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June 4, 2025

Nucor Roll Mill
Jackson-Flowood, MS

Subject: May vibration survey

Below is a summary report for the monthly Roll Mill vibration survey that was performed on 6/3/25. Most of the machines surveyed were found to be in good condition except for the following.



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,

ISO Certified Vibration Analyst, Category III



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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.

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 1

Drive motor continues to have elevated DE axial vibration associated with line frequency 60 Hz and 360 HZ. (6 x line freq.). The amplitudes tend to go up and down depending on motor load and speed. This may be an SCR issue or electrical resonance. It is recommended to inspect drive components for issues. Rated as a **CLASS I** defect.

Roll Stand 2

Inboard gearbox (Int.) is showing some gear mesh vibration with sidebands of input rpm. This issue appears to come and go based on load and speed. This type of vibration is an indication of heavy tooth load or possible gear wear. 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 much 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. There was quite a bit of impacting in the time waveform data this month as well. 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)

The compressor had much higher amplitudes this survey. This is only our third data collection of this unit, so it could have been under heavy load. 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
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STD1A - Stand 1A	(03-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.097 In/Sec	.033 G-s
MIH	.065 In/Sec	.056 G-s
MIA	.106 In/Sec	.122 G-s
COH	.174 In/Sec	.036 G-s
GIA	.093 In/Sec	.220 G-s
GIH	.182 In/Sec	.691 G-s
GI2	.166 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	(03-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
STD1 - Stand 1	(03-Jun-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	(03-Jun-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	(03-Jun-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	(03-Jun-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	(03-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	(03-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	.302 In/Sec	.332 G-s
COH	.253 In/Sec	.032 G-s
STD7	- Stand 7	(03-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	.621 In/Sec	.806 G-s
COH	.693 In/Sec	.136 G-s
STD9	- Stand 9	(03-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	(03-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	(03-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	(03-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	(03-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	(03-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	(03-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	(03-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	(03-Jun-25)
	OVERALL LEVEL	1 - 20 KHz
MOH	.107 In/Sec	.048 G-s
MIH	.099 In/Sec	.082 G-s
MIA	.105 In/Sec	.332 G-s
	OVERALL LEVEL	1K-20KHz
CIA	.261 In/Sec	.068 G-s
CIH	.153 In/Sec	.211 G-s
COH	.174 In/Sec	.167 G-s
SOUTH AC	- SOUTH AIR COMPRESSOR QUINCY	(03-Jun-25)
	OVERALL LEVEL	1 - 20 KHz
MOH	.083 In/Sec	.068 G-s
MIH	.101 In/Sec	.124 G-s
MIA	.125 In/Sec	.120 G-s
	OVERALL LEVEL	1K-20KHz
CIA	.312 In/Sec	.657 G-s
CIH	.182 In/Sec	.189 G-s
COH	.208 In/Sec	.178 G-s
NEW W-AC	- WEST AIR COMPRESSOR QUINCY	(03-Jun-25)
	OVERALL LEVEL	1 - 20 KHz
MOH	.135 In/Sec	.243 G-s
MOV	.115 In/Sec	.237 G-s

MIH	.152 In/Sec	1.429 G-s
MIV	.117 In/Sec	.517 G-s
MIA	.159 In/Sec	1.194 G-s
	OVERALL LEVEL	1K-20KHz
1IH	.259 In/Sec	.163 G-s
1IV	.147 In/Sec	.599 G-s
1IA	.171 In/Sec	.332 G-s
1OH	.254 In/Sec	.933 G-s
1OV	.255 In/Sec	.796 G-s
1OA	.187 In/Sec	1.553 G-s
2IH	.147 In/Sec	.429 G-s
2IV	.137 In/Sec	.152 G-s
2IA	.124 In/Sec	.428 G-s
2OH	.209 In/Sec	.546 G-s
2OV	.195 In/Sec	.447 G-s
2OA	.131 In/Sec	.292 G-s

Database: nucorja9.rbm
Station: Roll Mill Utilities

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
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HYDPMP2 - Hydraulic Pump Center	(03-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.063 In/Sec	.319 G-s
MIH	.153 In/Sec	.310 G-s
PIV	.256 In/Sec	1.441 G-s
HYDPMP3 - Hydraulic Pump West	(03-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.108 In/Sec	.352 G-s
MIH	.356 In/Sec	1.464 G-s
PIV	.325 In/Sec	3.058 G-s
DESFAN - Desolution Fan	(03-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.044 In/Sec	.052 G-s
MIH	.062 In/Sec	.059 G-s
MIA	.047 In/Sec	.051 G-s
COMFAN - Combustion Air Fan	(03-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.180 In/Sec	.049 G-s
MIH	.192 In/Sec	.136 G-s
MIA	.279 In/Sec	.039 G-s
FIH	.087 In/Sec	.065 G-s
FOH	.130 In/Sec	.117 G-s
EJCFAN - Ejector Air Fan	(03-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.029 In/Sec	.101 G-s
MIH	.019 In/Sec	.213 G-s
MIA	.031 In/Sec	.098 G-s
FIA	.022 In/Sec	.062 G-s
FIH	.017 In/Sec	.179 G-s
FOH	.027 In/Sec	.106 G-s
COLPMP1 - Furnace Cooling Pump East	(03-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.071 In/Sec	.311 G-s
MIH	.071 In/Sec	.299 G-s
MIA	.080 In/Sec	.139 G-s
FCTSOUTH - Furnace CT Drive South	(03-Jun-25)	
	OVERALL LEVEL	1K-20KHz
MOH	.278 In/Sec	.126 G-s
MIH	.149 In/Sec	.837 G-s

MIA .478 In/Sec .144 G-s

FCTNORTH - Furnace CT Drive North (03-Jun-25)
OVERALL LEVEL 1K-20KHz
MOH .088 In/Sec .078 G-s
MIH .104 In/Sec .058 G-s
MIA .189 In/Sec .044 G-s

SCLPMP1 - Scale Pit Pump South (03-Jun-25)
OVERALL LEVEL 1K-20KHz
MOH .127 In/Sec .349 G-s
MOV .100 In/Sec .539 G-s
MIV .061 In/Sec .090 G-s
MIH .119 In/Sec .137 G-s
MIA .084 In/Sec .069 G-s

CTWTR2 - CT Pump West (03-Jun-25)
OVERALL LEVEL 1K-20KHz
MOH .121 In/Sec .265 G-s
MIH .110 In/Sec .183 G-s
MIA .079 In/Sec .209 G-s

MILWTR3 - Mill Water Pump West (03-Jun-25)
OVERALL LEVEL 1K-20KHz
MOH .080 In/Sec .398 G-s
MIH .059 In/Sec .191 G-s
MIA .040 In/Sec .268 G-s

MILWTR2 - Mill Water Pump Center (03-Jun-25)
OVERALL LEVEL 1K-20KHz
MOH .102 In/Sec .418 G-s
MIH .069 In/Sec .526 G-s
MIA .040 In/Sec .022 G-s

Clarification Of Vibration Units:

Acc --> G-s RMS
Vel --> In/Sec PK