace REVERSE AIR Fan (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.050 In/Sec	.192 G-s
MIH	.044 In/Sec	1.876 G-s
MIA	.029 In/Sec	1.521 G-s
FIA	.052 In/Sec	.469 G-s
FIH	.044 In/Sec	1.723 G-s
FOH	.039 In/Sec	.932 G-s

EFBHF - East Furnace Bag House Fan (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.078 In/Sec	.369 G-s
MIH	.079 In/Sec	.459 G-s
MIA	.038 In/Sec	.523 G-s
FIA	.073 In/Sec	.987 G-s
FIH	.148 In/Sec	1.612 G-s
FOH	.116 In/Sec	.971 G-s

WFBHF - WEST Furnace Bag House Fan (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.138 In/Sec	.199 G-s
MIH	.171 In/Sec	.279 G-s
MIA	.087 In/Sec	.559 G-s
FIA	.114 In/Sec	.952 G-s
FIH	.167 In/Sec	.677 G-s
FOH	.135 In/Sec	1.930 G-s

MIDCHYDP - MIDDLE CASTER Hyd PUMP (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.098 In/Sec	.496 G-s
MIH	.072 In/Sec	1.045 G-s
PIH	.138 In/Sec	1.353 G-s

SCHYDP - SOUTH CASTER Hyd PUMP (02-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.084 In/Sec	.220 G-s
MIH	.061 In/Sec	.797 G-s
PIH	.124 In/Sec	1.256 G-s

Clarification Of Vibration Units:

Acc --> G-s RMS

Vel --> In/Sec PK