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April 21, 2025

NUCOR Melt Shop

Subject: March 2025 vibration survey

Below is a summary report for the Melt Shop monthly vibration survey that was performed on 04/17/25. 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.

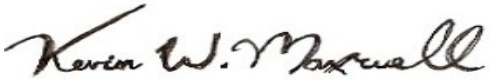
Class II: Defect (s) present that may cause problem in long term (2-6 months). Repair during normal maintenance scheduling. Continue to monitor.

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,



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Defects

Middle Caster Mold Water Pump

Pump was down this survey; however, the following 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 Booster Pump

Motor vibration data indicates defects are present in the motor bearings. Inspect motor as scheduling allows. Rated as a **CLASS III** defect.

Middle Caster Spray Water Pump (2 from the left)

Top motor data shows non-synchronous peaks present that are indicative of bearing faults. This could be a thrust issue. Inspect motor bearing soon. Rated as a **CLASS II** 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 was down this survey; however, the following still applies: 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.

Caster Baghouse Reverse Air Fan

There appears to be a sudden increase in vibration in ODE fan bearing. ODE fan bearing data shows bearing to be defective. ODE fan bearing should be changed out soon. Ensure shaft is in good shape before installing new bearing. Rated as a **CLASS III** defect.

Spray Chamber Exhaust Fan

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

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

Database: nucorja9.rbm
Station: Melt Shop

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
WCMWP - WEST CASTER MOLD WATER PUMP (17-Apr-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.062 In/Sec	.173 G-s
MIH	.070 In/Sec	.223 G-s
MIA	.077 In/Sec	.195 G-s
PIA	.290 In/Sec	.623 G-s
PIH	.245 In/Sec	1.115 G-s
POH	.246 In/Sec	.551 G-s
ECMWP - EAST CASTER MOLD WATER PUMP (17-Apr-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.108 In/Sec	.316 G-s
MIH	.095 In/Sec	.261 G-s
MIA	.268 In/Sec	.244 G-s
PIA	.308 In/Sec	.912 G-s
PIH	.145 In/Sec	2.002 G-s
POH	.175 In/Sec	1.334 G-s
EBOSTRP - EAST Booster PUMP (17-Apr-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.136 In/Sec	1.103 G-s
MIH	.206 In/Sec	2.826 G-s
MIA	.169 In/Sec	1.006 G-s
PIA	.183 In/Sec	.126 G-s
PIH	.167 In/Sec	.211 G-s
POH	.052 In/Sec	.234 G-s
ECSWP 1LFT - EAST CASTER SPRAY WP 1 LEFT (17-Apr-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.142 In/Sec	.267 G-s
MIH	.087 In/Sec	.255 G-s
MIA	.264 In/Sec	.129 G-s
MCSWP 2LFT - MID CASTER SPRAY WP 2 LEFT (17-Apr-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.400 In/Sec	.743 G-s
MIH	.151 In/Sec	1.071 G-s
MIA	.155 In/Sec	.704 G-s
PIA	.131 In/Sec	.636 G-s
MCSWP 3RT - MID CASTER SPRAY WP 3 RIGHT (17-Apr-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.259 In/Sec	.251 G-s
MIH	.125 In/Sec	.694 G-s
MIA	.097 In/Sec	.488 G-s
ESERVOHYDP - EAST SERVO Hyd PUMP (17-Apr-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.062 In/Sec	.370 G-s
MIH	.096 In/Sec	.938 G-s
PIV	.121 In/Sec	.431 G-s
WSERVOHYDP - WEST SERVO Hyd PUMP (17-Apr-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.069 In/Sec	.141 G-s
MIH	.099 In/Sec	.376 G-s
PIV	.124 In/Sec	.492 G-s
SERVOHRECP - SERVO Hyd RECIRC PUMP (17-Apr-25)		
	OVERALL LEVEL	1K-20KHz
MOH	.074 In/Sec	.115 G-s

	MIH	.087 In/Sec	.729 G-s
	PIV	.225 In/Sec	.886 G-s

N2DECKHYDP - North 2ND DECK Hyd PUMP (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.144 In/Sec	.310 G-s
MIH	.107 In/Sec	.422 G-s
PIV	.243 In/Sec	1.476 G-s

2DEKRECIP - 2ND DECK L&S Hyd RECIRC PUM (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.125 In/Sec	.215 G-s
MIH	.147 In/Sec	.234 G-s
PIV	.243 In/Sec	1.213 G-s

S2DECKHYDP - SOUTH 2ND DECK Hyd PUMP (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.073 In/Sec	.694 G-s
MIH	.089 In/Sec	.667 G-s
PIV	.454 In/Sec	1.604 G-s

1SUPLYP - #1 Supply Pump (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.097 In/Sec	.188 G-s
MIH	.149 In/Sec	.137 G-s
MIA	.159 In/Sec	.094 G-s
PIA	.591 In/Sec	.747 G-s
PIH	.379 In/Sec	.403 G-s
POH	.225 In/Sec	.701 G-s

2SUPLYP - #2 Supply Pump (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.062 In/Sec	.759 G-s
MIH	.066 In/Sec	.725 G-s
MIA	.075 In/Sec	.334 G-s
PIA	.202 In/Sec	.507 G-s
PIH	.216 In/Sec	.548 G-s
POH	.216 In/Sec	1.062 G-s

3SUPLYP - #3 Supply Pump (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.064 In/Sec	.914 G-s
MIH	.075 In/Sec	.974 G-s
MIA	.063 In/Sec	.565 G-s
PIA	.156 In/Sec	.245 G-s
PIH	.163 In/Sec	.362 G-s
POH	.181 In/Sec	.806 G-s

5SUPLYP - #5 Supply Pump (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.062 In/Sec	.742 G-s
MIH	.095 In/Sec	.672 G-s
MIA	.106 In/Sec	.244 G-s
PIA	.625 In/Sec	.650 G-s
PIH	.255 In/Sec	.913 G-s
POH	.383 In/Sec	.868 G-s

6SUPLYP - #6 Supply Pump (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.075 In/Sec	.169 G-s
MIH	.097 In/Sec	.204 G-s
MIA	.106 In/Sec	.132 G-s
PIA	.172 In/Sec	.059 G-s
PIH	.185 In/Sec	.472 G-s
POH	.230 In/Sec	1.223 G-s

CBRA - CASTER BAGHOUSE REVERSE AIR (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.098 In/Sec	.354 G-s
MIH	.106 In/Sec	.096 G-s

MIA	.088 In/Sec	.113 G-s
FIH	.094 In/Sec	.104 G-s
FOH	.269 In/Sec	.789 G-s

CBID - CASTER BAGHOUSE ID FAN (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.066 In/Sec	.093 G-s
MOV	.025 In/Sec	.080 G-s
MIH	.036 In/Sec	.114 G-s
MIV	.028 In/Sec	.162 G-s
MIA	.030 In/Sec	.159 G-s
FIA	.047 In/Sec	.662 G-s
FIH	.062 In/Sec	1.013 G-s
FIV	.035 In/Sec	.545 G-s
FOH	.071 In/Sec	1.068 G-s
FOV	.026 In/Sec	.760 G-s
FOA	.072 In/Sec	.729 G-s

MIDCHYDP - MIDDLE CASTER Hyd PUMP (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.071 In/Sec	.385 G-s
MIH	.078 In/Sec	.508 G-s
PIH	.140 In/Sec	.997 G-s

SCHYDP - SOUTH CASTER Hyd PUMP (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.060 In/Sec	.448 G-s
MIH	.045 In/Sec	.409 G-s
PIH	.185 In/Sec	.631 G-s

SCEXFAN - SPRAY CHAMBER EXHAUST Fan (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	1.292 In/Sec	.283 G-s
MIH	.866 In/Sec	.340 G-s
MIA	.657 In/Sec	.522 G-s
FIH	1.081 In/Sec	.185 G-s
FOH	1.043 In/Sec	.598 G-s

NC OCILLA - North Caster Oscillator (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.380 In/Sec	.071 G-s
MIH	.283 In/Sec	.051 G-s
MIA	.200 In/Sec	.125 G-s
GIA	.123 In/Sec	.095 G-s
GIH	.156 In/Sec	.088 G-s
GOH	.167 In/Sec	.273 G-s

MC OCILLA - Middle Caster Oscillator (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.666 In/Sec	.051 G-s
MIH	.834 In/Sec	.205 G-s
MIA	.315 In/Sec	.166 G-s
GIA	.254 In/Sec	.0019 G-s
GIH	.255 In/Sec	.049 G-s
GOH	.274 In/Sec	.311 G-s

SC OCILLA - South Caster Oscillator (17-Apr-25)

	OVERALL LEVEL	1K-20KHz
MOH	.132 In/Sec	.038 G-s
MIH	.095 In/Sec	.053 G-s
MIA	.081 In/Sec	.039 G-s
GIA	.048 In/Sec	.025 G-s
GIH	.067 In/Sec	.053 G-s
GOH	.064 In/Sec	.073 G-s

Clarification Of Vibration Units:

Acc --> G-s RMS