HI-SPEED INDUSTRIAL SERVICE QualiTest® Diagnostics

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Terry,

The following is a summary of findings from the June 2024 monthly vibration survey at the USG Greenville, MS Plant. Please note that we have added an abbreviated last measurement report which is at the end of this report.

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

Defects

Perlite

#5 Combustion Blower
A high sub-synchronous vibration remains in the motor axial. This may be a harmonic of belt frequency. Check belts and sheaves for wear and misalignment soon. Rated as a **CLASS III** defect.

#8 Combustion Blower
1/3 rpm harmonics are present in the fan spectra. This signifies looseness of the fits l(likely shaft or bearing fit wear). Check fan bearings/shaft for looseness and wear as scheduling allows. Rated as a **CLASS II** defect.

#5 Expander Dust Collector
Motor has elevated 1 x rpm vibration at motor rpm. This is likely a sheave issue or could also be a base issue. Check sheave alignment ensuring sheaves are aligned properly for offset and angularity. Check face run-out on motor sheave. There should not be no more than .003" face run-out. Check all fasteners and ensure motor base is not defective. Rated as a **CLASS II** defect.

#6 Expander Dust Collector
Fan continues to have high vibration. Axial data shows a dominant 2 x fan rpm vibration. 1-4 x rpm vibration that can still be seen in all fan spectral data is likely due to a combination of issues such as bent or worn fan shaft and internal fan bearing fit looseness/wear. Inspect fan bearings for looseness by performing a lift check of the fan shaft. Should not have more than .003" lift max. Inspect fan shaft for run-out as well. There is also deteriorated grout around the fan base. Base needs to be re-grouted in the near future. Rated as a **CLASS III** defect.

#7 Expander Dust Collector
Motor has a beat vibration that appears to be near motor/fan rpm. This may be sheave/belt related**.** Check sheaves and belts for wear and misalignment and check all base fasteners. Check angularity and offset alignment. Rated as a **CLASS II** defect.

#8 Expander Dust Collector
A trim balance was performed earlier this month. We were unable to lower vibration to an acceptable spec. Fan data shows a 1 x and 2 x rpm vibration especially at the fan axial. There are some 3-6 x rpm peaks present as well. We performed shaft run-out checks and also performed lift checks on the fan shaft. We found no signs of shaft looseness or excessive run-out. However, there may be an issue with fan wheel itself. Cracks in the wheel or hub can cause this type of vibration and may explain why we were having issue with the phase angle staying steady during our balance. It is recommended to perform a thorough inspection of the fan wheel/ hub. The inlet piping will likely need to be removed to gain access to the wheel for inspection. Rated as a **CLASS II** defect.

Hydropulper
Gearbox has elevated vibration. Spectral data shows gear mesh harmonics with sidebands of output rpm indicating wear in the gearbox. There may also be an issue with the fluid coupling assembly. Gearbox base was flexing quite a bit during data collection. Gearbox and coupling assembly will need attention soon. Rated as a **CLASS III** defect.

Mix-up/Reclaim

#1 White Water Loop Pump
Motor data shows signs of bearing defects on the ODE motor bearing. Motor will need attention in the next few months. Rated as a **CLASS II** defect.

Dump Chest Agitator
Overall vibration has been lower the past few surveys; however, this survey, the motor has an internal knocking vibration. Amplitudes are still low, but the presence of this knocking is concerning. Data shows the vibration to be synchronous to motor rpm. For now, inspect the coupling and the motor as soon as time allows. Rated as a **CLASS II** defect.

#1 White Water Loop Pump
Motor has some high vibration that is sub-synchronous to motor rpm. The sub-synchronous vibration could be belt related or pump sheave related. Check sheaves and belts ensuring belts are tightened properly and sheaves have minimal angular and offset misalignment. Rated as a **CLASS II** defect.

White Water Mix-up Pump
New motor has some slight vibration related to belts and sheaves. Belts are also slipping. Check sheaves and belts ensuring belts are tightened properly and sheaves have minimal angular and offset misalignment. Rated as a **CLASS II** defect.

Beater Tank Transfer Pump
Motor was not running this survey; however, the following likely still applies: The motor data shows motor to have bearing defects. There are two pumps by the beater. This motor is the newer looking motor with the newer pump. Motor needs to swapped out as time allows. Rated as a **CLASS II** defect.

Fiberglass

#1 Oven Circ. Fan
The motor and fan inboard side has high vibration at fan speed. This may be due to some type of sheave issue and/or structural flexibility. Inspect sheaves and belts soon. Ensure sheaves do not have face run-out and offset and angularity alignment is good. Ensure belts are tensioned properly. Rated as **CLASS II** defect.

#2 Oven Circ Fan
Data shows some 1, 2, and 3 x rpm vibrations present in the fan. The motor also has high vibration at 1 x fan rpm. Fan bearing fits may be bad and fan shaft may be bent and or worn. Fan may also have some imbalance due to build-up on fan blades. Rated as a **CLASS II** defect.

Board Line 3

Vacuum Pump MOTORS (1,2, and 3)
We are still seeing some mid to high frequency noise floor in the motor spectra on the vac pump motors. This issue appears to be stable; however, we suspect possible fluting of the motor bearings may be starting to develop. This is a

common issue with AC motors being operated by VFD's that do not having grounding protection. We recommend installing an Aegis Grounding ring inside the motor at the drive end and installing an insulated bearing on the outboard end of the motor. **Rated as CLASS I defect.**

#3 Vacuum Pump
DE pump bearing spectral data continues to show defects are present in the DE pump bearing. We will continue to monitor this closely. Rated as a **CLASS III** defect.

Wet End Combustion Blower
Blower bearings are trending upward on defect frequency vibration. Acceleration has had a steady increase in amplitude. These are signs of bearing defects/wear. Bearings should be scheduled for replacement as soon as scheduling allows**.** Rated as a **CLASS II** defect.

White Water Pump (outside)
Motor/Pump base is loose to concrete and is causing a high vertical vibration at 12 Hz which appears to be pump speed. Base needs to be anchored soon. Rated as a **CLASS II** defect.

Wet End Circulation Fan
New motor looks good as far as vibration goes. Fan still has some slight 1 x rpm vibration likely due to fan imbalance. A trim balance may be needed in the future. Rated as a **CLASS I** defect.

Finishing

Blue Oven 1 Zone 1 Circulation Fan 1
Fan end fan bearing (outboard) data is showing signs of defects/wear. Motor and fan also have some 1 x rpm vibrations. Fan bearings will need attention soon. Also, ensure sheaves are aligned properly and belts are in good shape and properly tightened. Rated as a **CLASS II** defect.

Blue Oven 1 Zone 1 Circulation Fan 2
Fan end fan bearing (outboard) data is showing signs of defects/wear. Motor and fan also have some 1 x rpm vibrations. Fan bearings will need attention soon. Also, ensure sheaves are aligned properly and belts are in good shape and properly tightened. Rated as a **CLASS II** defect.

Blue Oven 1 Zone 2 Circulation Fan 1 and 2
Motor and fan vibrations remain high at well over 1.2 inches/second peak velocity. Vibration is at fan speed in the motor and fan. This may be due to build-up on the fan. Inspect fan wheel for build- up and damage ASAP. Inspect sheaves and belts as well. Ensure fan bearings have adequate grease. Rated as a **CLASS III** defect.

#1 Finishing Baghouse Dust Collector
Fan and motor both have significant increase in vibration. Data shows fan imbalance to likely be the main issue. The fan needs to be inspected for build-up and damage/wear ASAP. There is also a spring that is not working properly under the motor. This may be influencing the vibration some. Inspect fan wheel and springs ASAP. Rated as a **CLASS IV** defect.

#3 Finishing Baghouse Dust Collector
Vertical data of the motor and fan also indicate some possible drivetrain issues such as sheave misalignment and or belt issues. For now, inspect, sheaves and belts as scheduling allows. Ensure sheaves do not have face run-out and

are aligned to spec. Check base springs to ensure they are in good shape and set properly. Rated as a **CLASS II** defect.

Hi-Pressure Water Pump

Motor data still shows signs of bearing defects and/or lube issue. Ensure motor bearings are getting adequate amount of grease. This will continue to be monitored closely. Rated as a **CLASS I** defect.

Abbreviated Last Measurement Summary
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Database: USG.rbm
Area: PERLITE

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
B2EXD02FAN - #5 COMBUSTION BLOWER	**(19-Jun-24)**	
	OVERALL LEVEL	**1K-20KHz**
MOH	.170 In/Sec	.351 G-s
MOV	.531 In/Sec	.076 G-s
MIH	.112 In/Sec	.196 G-s
MIV	.165 In/Sec	.036 G-s
MIA	.916 In/Sec	.041 G-s
BIH	.137 In/Sec	2.395 G-s
BIV	.074 In/Sec	.407 G-s
BIA	.286 In/Sec	.273 G-s
BOH	.162 In/Sec	.679 G-s
BOV	.151 In/Sec	.114 G-s
B2EXD06FAN - #6 COMBUSTION BLOWER	**(19-Jun-24)**	
	OVERALL LEVEL	**1K-20KHz**
MOH	.081 In/Sec	.283 G-s
MOV	.192 In/Sec	.122 G-s
MIH	.078 In/Sec	.243 G-s
MIV	.190 In/Sec	.036 G-s
MIA	.341 In/Sec	.044 G-s
BIH	.340 In/Sec	1.051 G-s
BIV	.189 In/Sec	.165 G-s
BIA	.211 In/Sec	.138 G-s
BOH	.182 In/Sec	.925 G-s
BOV	.107 In/Sec	.177 G-s
B2EXD07FAN - #7 COMBUSTION BLOWER	**(19-Jun-24)**	
	OVERALL LEVEL	**1K-20KHz**
MOH	.093 In/Sec	.250 G-s
MOV	.471 In/Sec	.058 G-s
MIH	.096 In/Sec	.285 G-s
MIV	.408 In/Sec	.072 G-s
MIA	.149 In/Sec	.052 G-s
BIH	.372 In/Sec	1.400 G-s
BIV	.203 In/Sec	.307 G-s
BIA	.191 In/Sec	.238 G-s
BOH	.166 In/Sec	1.837 G-s
BOV	.124 In/Sec	.333 G-s
B2EXD08FAN - #8 COMBUSTION BLOWER	**(19-Jun-24)**	
	OVERALL LEVEL	**1K-20KHz**
MOH	.118 In/Sec	.207 G-s
MOV	.323 In/Sec	.165 G-s
MIH	.168 In/Sec	.214 G-s
MIV	.762 In/Sec	.060 G-s
MIA	.262 In/Sec	.065 G-s
BIH	.327 In/Sec	1.315 G-s
BIV	.218 In/Sec	.305 G-s
BIA	.208 In/Sec	.158 G-s

BOH	.464 In/Sec	1.773 G-s
BOV	.430 In/Sec	.269 G-s

B2EXD02-5 - #5 EXPANDER DUST COLLECTOR (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.563 In/Sec	1.052 G-s
MOV	.556 In/Sec	.175 G-s
MIH	.521 In/Sec	.867 G-s
MIV	.397 In/Sec	.124 G-s
MIA	.132 In/Sec	.152 G-s
FIH	.322 In/Sec	.941 G-s
FIV	.163 In/Sec	.308 G-s
FIA	.205 In/Sec	.124 G-s
FOH	.313 In/Sec	.434 G-s
FOV	.217 In/Sec	.211 G-s

B2EXD0306 - #6 EXPANDER DUST COLLECTOR (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.137 In/Sec	.481 G-s
MOV	.094 In/Sec	.205 G-s
MIH	.132 In/Sec	.787 G-s
MIV	.096 In/Sec	.300 G-s
MIA	.120 In/Sec	.507 G-s
FIH	.863 In/Sec	.977 G-s
FIV	.423 In/Sec	.672 G-s
FIA	1.061 In/Sec	.144 G-s
FOH	.443 In/Sec	1.190 G-s
FOV	.255 In/Sec	.643 G-s

B2EXD04-7 - #7 EXPANDER DUST COLLECTOR (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.778 In/Sec	.458 G-s
MOV	.708 In/Sec	.107 G-s
MIH	.606 In/Sec	.445 G-s
MIV	1.108 In/Sec	.140 G-s
MIA	.453 In/Sec	.078 G-s
FIH	.272 In/Sec	1.295 G-s
FIV	.177 In/Sec	.419 G-s
FIA	.332 In/Sec	.309 G-s
FOH	.320 In/Sec	1.462 G-s
FOV	.192 In/Sec	.335 G-s

B2EXD05-8 - #8 EXPANDER DUST COLLECTOR (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.229 In/Sec	.755 G-s
MOV	.136 In/Sec	.189 G-s
MIH	.130 In/Sec	2.943 G-s
MIV	.172 In/Sec	.996 G-s
MIA	.122 In/Sec	.743 G-s
FIH	.530 In/Sec	1.595 G-s
FIV	.405 In/Sec	.638 G-s
FIA	1.011 In/Sec	.257 G-s
FOH	.427 In/Sec	1.628 G-s
FOV	.645 In/Sec	.305 G-s

B2PUP02GEA - HYDRAPULPER (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.330 In/Sec	.489 G-s
MOV	.102 In/Sec	.738 G-s
MIH	.393 In/Sec	.304 G-s
MIV	.216 In/Sec	.810 G-s
MIA	.144 In/Sec	.592 G-s
GIH	.627 In/Sec	4.158 G-s
GIV	.362 In/Sec	1.571 G-s
GIA	.316 In/Sec	.758 G-s
GOH	.515 In/Sec	2.210 G-s
GOV	.436 In/Sec	1.634 G-s

Area: MIX UP/RECLAIM

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
B2-PUP-05 - ULTRA SORTER SCREEN	**(19-Jun-24)**	
	OVERALL LEVEL	**1K-20KHz**
MOH	.069 In/Sec	.251 G-s
MOV	.113 In/Sec	.034 G-s
MIH	.079 In/Sec	.594 G-s
MIV	.222 In/Sec	.074 G-s
MIA	.255 In/Sec	.082 G-s
SIH	.135 In/Sec	.860 G-s
SIV	.122 In/Sec	.327 G-s
SIA	.091 In/Sec	.272 G-s
SOH	.138 In/Sec	.219 G-s
SOV	.102 In/Sec	.290 G-s
B2PUP03AGT - DUMP CHEST AGITATOR	**(19-Jun-24)**	
	OVERALL LEVEL	**1K-20KHz**
MOH	.151 In/Sec	.392 G-s
MOV	.095 In/Sec	.169 G-s
MIH	.098 In/Sec	.610 G-s
MIV	.179 In/Sec	.269 G-s
MIA	.148 In/Sec	.141 G-s
AIH	.057 In/Sec	.179 G-s
AIV	.043 In/Sec	.048 G-s
AIA	.034 In/Sec	.055 G-s
AOH	.055 In/Sec	.177 G-s
AOV	.049 In/Sec	.046 G-s
REFNCHSTAG - REFINED CHEST AGITATOR	**(19-Jun-24)**	
	OVERALL LEVEL	**1K-20KHz**
MOH	.096 In/Sec	.205 G-s
MOV	.137 In/Sec	.041 G-s
MIH	.090 In/Sec	.265 G-s
MIV	.137 In/Sec	.046 G-s
MIA	.085 In/Sec	.060 G-s
AIH	.039 In/Sec	.124 G-s
AIV	.045 In/Sec	.105 G-s
AIA	.037 In/Sec	.037 G-s
AOH	.054 In/Sec	.117 G-s
AOV	.042 In/Sec	.044 G-s
1WWLOOPPMP - #1 WHITE WATER LOOP PUMP	**(19-Jun-24)**	
	OVERALL LEVEL	**1K-20KHz**
MOH	.555 In/Sec	1.067 G-s
MOV	.653 In/Sec	.299 G-s
MIH	.638 In/Sec	1.551 G-s
MIV	.691 In/Sec	.251 G-s
MIA	.244 In/Sec	.361 G-s
PIH	.168 In/Sec	.345 G-s
PIV	.087 In/Sec	.118 G-s
PIA	.206 In/Sec	.098 G-s
POH	.199 In/Sec	.150 G-s
POV	.109 In/Sec	.071 G-s
WWMIXUPPMP - WHITE WATER MIX-UP PUMP	**(19-Jun-24)**	
	OVERALL LEVEL	**1K-20KHz**
MOH	.383 In/Sec	.364 G-s
MOV	.311 In/Sec	.100 G-s
MIH	.415 In/Sec	.729 G-s
MIV	.388 In/Sec	.219 G-s
MIA	.495 In/Sec	.237 G-s
PIH	.153 In/Sec	.190 G-s
PIV	.065 In/Sec	.080 G-s
PIA	.138 In/Sec	.079 G-s
POH	.191 In/Sec	.244 G-s
POV	.139 In/Sec	.058 G-s
B2WEL1PMP1 - #1 EAST WELL WATER PUMP	**(19-Jun-24)**	

	OVERALL LEVEL	1K-20KHz
MOH	.168 In/Sec	2.110 G-s
MOV	.215 In/Sec	.640 G-s
MIH	.311 In/Sec	.857 G-s
MIV	.423 In/Sec	.220 G-s
MIA	.212 In/Sec	.333 G-s
PIH	.051 In/Sec	.614 G-s
PIV	.044 In/Sec	.167 G-s
PIA	.243 In/Sec	.245 G-s
POH	.172 In/Sec	1.238 G-s
POV	.136 In/Sec	.212 G-s

B2BTR1AGIT - BEATER AGITATOR (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.226 In/Sec	.593 G-s
MOV	.137 In/Sec	.200 G-s
MIH	.217 In/Sec	.767 G-s
MIV	.118 In/Sec	.132 G-s
MIA	.058 In/Sec	.125 G-s
AIH	.080 In/Sec	.079 G-s
AIV	.039 In/Sec	.017 G-s
AIA	.083 In/Sec	.016 G-s
AOH	.039 In/Sec	.115 G-s
AOV	.040 In/Sec	.027 G-s

Area: FIBERGLASS

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD

F1-DCR - FIBERGLASS DC FAN OLD LINE (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.204 In/Sec	1.306 G-s
MOV	.321 In/Sec	.328 G-s
MIH	.186 In/Sec	1.785 G-s
MIV	.456 In/Sec	.348 G-s
MIA	.361 In/Sec	.332 G-s
FIH	.234 In/Sec	.624 G-s
FIV	.152 In/Sec	.244 G-s
FIA	.168 In/Sec	.103 G-s
FOH	.251 In/Sec	1.745 G-s
FOV	.134 In/Sec	.367 G-s

F1T1DCRFAN - FIBERGLASS DC FAN NEW LINE (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.073 In/Sec	.292 G-s
MOV	.089 In/Sec	.066 G-s
MIH	.081 In/Sec	.241 G-s
MIV	.072 In/Sec	.082 G-s
MIA	.090 In/Sec	.049 G-s
FIH	.063 In/Sec	.036 G-s
FIV	.086 In/Sec	.0093 G-s
FIA	.156 In/Sec	.0099 G-s
FOH	.069 In/Sec	.242 G-s
FOV	.066 In/Sec	.182 G-s

1PPDEF - 1ST PASS PAINT DRY EXH FAN (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.064 In/Sec	.109 G-s
MOV	.045 In/Sec	.028 G-s
MIH	.054 In/Sec	.147 G-s
MIV	.051 In/Sec	.037 G-s
MIA	.042 In/Sec	.027 G-s
FIH	.063 In/Sec	.379 G-s
FIV	.058 In/Sec	.102 G-s
FIA	.212 In/Sec	.122 G-s
FOH	.060 In/Sec	.152 G-s
FOV	.073 In/Sec	.084 G-s

F1T1EDG41M - 2ND PASS PAINT DRYING EX FAN (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.132 In/Sec	.091 G-s
MOV	.249 In/Sec	.021 G-s
MIH	.137 In/Sec	.110 G-s
MIV	.305 In/Sec	.028 G-s
MIA	.066 In/Sec	.025 G-s
FIH	.060 In/Sec	.394 G-s
FIV	.069 In/Sec	.140 G-s
FIA	.247 In/Sec	.143 G-s
FOH	.074 In/Sec	.388 G-s
FOV	.087 In/Sec	.135 G-s

1FOCF - #1 OVEN CIRC FAN (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.122 In/Sec	.172 G-s
MOV	.775 In/Sec	.050 G-s
MIH	.244 In/Sec	.520 G-s
MIV	1.073 In/Sec	.146 G-s
MIA	.256 In/Sec	.085 G-s
FIH	.314 In/Sec	.733 G-s
FIV	.926 In/Sec	.161 G-s
FIA	.347 In/Sec	.167 G-s
FOH	.112 In/Sec	1.235 G-s
FOV	.311 In/Sec	.146 G-s

1FOEF - #1 OVEN EXH FAN (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.067 In/Sec	.134 G-s
MOV	.045 In/Sec	.046 G-s
MIH	.064 In/Sec	.277 G-s
MIV	.046 In/Sec	.068 G-s
MIA	.057 In/Sec	.064 G-s
FIH	.127 In/Sec	.013 G-s
FIV	.060 In/Sec	.026 G-s
FIA	.106 In/Sec	.012 G-s
FOH	.151 In/Sec	.022 G-s
FOV	.098 In/Sec	.086 G-s

2FOCF - #2 OVEN CIRC FAN (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.183 In/Sec	.202 G-s
MOV	.450 In/Sec	.047 G-s
MIH	.206 In/Sec	.379 G-s
MIV	.793 In/Sec	.158 G-s
MIA	.180 In/Sec	.119 G-s
FIH	.159 In/Sec	.672 G-s
FIV	.568 In/Sec	.142 G-s
FIA	.766 In/Sec	.109 G-s
FOH	.593 In/Sec	1.591 G-s
FOV	1.073 In/Sec	.151 G-s

2FOEF - #2 OVEN EXH FAN (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.064 In/Sec	.134 G-s
MOV	.056 In/Sec	.046 G-s
MIH	.064 In/Sec	.153 G-s
MIV	.049 In/Sec	.034 G-s
MIA	.030 In/Sec	.024 G-s
FIH	.098 In/Sec	.020 G-s
FIV	.052 In/Sec	.056 G-s
FIA	.064 In/Sec	.011 G-s
FOH	.120 In/Sec	.042 G-s
FOV	.079 In/Sec	.094 G-s

Area: BOARD LINE 3

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD

B3TFM05PMP - #3 MACHINE WHITE WATER PUMP (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.748 In/Sec	.955 G-s
MOV	.555 In/Sec	.191 G-s
MIH	.528 In/Sec	1.058 G-s
MIV	.837 In/Sec	.363 G-s
MIA	.442 In/Sec	.342 G-s
PIH	.263 In/Sec	.808 G-s
PIV	.422 In/Sec	.091 G-s
PIA	.116 In/Sec	.139 G-s
POH	.200 In/Sec	.334 G-s
POV	.285 In/Sec	.065 G-s

B3TFM3PMPB - LINE 3 MACHINE CHEST PUMP 3B (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.159 In/Sec	1.022 G-s
MOV	.099 In/Sec	.278 G-s
MIH	.151 In/Sec	.668 G-s
MIV	.179 In/Sec	.207 G-s
MIA	.317 In/Sec	.220 G-s
PIH	.159 In/Sec	.205 G-s
PIV	.118 In/Sec	.043 G-s
PIA	.095 In/Sec	.037 G-s
POH	.101 In/Sec	.143 G-s
POV	.044 In/Sec	.042 G-s

B3-VAC-01 - LINE 3 VACUUM PUMP #1 (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.102 In/Sec	1.888 G-s
MOV	.099 In/Sec	.229 G-s
MIH	.074 In/Sec	1.122 G-s
MIV	.112 In/Sec	.344 G-s
MIA	.065 In/Sec	.270 G-s
PIH	.099 In/Sec	.151 G-s
PIV	.058 In/Sec	.047 G-s
PIA	.064 In/Sec	.043 G-s
POH	.126 In/Sec	.491 G-s
POV	.170 In/Sec	.240 G-s

B3-VAC-02 - LINE 3 VACUUM PUMP #2 (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.093 In/Sec	1.538 G-s
MOV	.127 In/Sec	.414 G-s
MIH	.132 In/Sec	1.161 G-s
MIV	.152 In/Sec	.291 G-s
MIA	.081 In/Sec	.348 G-s
PIH	.106 In/Sec	.126 G-s
PIV	.095 In/Sec	.035 G-s
PIA	.115 In/Sec	.035 G-s
POH	.548 In/Sec	.113 G-s
POV	.119 In/Sec	.031 G-s

B3-VAC-03 - LINE 3 VACUUM PUMP #3 (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.095 In/Sec	1.305 G-s
MOV	.129 In/Sec	.288 G-s
MIH	.079 In/Sec	1.060 G-s
MIV	.118 In/Sec	.264 G-s
MIA	.050 In/Sec	.312 G-s
PIH	.165 In/Sec	.328 G-s
PIV	.093 In/Sec	.363 G-s
PIA	.161 In/Sec	.446 G-s
POH	.273 In/Sec	.088 G-s
POV	.099 In/Sec	.042 G-s

LOWVACFAN - LOW VACUUM FAN (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.244 In/Sec	.300 G-s
MOV	.495 In/Sec	.433 G-s

	MIH	.164 In/Sec	.824 G-s
	MIV	.264 In/Sec	.245 G-s
	MIA	.150 In/Sec	.327 G-s
	FIH	.182 In/Sec	.751 G-s
	FIV	.270 In/Sec	.206 G-s
	FIA	.102 In/Sec	.107 G-s
	FOH	.069 In/Sec	.718 G-s
	FOV	.120 In/Sec	.209 G-s

B3-VAC-06A - #2 FORMER WHITE WTR PIT PMP (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.428 In/Sec	.423 G-s
MOV	.479 In/Sec	.155 G-s
MIH	.411 In/Sec	.450 G-s
MIV	.298 In/Sec	.102 G-s
MIA	.606 In/Sec	.176 G-s
PIH	.152 In/Sec	1.506 G-s
PIV	.218 In/Sec	.274 G-s
PIA	.120 In/Sec	.235 G-s
POH	.219 In/Sec	1.320 G-s
POV	.151 In/Sec	.376 G-s

B3-VAC-10 - SEAL WATER RETURN PUMP (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.024 In/Sec	.841 G-s
MOV	.027 In/Sec	.111 G-s
MIH	.047 In/Sec	.585 G-s
MIV	.041 In/Sec	.268 G-s
MIA	.058 In/Sec	.152 G-s
PIH	.049 In/Sec	.388 G-s
PIV	.037 In/Sec	.093 G-s
PIA	.037 In/Sec	.106 G-s
POH	.021 In/Sec	.089 G-s
POV	.014 In/Sec	.034 G-s

B3FRM7SHW - HIGH PRESSURE SHOWER PUMP (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.053 In/Sec	.495 G-s
MOV	.143 In/Sec	.182 G-s
MIH	.051 In/Sec	.561 G-s
MIV	.229 In/Sec	.160 G-s
MIA	.084 In/Sec	.188 G-s
PIH	.500 In/Sec	.957 G-s
PIV	.430 In/Sec	.418 G-s
PIA	.101 In/Sec	.249 G-s
POH	.541 In/Sec	1.737 G-s
POV	.384 In/Sec	.482 G-s

WECTAGIT - WET END COATING TANK AGIT (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.080 In/Sec	.130 G-s
MOV	.071 In/Sec	.035 G-s
MIH	.053 In/Sec	.248 G-s
MIV	.065 In/Sec	.032 G-s
MIA	.035 In/Sec	.035 G-s
AIH	.030 In/Sec	.121 G-s
AIV	.019 In/Sec	.029 G-s
AIA	.034 In/Sec	.021 G-s
AOH	.031 In/Sec	.085 G-s
AOV	.028 In/Sec	.028 G-s

MSHTAGIT - MACHINE STOCK HOLDING TNK AG (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.028 In/Sec	.130 G-s
MOV	.069 In/Sec	.025 G-s
MIH	.032 In/Sec	.168 G-s
MIV	.042 In/Sec	.014 G-s
MIA	.040 In/Sec	.0094 G-s
AIH	.016 In/Sec	.029 G-s
AIV	.014 In/Sec	.0092 G-s

	AIA	.027 In/Sec	.0064 G-s
	AOH	.015 In/Sec	.024 G-s
	AOV	.030 In/Sec	.0084 G-s

WWAGIT - WHITE WATER AGITATOR (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.094 In/Sec	.119 G-s
MOV	.085 In/Sec	.027 G-s
MIH	.084 In/Sec	.121 G-s
MIV	.092 In/Sec	.043 G-s
MIA	.040 In/Sec	.043 G-s
AIH	.024 In/Sec	.104 G-s
AIV	.027 In/Sec	.041 G-s
AIA	.027 In/Sec	.034 G-s
AOH	.023 In/Sec	.097 G-s
AOV	.045 In/Sec	.023 G-s

3 - #3 TOP PRESS ROLL DRIVE (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.982 In/Sec	.364 G-s
MOV	.295 In/Sec	.107 G-s
MIH	.233 In/Sec	.774 G-s
MIV	.195 In/Sec	.202 G-s
MIA	.477 In/Sec	.122 G-s
GIH	.352 In/Sec	.042 G-s
GIV	.154 In/Sec	.028 G-s
GIA	.116 In/Sec	.018 G-s
GOH	.202 In/Sec	.021 G-s
GOV	.191 In/Sec	.0075 G-s
GOA	.117 In/Sec	.013 G-s

3b - #3 BOTTOM PRESS ROLL DRIVE (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.126 In/Sec	.753 G-s
MOV	.109 In/Sec	.241 G-s
MIH	.115 In/Sec	.653 G-s
MIV	.087 In/Sec	.274 G-s
MIA	.135 In/Sec	.207 G-s
GIH	.102 In/Sec	.020 G-s
GIV	.045 In/Sec	.0064 G-s
GIA	.025 In/Sec	.0079 G-s
GOH	.070 In/Sec	.016 G-s
GOV	.024 In/Sec	.0059 G-s
GOA	.030 In/Sec	.0042 G-s

B3FRM8ROLA - #2 TOP PRESS ROLL DRIVE (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.094 In/Sec	.439 G-s
MOV	.087 In/Sec	.071 G-s
MIH	.133 In/Sec	.270 G-s
MIV	.126 In/Sec	.067 G-s
MIA	.110 In/Sec	.067 G-s
GIH	.059 In/Sec	.051 G-s
GIV	.047 In/Sec	.021 G-s
GIA	.025 In/Sec	.018 G-s
GOH	.035 In/Sec	.028 G-s
GOV	.044 In/Sec	.013 G-s
GOA	.028 In/Sec	.013 G-s

B3FRM8ROLB - #2 BOTTOM PRESS ROLL DRIVE (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.162 In/Sec	.299 G-s
MOV	.178 In/Sec	.128 G-s
MIH	.106 In/Sec	.515 G-s
MIV	.155 In/Sec	.122 G-s
MIA	.062 In/Sec	.105 G-s
GIH	.093 In/Sec	.042 G-s
GIV	.048 In/Sec	.011 G-s
GIA	.023 In/Sec	.0096 G-s
GOH	.067 In/Sec	.025 G-s

	GOV	.025 In/Sec	.0071 G-s
	GOA	.038 In/Sec	.0059 G-s

1 - #1 TOP PRESS ROLL DRIVE (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.107 In/Sec	.815 G-s
MOV	.094 In/Sec	.221 G-s
MIH	.058 In/Sec	.663 G-s
MIV	.131 In/Sec	.138 G-s
MIA	.159 In/Sec	.211 G-s
GIH	.044 In/Sec	.064 G-s
GIV	.095 In/Sec	.025 G-s
GIA	.029 In/Sec	.019 G-s
GOH	.022 In/Sec	.047 G-s
GOV	.028 In/Sec	.022 G-s
GOA	.021 In/Sec	.017 G-s

1b - #1 BOTTOM PRESS ROLL DRIVE (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.230 In/Sec	.388 G-s
MOV	.167 In/Sec	.094 G-s
MIH	.079 In/Sec	.678 G-s
MIV	.192 In/Sec	.115 G-s
MIA	.488 In/Sec	.110 G-s
GIH	.033 In/Sec	.066 G-s
GIV	.080 In/Sec	.038 G-s
GIA	.020 In/Sec	.020 G-s
GOH	.025 In/Sec	.057 G-s
GOV	.045 In/Sec	.025 G-s
GOA	.025 In/Sec	.022 G-s

B3-FRM-11 - #3 BOARD LINE DRIVE (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.122 In/Sec	1.641 G-s
MOV	.071 In/Sec	.274 G-s
MIH	.126 In/Sec	.436 G-s
MIV	.179 In/Sec	.228 G-s
MIA	.074 In/Sec	.245 G-s
G1I	.027 In/Sec	.265 G-s
GIV	.067 In/Sec	.232 G-s
G1A	.048 In/Sec	.076 G-s
G1O	.021 In/Sec	.172 G-s
G2O	.025 In/Sec	.128 G-s
GOV	.042 In/Sec	.149 G-s
G2I	.030 In/Sec	.170 G-s
G2A	.058 In/Sec	.121 G-s

B3-KBS-02 - WET END CIRCULATION FAN (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.098 In/Sec	.258 G-s
MOV	.039 In/Sec	.043 G-s
MIH	.094 In/Sec	.257 G-s
MIV	.044 In/Sec	.032 G-s
MIA	.030 In/Sec	.090 G-s
FIH	.123 In/Sec	.029 G-s
FIV	.037 In/Sec	.037 G-s
FIA	.147 In/Sec	.018 G-s
FOH	.076 In/Sec	.015 G-s
FOV	.032 In/Sec	.0058 G-s
FOA	.045 In/Sec	.0049 G-s

B3KBS01BLW - WET END COMBUSTION BLOWER (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.061 In/Sec	.488 G-s
MOV	.061 In/Sec	.126 G-s
MIH	.075 In/Sec	.865 G-s
MIV	.265 In/Sec	.119 G-s
MIA	.071 In/Sec	.103 G-s
BIH	.099 In/Sec	.950 G-s
BIV	.141 In/Sec	1.165 G-s

BIA	.099 In/Sec	.331 G-s
BOH	.092 In/Sec	2.126 G-s
BOV	.114 In/Sec	.540 G-s

B3-KBS-05 - DRY END CIRCULATION FAN (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.074 In/Sec	.349 G-s
MOV	.038 In/Sec	.113 G-s
MIH	.058 In/Sec	.785 G-s
MIV	.024 In/Sec	.118 G-s
MIA	.025 In/Sec	.125 G-s
FIH	.065 In/Sec	.087 G-s
FIV	.021 In/Sec	.083 G-s
FIA	.027 In/Sec	.047 G-s
FOH	.038 In/Sec	.050 G-s
FOV	.017 In/Sec	.050 G-s
FOA	.019 In/Sec	.044 G-s

B3KBS04BLW - DRY END COMBUSTION BLOWER (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.043 In/Sec	.378 G-s
MOV	.106 In/Sec	.194 G-s
MIH	.055 In/Sec	.633 G-s
MIV	.098 In/Sec	.174 G-s
MIA	.050 In/Sec	.103 G-s
BIH	.119 In/Sec	1.362 G-s
BIV	.038 In/Sec	.236 G-s
BIA	.191 In/Sec	.189 G-s
BOH	.096 In/Sec	.564 G-s
BOV	.098 In/Sec	.084 G-s

B3-KBS-07 - LINE 3 KILN EXHAUST FAN (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.034 In/Sec	.654 G-s
MOV	.071 In/Sec	.201 G-s
MIH	.045 In/Sec	.902 G-s
MIV	.065 In/Sec	.237 G-s
MIA	.039 In/Sec	.275 G-s
FIH	.0094 In/Sec	.0044 G-s
FIV	.0098 In/Sec	.0031 G-s
FIA	.016 In/Sec	.0028 G-s
FOH	.0078 In/Sec	.0017 G-s
FOV	.013 In/Sec	.0032 G-s
FOA	.027 In/Sec	.0032 G-s

Area: LINE 3 FINISHING

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD

HIPRSWTRP - HI-PRESSURE WATER PUMP (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.162 In/Sec	2.594 G-s
MOV	.237 In/Sec	.470 G-s
MIH	.137 In/Sec	2.927 G-s
MIV	.194 In/Sec	.448 G-s
MIA	.078 In/Sec	.865 G-s
P1H	.323 In/Sec	.876 G-s
P1V	.280 In/Sec	.195 G-s
P1A	.121 In/Sec	.181 G-s
P2H	.218 In/Sec	.620 G-s
P2V	.367 In/Sec	.380 G-s
P2A	.199 In/Sec	.355 G-s

FINSHSHRD - FINISHING SHEDDER (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.104 In/Sec	.436 G-s
MOV	.206 In/Sec	.163 G-s
MIH	.078 In/Sec	.664 G-s

MIV	.145 In/Sec	.152 G-s
MIA	.073 In/Sec	.081 G-s
GH	.073 In/Sec	.298 G-s
GV	.112 In/Sec	.049 G-s
GA	.077 In/Sec	.073 G-s
SH	.060 In/Sec	.366 G-s
SV	.083 In/Sec	.070 G-s
SA	.051 In/Sec	.134 G-s

F3-GRD-01 - LINE 3 FINISH GRINDER #1 (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.232 In/Sec	.358 G-s
MOV	.504 In/Sec	.103 G-s
MIH	.090 In/Sec	.259 G-s
MIV	.246 In/Sec	.099 G-s
MIA	.061 In/Sec	.080 G-s
GIH	.056 In/Sec	.145 G-s
GIV	.088 In/Sec	.049 G-s
GIA	.051 In/Sec	.064 G-s

F3-GRD-02 - LINE 3 FINISH GRINDER #2 (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.713 In/Sec	.545 G-s
MOV	.233 In/Sec	.284 G-s
MIH	.283 In/Sec	.503 G-s
MIV	.182 In/Sec	.121 G-s
MIA	.252 In/Sec	.137 G-s
GIH	.065 In/Sec	.229 G-s
GIV	.070 In/Sec	.058 G-s
GIA	.147 In/Sec	.051 G-s

F3-GRD-04 - LINE 3 FINISH GRINDER #4 (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.431 In/Sec	.499 G-s
MOV	.516 In/Sec	.063 G-s
MIH	.350 In/Sec	.145 G-s
MIV	.248 In/Sec	.039 G-s
MIA	.109 In/Sec	.035 G-s
GIH	.176 In/Sec	.204 G-s
GIV	.126 In/Sec	.040 G-s
GIA	.086 In/Sec	.045 G-s

F3-GRD-05 - LINE 3 GRINDER DRIVE (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.047 In/Sec	.647 G-s
MOV	.078 In/Sec	.367 G-s
MIH	.072 In/Sec	.983 G-s
MIV	.086 In/Sec	.323 G-s
MIA	.078 In/Sec	.279 G-s
G1I	.084 In/Sec	1.516 G-s
GIV	.055 In/Sec	.440 G-s
G1A	.048 In/Sec	.641 G-s
G2O	.063 In/Sec	.592 G-s
GOV	.076 In/Sec	.279 G-s
G2A	.048 In/Sec	.336 G-s

B3-KFS-04 - LINE 3 KILN DRIVE (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.042 In/Sec	.267 G-s
MIH	.030 In/Sec	.436 G-s
MIA	.090 In/Sec	.394 G-s
G1I	.067 In/Sec	.273 G-s
G1A	.066 In/Sec	.188 G-s
G2O	.053 In/Sec	.231 G-s
G2A	.082 In/Sec	.423 G-s

B3KFS4LUBP - L3 KILN GEARBOX LUBE OIL PMP (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.096 In/Sec	.338 G-s
MOV	.071 In/Sec	.085 G-s

MIH	.059 In/Sec	.475 G-s
MIV	.071 In/Sec	.131 G-s
MIA	.041 In/Sec	.267 G-s
GH	.070 In/Sec	.543 G-s
GV	.068 In/Sec	.112 G-s
GA	.035 In/Sec	.122 G-s
PH	.088 In/Sec	.225 G-s
PV	.060 In/Sec	.157 G-s
PA	.110 In/Sec	.155 G-s

F3-PAD-06 - BLUE OVEN 1 ZONE1 CIRC FAN 1 (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.276 In/Sec	.485 G-s
MOV	.175 In/Sec	.210 G-s
MIH	.706 In/Sec	.686 G-s
MIV	.487 In/Sec	.236 G-s
MIA	.556 In/Sec	.248 G-s
FIH	.553 In/Sec	.792 G-s
FIV	.584 In/Sec	.219 G-s
FIA	.275 In/Sec	.254 G-s
FOH	.190 In/Sec	1.894 G-s
FOV	.294 In/Sec	.664 G-s

OVN1ZNE1F2 - BLUE OVEN 1 ZONE1 CIRC FAN 2 (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.138 In/Sec	.523 G-s
MOV	.226 In/Sec	.134 G-s
MIH	.166 In/Sec	.416 G-s
MIV	.150 In/Sec	.082 G-s
MIA	.253 In/Sec	.077 G-s
FIH	.225 In/Sec	1.136 G-s
FIV	.314 In/Sec	.184 G-s
FIA	.201 In/Sec	.379 G-s
FOH	.110 In/Sec	.670 G-s
FOV	.138 In/Sec	.162 G-s

OVN1ZNE2F1 - BLUE OVEN 1 ZONE2 CIRC FAN 1 (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	1.425 In/Sec	1.632 G-s
MOV	1.000 In/Sec	.287 G-s
MIH	1.466 In/Sec	.505 G-s
MIV	1.614 In/Sec	.279 G-s
MIA	1.969 In/Sec	.153 G-s
FIH	1.379 In/Sec	2.197 G-s
FIV	1.426 In/Sec	.323 G-s
FIA	.671 In/Sec	.273 G-s
FOH	.313 In/Sec	1.710 G-s
FOV	.176 In/Sec	.200 G-s

OVN1ZNE2F2 - BLUE OVEN 1 ZONE2 CIRC FAN 2 (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.948 In/Sec	.826 G-s
MOV	.576 In/Sec	.185 G-s
MIH	1.721 In/Sec	.790 G-s
MIV	.682 In/Sec	.241 G-s
MIA	.996 In/Sec	.272 G-s
FIH	.549 In/Sec	.623 G-s
FIV	1.652 In/Sec	.171 G-s
FIA	.705 In/Sec	.171 G-s
FOH	.362 In/Sec	3.610 G-s
FOV	.262 In/Sec	.553 G-s

D1DCR02EXH - #1 GRINDER BAGHOUSE DC FAN (19-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.274 In/Sec	.527 G-s
MOV	1.578 In/Sec	.225 G-s
MIH	.159 In/Sec	.550 G-s
MIV	.438 In/Sec	.086 G-s
MIA	.359 In/Sec	.061 G-s
FIH	1.187 In/Sec	.252 G-s

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              FIV                      .699 In/Sec       .873 G-s
              FIA                     1.139 In/Sec       .210 G-s
              FOH                     1.048 In/Sec       .542 G-s
              FOV                      .741 In/Sec      2.645 G-s

       D1DCR03EXH - #2 FINISHING DUST COLLECTOR   (19-Jun-24)
                                   OVERALL LEVEL     1K-20KHz
              MOH                      .272 In/Sec       .537 G-s
              MOV                      .210 In/Sec       .142 G-s
              MIH                      .180 In/Sec      2.278 G-s
              MIV                      .274 In/Sec       .275 G-s
              MIA                      .366 In/Sec       .294 G-s
              FIH                      .350 In/Sec       .749 G-s
              FIV                      .449 In/Sec       .114 G-s
              FIA                      .384 In/Sec       .126 G-s
              FOH                      .254 In/Sec       .702 G-s
              FOV                      .234 In/Sec       .266 G-s

       D1DCR01EXH - #3 FINISHING DUST COLLECTOR   (19-Jun-24)
                                   OVERALL LEVEL     1K-20KHz
              MOH                      .285 In/Sec       .763 G-s
              MOV                      .821 In/Sec       .226 G-s
              MIH                      .254 In/Sec       .744 G-s
              MIV                      .638 In/Sec       .113 G-s
              MIA                      .275 In/Sec       .138 G-s
              FIH                      .400 In/Sec       .423 G-s
              FIV                      .357 In/Sec       .169 G-s
              FIA                      .267 In/Sec       .147 G-s
              FOH                      .296 In/Sec       .397 G-s
              FOV                      .137 In/Sec       .280 G-s

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   Clarification Of Vibration Units:
      Acc      -->  G-s      RMS
      Vel      -->  In/Sec   PK
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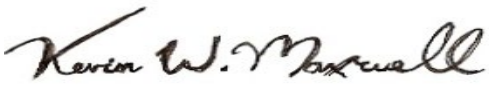
As always, it has been a pleasure to serve USG Greenville, MS. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



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