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June 25, 2025

Nucor Roll Mill
Jackson-Flowood, MS

Subject: June vibration survey

Below is a summary report for the monthly Roll Mill vibration survey that was performed on 6/24/25. Most of the machines surveyed were found to be in good condition except for the following.

HI-SPEED 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 NUCOR Steel Flowood, MS. If there are any comments or questions, do not hesitate to contact us.

Sincerely,

Kevin W. Maxwell

ISO Certified Vibration Analyst, Category III

HI-SPEED INDUSTRIAL SERVICE

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Defects

Roll Stand 1A
Planetary gearbox data still shows some vibration and noise floor that comes and goes in spectral data at the input end of the gearbox. The amplitudes and gear mesh frequencies in spectral data may be influenced some due to load and speed; however, they may also indicate low level internal wear or defects in internal components. We are continuing to monitor this closely. Rated as a **CLASS I** defect.

Roll Stand 5
A dominant gear mesh vibration comes and goes towards the output of the gearbox. The up and down amplitude of this peak is likely due to changes in tooth load and speed. This vibration was higher this survey. We will continue to monitor this very closely. This is rated as a **CLASS I** defect.

Roll Stand 6
A dominant gear mesh vibration comes and goes towards the output of the gearbox. The up and down amplitude of this peak is likely due to changes in tooth load and speed. This vibration was lower this survey. We will continue to monitor this very closely. This is rated as a **CLASS I** defect.

Roll Stand 7
Gearbox vibration was slightly higher in amplitude this survey. Vibration data shows dominant gear mesh harmonics on outboard end of the gear casing. The up and down amplitude of this peak from month to month is likely due to changes in tooth load and machine speed. We suspect this to be possibly due to a resonant gear mesh frequency vibration and we will continue to monitor this very closely. Rated as a **CLASS II** defect.

Roll Stand 11
Drive motor spectral data is showing some non-synchronous peaks that may be associated with bearing race defects. Typically, this issue is caused by fluting of the bearing races. This is low level at this time, and we are monitoring this closely. Ensure grounding brush is functioning properly. Rated as a **CLASS I** defect.

Roll Stand 12
Drive motor spectral data is showing some non-synchronous peaks that may be associated with bearing race defects. Typically, this issue is caused by fluting of the bearing races. This is low level at this time, and we are monitoring this closely. Ensure grounding brush is functioning properly. Rated as a **CLASS I** defect.

West Quincy Air Compressor (New)
Compressor has higher vibration over the past few surveys. Data shows multiple lobe harmonics of the driven rotor and high frequency vibration. We will monitor this closely in the upcoming surveys. Rated as a **CLASS I** defect.

Furnace Cooling Tower Drive South
Motor data shows axial and radial vibration that appears to be occurring at or near 1 x motor rpm and may indicate a structural issue such as loose fasteners, weak flexible motor base. This could also be caused by a resonance or air flow turbulence in this unit. We will continue to monitor this issue closely. Rated as a **CLASS II** defect.

Combustion Air Fan
Motor axial vibration was higher this survey. Data shows a 1 and 2 x rpm vibration. It is recommended to check couplings during next down day. Rated as a **CLASS II** defect.

Abbreviated Last Measurement Summary

Database: nucorja9.rbm
Station: Roll Mill Rolls

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
STD1A - Stand 1A	(24-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.087 In/Sec	.053 G-s
MIH	.065 In/Sec	.082 G-s
MIA	.125 In/Sec	.155 G-s
COH	.174 In/Sec	.036 G-s
GIA	.093 In/Sec	.220 G-s
GIH	.165 In/Sec	.691 G-s
GI2	.128 In/Sec	.254 G-s
GI3	.154 In/Sec	.173 G-s
GI4	.117 In/Sec	.570 G-s
GI5	.072 In/Sec	.304 G-s
GI6	.057 In/Sec	.164 G-s
GOH	.056 In/Sec	.116 G-s
STD2A - Stand 2A	(24-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.115 In/Sec	.033 G-s
MIH	.087 In/Sec	.025 G-s
MIA	.094 In/Sec	.329 G-s
COH	.198 In/Sec	.058 G-s
STD5 - Stand 5	(24-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.068 In/Sec	.048 G-s
MIH	.064 In/Sec	.119 G-s
MIA	.116 In/Sec	.073 G-s
GIA	.112 In/Sec	.021 G-s
GIH	.071 In/Sec	.186 G-s
GOH	.533 In/Sec	.650 G-s
COH	.317 In/Sec	.040 G-s
STD6 - Stand 6	(24-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.069 In/Sec	.022 G-s
MIH	.046 In/Sec	.086 G-s
MIA	.130 In/Sec	.083 G-s
GIA	.103 In/Sec	.032 G-s
GIH	.042 In/Sec	.061 G-s
GOH	.354 In/Sec	.332 G-s
COH	.257 In/Sec	.032 G-s
STD7 - Stand 7	(24-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.095 In/Sec	.032 G-s
MIH	.067 In/Sec	.147 G-s
MIA	.214 In/Sec	.181 G-s
GIA	.107 In/Sec	.045 G-s
GIH	.124 In/Sec	.085 G-s
GOH	.479 In/Sec	.806 G-s
COH	.602 In/Sec	.136 G-s
STD9 - Stand 9	(24-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.100 In/Sec	.046 G-s
MIH	.083 In/Sec	.172 G-s
MIA	.089 In/Sec	.085 G-s
GIA	.166 In/Sec	.029 G-s
GIH	.101 In/Sec	.048 G-s
COH	.209 In/Sec	.036 G-s

STD10 - Stand 10 (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.044 In/Sec	.042 G-s
MIH	.113 In/Sec	.038 G-s
MIA	.119 In/Sec	.035 G-s
GIA	.047 In/Sec	.188 G-s
GIH	.049 In/Sec	.079 G-s
COH	.186 In/Sec	.144 G-s

STD11 - Stand 11 (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.017 In/Sec	.075 G-s
MIH	.030 In/Sec	.249 G-s
MIA	.038 In/Sec	.182 G-s
GIA	.053 In/Sec	.016 G-s
GIH	.047 In/Sec	.048 G-s
GOH	.055 In/Sec	.053 G-s
COH	.227 In/Sec	.035 G-s

STD12 - Stand 12 (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.024 In/Sec	.026 G-s
MIH	.038 In/Sec	.626 G-s
MIA	.071 In/Sec	.394 G-s
COH	.153 In/Sec	.037 G-s

STD13 - Stand 13 (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.073 In/Sec	.025 G-s
MIH	.076 In/Sec	.071 G-s
MIA	.078 In/Sec	.089 G-s
GIA	.027 In/Sec	.071 G-s
GIH	.035 In/Sec	.050 G-s
GOH	.037 In/Sec	.161 G-s
COH	.092 In/Sec	.039 G-s

STD14 - Stand 14 (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.061 In/Sec	.133 G-s
MIH	.053 In/Sec	.049 G-s
MIA	.078 In/Sec	.209 G-s
GIA	.049 In/Sec	.0077 G-s
GIH	.026 In/Sec	.0083 G-s
GOH	.026 In/Sec	.016 G-s
COH	.174 In/Sec	.059 G-s

STD15 - Stand 15 (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.047 In/Sec	.059 G-s
MIH	.039 In/Sec	.045 G-s
MIA	.081 In/Sec	.223 G-s
GIA	.057 In/Sec	.021 G-s
GIH	.055 In/Sec	.019 G-s
COH	.173 In/Sec	.025 G-s

STD16 - Stand 16 (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.054 In/Sec	.141 G-s
MIH	.060 In/Sec	.031 G-s
MIA	.050 In/Sec	.071 G-s
GIA	.075 In/Sec	.047 G-s
GIH	.035 In/Sec	.0038 G-s
GOH	.031 In/Sec	.0098 G-s
COH	.256 In/Sec	.051 G-s

NORTH AC - NORTH AIR COMPRESSOR QUINCY (24-Jun-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.163 In/Sec	.247 G-s
MIH	.216 In/Sec	.554 G-s

	MIA	.282 In/Sec	.097 G-s
		OVERALL LEVEL	1K-20KHz
	CIA	.180 In/Sec	.258 G-s
	CIH	.137 In/Sec	.627 G-s
	COH	.130 In/Sec	.825 G-s

SOUTH AC - SOUTH AIR COMPRESSOR QUINCY (24-Jun-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.138 In/Sec	.955 G-s
MIH	.091 In/Sec	.725 G-s
MIA	.175 In/Sec	.240 G-s
	OVERALL LEVEL	1K-20KHz
CIA	.283 In/Sec	.396 G-s
CIH	.224 In/Sec	.888 G-s
COH	.242 In/Sec	1.382 G-s

NEW W-AC - WEST AIR COMPRESSOR QUINCY (24-Jun-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.134 In/Sec	.458 G-s
MOV	.348 In/Sec	.201 G-s
MOA	.197 In/Sec	.103 G-s
MIH	.145 In/Sec	.800 G-s
MIV	.294 In/Sec	.424 G-s
MIA	.161 In/Sec	.182 G-s
	OVERALL LEVEL	1K-20KHz
1IH	.141 In/Sec	4.194 G-s
1IV	.264 In/Sec	.593 G-s
1IA	.230 In/Sec	.548 G-s
1OH	.400 In/Sec	4.009 G-s
1OV	.284 In/Sec	1.293 G-s
1OA	.306 In/Sec	1.035 G-s
2IH	.226 In/Sec	4.056 G-s
2IV	.466 In/Sec	1.014 G-s
2IA	.272 In/Sec	.956 G-s
2OH	.181 In/Sec	3.423 G-s
2OV	.364 In/Sec	.958 G-s
2OA	.219 In/Sec	.839 G-s

Station: Roll Mill Utilities

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD

HYDPMP1 - Hydraulic Pump East (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.097 In/Sec	.226 G-s
MIH	.201 In/Sec	.302 G-s
PIV	.345 In/Sec	.602 G-s

HYDPMP2 - Hydraulic Pump Center (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.047 In/Sec	.270 G-s
MIH	.141 In/Sec	.315 G-s
PIV	.284 In/Sec	1.373 G-s

DESFAN - Desolution Fan (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.023 In/Sec	.105 G-s
MIH	.028 In/Sec	.058 G-s
MIA	.042 In/Sec	.013 G-s

COMFAN - Combustion Air Fan (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.255 In/Sec	.032 G-s
MIH	.306 In/Sec	.073 G-s
MIA	.198 In/Sec	.048 G-s
FIH	.189 In/Sec	.116 G-s
FOH	.187 In/Sec	.178 G-s

EJCFAN - Ejector Air Fan (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.017 In/Sec	.126 G-s
MIH	.017 In/Sec	.214 G-s
MIA	.012 In/Sec	.115 G-s
FIA	.013 In/Sec	.050 G-s
FIH	.0096 In/Sec	.034 G-s
FOH	.0096 In/Sec	.021 G-s

COLPMP2 - Furnace Cooling Pump center (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.307 In/Sec	.620 G-s
MIH	.281 In/Sec	.268 G-s
MIA	.099 In/Sec	.168 G-s

FCTSOUTH - Furnace CT Drive South (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.107 In/Sec	.156 G-s
MIH	.112 In/Sec	.177 G-s
MIA	.528 In/Sec	.079 G-s

FCTNORTH - Furnace CT Drive North (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.251 In/Sec	.053 G-s
MIH	.176 In/Sec	.107 G-s
MIA	.113 In/Sec	.064 G-s

SCLPMP1 - Scale Pit Pump South (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.284 In/Sec	.411 G-s
MOV	.149 In/Sec	.414 G-s
MIV	.104 In/Sec	.281 G-s
MIH	.135 In/Sec	.154 G-s
MIA	.126 In/Sec	.104 G-s

CTWTR2 - CT Pump West (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.094 In/Sec	.270 G-s
MIH	.078 In/Sec	.276 G-s
MIA	.107 In/Sec	.262 G-s

MILWTR3 - Mill Water Pump West (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.105 In/Sec	.383 G-s
MIH	.064 In/Sec	.514 G-s
MIA	.053 In/Sec	.196 G-s

MILWTR2 - Mill Water Pump Center (24-Jun-25)

	OVERALL LEVEL	1K-20KHz
MOH	.122 In/Sec	.211 G-s
MIH	.089 In/Sec	.453 G-s
MIA	.075 In/Sec	.342 G-s

Clarification Of Vibration Units:

Acc --> G-s RMS

Vel --> In/Sec PK