7030 Ryburn Dr. Millington, TN Phone: (901) 873-5300 Fax: (901) 873-5301 www.gohispeed.com

August 11, 2025

Nucor Roll Mill
Jackson-Flowood, MS

Subject: July vibration survey

Below is a summary report for the monthly Roll Mill vibration survey that was performed on 8/8/25. 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

Cell: 901-486-4565
Email: kwilliam@gohispeed.com

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 slightly lower 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 lower 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 II** 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 II** defect.

West Quincy Air Compressor (New)
Compressor has had slightly high 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

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Database: nucorja9.rbm
Station: Roll Mill Rolls

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
STD1A - Stand 1A	(08-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.065 In/Sec	.152 G-s
MIH	.063 In/Sec	.227 G-s
MIA	.065 In/Sec	.225 G-s
COH	.162 In/Sec	.242 G-s
GIA	.035 In/Sec	.343 G-s
GIH	.120 In/Sec	.291 G-s
GI2	.098 In/Sec	.333 G-s
GI3	.079 In/Sec	.794 G-s
GI4	.057 In/Sec	.612 G-s
GI5	.039 In/Sec	.216 G-s
GI6	.036 In/Sec	.065 G-s
GOH	.031 In/Sec	.133 G-s
STD2A - Stand 2A	(08-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.054 In/Sec	.091 G-s
MIH	.045 In/Sec	.521 G-s
MIA	.054 In/Sec	.370 G-s
COH	.166 In/Sec	.031 G-s
STD1 - Stand 1	(08-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.078 In/Sec	.290 G-s
MIH	.108 In/Sec	.021 G-s
MIA	.236 In/Sec	.075 G-s
GIA	.066 In/Sec	.079 G-s
GIH	.048 In/Sec	.027 G-s
COH	.092 In/Sec	.019 G-s
STD2 - Stand 2	(08-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.103 In/Sec	.054 G-s
MIH	.147 In/Sec	.116 G-s
MIA	.119 In/Sec	.101 G-s
GIA	.110 In/Sec	.844 G-s
GIH	.121 In/Sec	.567 G-s
COH	.478 In/Sec	.036 G-s
STD3 - Stand 3	(08-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.060 In/Sec	.031 G-s
MIH	.105 In/Sec	.020 G-s
MIA	.173 In/Sec	.103 G-s
GIA	.031 In/Sec	.0071 G-s
GIH	.036 In/Sec	.019 G-s
COH	.305 In/Sec	.073 G-s
STD4 - Stand 4	(08-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.075 In/Sec	.022 G-s
MIH	.085 In/Sec	.0094 G-s
MIA	.108 In/Sec	.123 G-s
GIA	.078 In/Sec	.064 G-s
GIH	.071 In/Sec	.013 G-s
COH	.396 In/Sec	.014 G-s
STD5 - Stand 5	(08-Aug-25)	
	OVERALL LEVEL	1K-20KHz

	MOH	.037 In/Sec	.236 G-s
	MIH	.070 In/Sec	.614 G-s
	MIA	.113 In/Sec	.881 G-s
	GIA	.112 In/Sec	.0076 G-s
	GIH	.066 In/Sec	.128 G-s
	GOH	.445 In/Sec	.505 G-s
	COH	.338 In/Sec	.044 G-s

STD6 - Stand 6 (08-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.051 In/Sec	.131 G-s
MIH	.061 In/Sec	.358 G-s
MIA	.091 In/Sec	.406 G-s
GIA	.084 In/Sec	.152 G-s
GIH	.057 In/Sec	.043 G-s
GOH	.244 In/Sec	.233 G-s
COH	.193 In/Sec	.654 G-s

STD7 - Stand 7 (08-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.057 In/Sec	.155 G-s
MIH	.069 In/Sec	.419 G-s
MIA	.103 In/Sec	.532 G-s
GIA	.057 In/Sec	.024 G-s
GIH	.154 In/Sec	.074 G-s
GOH	.577 In/Sec	1.898 G-s
COH	.424 In/Sec	.216 G-s

STD8 - Stand 8 (08-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.051 In/Sec	.308 G-s
MIH	.057 In/Sec	.603 G-s
MIA	.056 In/Sec	.845 G-s
GIA	.052 In/Sec	.027 G-s
GIH	.049 In/Sec	.038 G-s
COH	.313 In/Sec	.209 G-s

STD9 - Stand 9 (08-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.082 In/Sec	.483 G-s
MIH	.085 In/Sec	.760 G-s
MIA	.107 In/Sec	1.310 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 (08-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.032 In/Sec	.083 G-s
MIH	.040 In/Sec	.455 G-s
MIA	.061 In/Sec	.595 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 (08-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.021 In/Sec	.362 G-s
MIH	.094 In/Sec	2.509 G-s
MIA	.078 In/Sec	2.669 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 (08-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.031 In/Sec	.330 G-s
MIH	.062 In/Sec	1.899 G-s
MIA	.073 In/Sec	1.761 G-s

	COH	.153 In/Sec	.037 G-s

STD13 - Stand 13 (08-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.052 In/Sec	.273 G-s
MIH	.040 In/Sec	.217 G-s
MIA	.037 In/Sec	.486 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 (08-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.077 In/Sec	.681 G-s
MIH	.037 In/Sec	.298 G-s
MIA	.118 In/Sec	1.195 G-s
GIA	.049 In/Sec	.0077 G-s
GIH	.026 In/Sec	.0083 G-s
GOH	.026 In/Sec	.016 G-s
G2O	.026 In/Sec	.015 G-s
COH	.174 In/Sec	.059 G-s
GO1	.014 In/Sec	.047 G-s
GO2	.014 In/Sec	.060 G-s

STD16 - Stand 16 (08-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.109 In/Sec	1.084 G-s
MIH	.108 In/Sec	.299 G-s
MIA	.068 In/Sec	.653 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 (08-Aug-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.144 In/Sec	.157 G-s
MIH	.126 In/Sec	.384 G-s
MIA	.115 In/Sec	.103 G-s
	OVERALL LEVEL	1K-20KHz
CIA	.242 In/Sec	.141 G-s
CIH	.148 In/Sec	.720 G-s
COH	.190 In/Sec	.874 G-s

SOUTH AC - SOUTH AIR COMPRESSOR QUINCY (08-Aug-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.080 In/Sec	1.189 G-s
MIH	.083 In/Sec	.763 G-s
MIA	.140 In/Sec	.291 G-s
	OVERALL LEVEL	1K-20KHz
CIA	.141 In/Sec	.464 G-s
CIH	.149 In/Sec	.646 G-s
COH	.173 In/Sec	1.287 G-s

EAST AC - EAST AIR COMPRESSOR QUINCY (08-Aug-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.215 In/Sec	.281 G-s
MIH	.143 In/Sec	.350 G-s
MIA	.161 In/Sec	.064 G-s
	OVERALL LEVEL	1K-20KHz
CIA	.278 In/Sec	.324 G-s
CIH	.193 In/Sec	.624 G-s
COH	.179 In/Sec	.923 G-s

NEW W-AC - WEST AIR COMPRESSOR QUINCY (08-Aug-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.085 In/Sec	.516 G-s
MOV	.127 In/Sec	.376 G-s
MOA	.112 In/Sec	.281 G-s

MIH	.115 In/Sec	1.677 G-s
MIV	.097 In/Sec	.488 G-s
MIA	.100 In/Sec	.326 G-s
	OVERALL LEVEL	1K-20KHz
1IH	.164 In/Sec	1.769 G-s
1IV	.208 In/Sec	2.161 G-s
1IA	.263 In/Sec	2.826 G-s
1OH	.208 In/Sec	3.237 G-s
1OV	.171 In/Sec	.814 G-s
1OA	.241 In/Sec	2.506 G-s
2IH	.161 In/Sec	2.644 G-s
2IV	.264 In/Sec	.904 G-s
2IA	.106 In/Sec	.788 G-s
2OH	.164 In/Sec	3.782 G-s
2OV	.211 In/Sec	2.231 G-s
2OA	.174 In/Sec	1.600 G-s

Station: Roll Mill Utilities

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
HYDPMP1 - Hydraulic Pump East	(07-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.124 In/Sec	.502 G-s
MIH	.223 In/Sec	.833 G-s
PIV	.409 In/Sec	1.333 G-s
HYDPMP2 - Hydraulic Pump Center	(07-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.041 In/Sec	.438 G-s
MIH	.145 In/Sec	.346 G-s
PIV	.277 In/Sec	1.712 G-s
DESFAN - Desolution Fan	(07-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.206 In/Sec	.296 G-s
MIH	.185 In/Sec	.235 G-s
MIA	.261 In/Sec	.193 G-s
COMFAN - Combustion Air Fan	(07-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.208 In/Sec	.082 G-s
MIH	.267 In/Sec	.059 G-s
MIA	.152 In/Sec	.113 G-s
FIH	.177 In/Sec	.176 G-s
FOH	.186 In/Sec	.199 G-s
EJCFAN - Ejector Air Fan	(07-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.124 In/Sec	.459 G-s
MIH	.089 In/Sec	.821 G-s
MIA	.066 In/Sec	1.071 G-s
FIA	.079 In/Sec	.239 G-s
FIH	.044 In/Sec	.414 G-s
FOH	.145 In/Sec	.329 G-s
COLPMP2 - Furnace Cooling Pump center	(07-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.212 In/Sec	.875 G-s
MIH	.120 In/Sec	.824 G-s
MIA	.073 In/Sec	.212 G-s
SCLPMP2 - Scale Pit Pump North	(07-Aug-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.390 In/Sec	.269 G-s
MIH	.105 In/Sec	.632 G-s
MIA	.129 In/Sec	.396 G-s
PIH	.174 In/Sec	1.620 G-s

CTWTR2 - CT Pump West (07-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.096 In/Sec	.367 G-s
MIH	.101 In/Sec	.565 G-s
MIA	.153 In/Sec	.414 G-s

MILWTR3 - Mill Water Pump West (07-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.080 In/Sec	.277 G-s
MIH	.042 In/Sec	.411 G-s
MIA	.053 In/Sec	.264 G-s

MILWTR2 - Mill Water Pump Center (07-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.046 In/Sec	.192 G-s
MIH	.050 In/Sec	.269 G-s
MIA	.025 In/Sec	.284 G-s

EASTBOOST - East Booster Pump Small (07-Aug-25)

	OVERALL LEVEL	1K-20KHz
MOH	.213 In/Sec	.614 G-s
MIH	.099 In/Sec	.307 G-s
MIA	.271 In/Sec	.116 G-s

Clarification Of Vibration Units:

Acc --> G-s RMS

Vel --> In/Sec PK