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October 23, 2023

South Shelby RNG
Memphis, TN

The following is a summary of findings from the monthly vibration survey that was performed on October 23, 2023.

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

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

C-551B Vacuum Compressor B

The compressor outboard end still shows some acceleration with high frequency noise floor in the spectra. This may be process load related but could also be signs of internal compressor issues. For now ,ensure lube system is operating properly and ensure compressor parameters are within normal ranges. This is being monitored closely. Rated as a **CLASS I** defect.

C-0600 A Feed Gas Compressor

Compressor vibration remains higher than usual. Vibration is very high and spectral data indicates excessive shaft movement and internal defects of compressor. The compressor needs to be replaced ASAP. Rated as a **CLASS IV** defect.

C-0600 B Feed Gas Compressor

Compressor vertical data continues to show some dominant 1 x, 4 and 8 x male rotor rpm vibration. Internal clearance issue or some other process or loading issue may be causing the 4-x rpm vibration and harmonics of 4 x that also seen in the compressor data. Inlet piping is also showing an increase in vibration this survey. Well over 1 ips overall which is considered high amplitude. We will continue to monitor closely. Rated as a **CLASS II** defect.

C-0600 C Feed Gas Compressor

Motor has higher than normal 1 x motor rpm vibration. Compressor continues to have high harmonic vibrations that are related to 1 x male rotor and 4 x rpm of the male rotor. For now, we recommend performing a hot alignment on the unit. Ensure motor does not have soft foot condition. Inspect coupling hubs and element also. Rated as a **CLASS II** defect.

BLR-0200 A, B, C, and D LFG Blowers

These blowers have high amplitudes of acceleration (high frequency vibrations). Blower outboard axials are typically the highest amplitudes and may be process load related. Multiple harmonics at what appears to be 8 x blower rpm are present and is dominant in blower data. Amplitudes are as high as 60 g's peak to peak which is very high; however, this is likely a characteristic of this blowers' sliding vanes. We will continue to monitor closely. Rated as **CLASS I** defects for now.

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Abbreviated Last Measurement Summary
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               Database:  South Shelby RNG.rbm
               Area:      SOUTH SHELBY PLANT
               Route No.  1:  SOUTH SHELBY

      MEASUREMENT POINT            OVERALL LEVEL       HFD / VHFD
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      C-551B     - C-551B VACUUM COMPRESSOR B    (23-Oct-23)
                                   OVERALL LEVEL     1K-20KHz
             MOH                     .083 In/Sec       .894 G-s
             MOV                     .068 In/Sec       .384 G-s
             MIH                     .106 In/Sec      1.435 G-s
             MIV                     .109 In/Sec       .255 G-s
             MIA                     .071 In/Sec       .219 G-s
             CIA                     .233 In/Sec      1.054 G-s
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CIH	.237 In/Sec	3.423 G-s
CIV	.331 In/Sec	.851 G-s
COH	.344 In/Sec	8.443 G-s
COV	.251 In/Sec	1.024 G-s
COA	.195 In/Sec	1.583 G-s

C-551A - C-551A VACUUM COMPRESSOR A (23-Oct-23)

	OVERALL LEVEL	1K-20KHz
MOH	.080 In/Sec	1.369 G-s
MOV	.089 In/Sec	.281 G-s
MIH	.118 In/Sec	.839 G-s
MIV	.077 In/Sec	.298 G-s
MIA	.083 In/Sec	.427 G-s
CIA	.334 In/Sec	.555 G-s
CIH	.279 In/Sec	3.157 G-s
CIV	.499 In/Sec	.406 G-s
COH	.320 In/Sec	4.466 G-s
COV	.324 In/Sec	1.366 G-s
COA	.214 In/Sec	1.272 G-s

C-601B - C-601B N2 RECYCLE COMP B (23-Oct-23)

	OVERALL LEVEL	1K-20KHz
MOH	.085 In/Sec	.506 G-s
MOV	.037 In/Sec	.185 G-s
MIH	.096 In/Sec	.673 G-s
MIV	.062 In/Sec	.126 G-s
MIA	.031 In/Sec	.128 G-s
CIA	.208 In/Sec	.570 G-s
CIH	.151 In/Sec	2.638 G-s
CIV	.104 In/Sec	3.103 G-s
COH	.169 In/Sec	2.229 G-s
COV	.140 In/Sec	.640 G-s
COA	.082 In/Sec	.639 G-s

C-601A - C-601A N2 RECYCLE COMP A (23-Oct-23)

	OVERALL LEVEL	1K-20KHz
MOH	.041 In/Sec	.698 G-s
MOV	.031 In/Sec	.351 G-s
MIH	.086 In/Sec	.616 G-s
MIV	.029 In/Sec	.351 G-s
MIA	.038 In/Sec	.232 G-s
CIA	.088 In/Sec	.716 G-s
CIH	.093 In/Sec	2.460 G-s
CIV	.145 In/Sec	.381 G-s
COH	.120 In/Sec	1.285 G-s
COV	.117 In/Sec	.704 G-s
COA	.110 In/Sec	.605 G-s

C-0600A - C-0600A FEED GAS COMP A (23-Oct-23)

	OVERALL LEVEL	1K-20KHz
MOH	.339 In/Sec	.853 G-s
MOV	.351 In/Sec	.127 G-s
MIH	.381 In/Sec	.655 G-s
MIV	.288 In/Sec	.279 G-s
MIA	.198 In/Sec	.223 G-s
CIA	.667 In/Sec	2.617 G-s
CIH	1.469 In/Sec	14.81 G-s
CIV	2.068 In/Sec	1.857 G-s
COH	.839 In/Sec	6.096 G-s
COV	1.010 In/Sec	1.382 G-s
COA	.914 In/Sec	1.941 G-s
P1	.946 In/Sec	1.045 G-s

C-0600B - C-0600B FEED GAS COMP B (23-Oct-23)

	OVERALL LEVEL	1K-20KHz
MOH	.196 In/Sec	.491 G-s
MOV	.085 In/Sec	.060 G-s
MIH	.195 In/Sec	1.118 G-s
MIV	.157 In/Sec	.274 G-s
MIA	.119 In/Sec	.257 G-s

CIA	.486 In/Sec	.663 G-s
CIH	.434 In/Sec	5.665 G-s
CIV	.567 In/Sec	.557 G-s
COH	.360 In/Sec	2.454 G-s
COV	.586 In/Sec	.423 G-s
COA	.254 In/Sec	.636 G-s
P1	1.297 In/Sec	.422 G-s

C-0600C - C-0600C FEED GAS COMP C (23-Oct-23)

	OVERALL LEVEL	1K-20KHz
MOH	.517 In/Sec	.398 G-s
MOV	.285 In/Sec	.078 G-s
MIH	.548 In/Sec	.662 G-s
MIV	.193 In/Sec	.329 G-s
MIA	.163 In/Sec	.301 G-s
CIA	.397 In/Sec	.675 G-s
CIH	.421 In/Sec	2.631 G-s
CIV	.874 In/Sec	.817 G-s
COH	.496 In/Sec	2.468 G-s
COV	1.286 In/Sec	1.081 G-s
COA	.290 In/Sec	.906 G-s
P1	.769 In/Sec	.916 G-s

BLR-0200A - BLR-0200A LFG BLOWER A (23-Oct-23)

	OVERALL LEVEL	1K-20KHz
MOH	.104 In/Sec	.860 G-s
MOV	.079 In/Sec	.318 G-s
MIH	.127 In/Sec	.952 G-s
MIV	.249 In/Sec	.144 G-s
MIA	.101 In/Sec	.426 G-s
BIA	.297 In/Sec	2.235 G-s
BIH	.520 In/Sec	15.05 G-s
BIV	.531 In/Sec	2.864 G-s
BOH	.423 In/Sec	16.46 G-s
BOV	.464 In/Sec	2.411 G-s
BOA	.221 In/Sec	2.300 G-s

BLR-0200B - BLR-0200B LFG BLOWER B (23-Oct-23)

	OVERALL LEVEL	1K-20KHz
MOH	.153 In/Sec	.869 G-s
MOV	.116 In/Sec	.167 G-s
MIH	.120 In/Sec	.787 G-s
MIV	.207 In/Sec	.137 G-s
MIA	.121 In/Sec	.249 G-s
BIA	.193 In/Sec	1.627 G-s
BIH	.482 In/Sec	9.507 G-s
BIV	.313 In/Sec	1.404 G-s
BOH	.433 In/Sec	11.42 G-s
BOV	.323 In/Sec	1.921 G-s
BOA	.226 In/Sec	2.021 G-s

BLR-0200C - BLR-0200C LFG BLOWER C (23-Oct-23)

	OVERALL LEVEL	1K-20KHz
MOH	.212 In/Sec	.739 G-s
MOV	.182 In/Sec	.215 G-s
MIH	.214 In/Sec	1.001 G-s
MIV	.201 In/Sec	.248 G-s
MIA	.070 In/Sec	.261 G-s
BIA	.212 In/Sec	2.076 G-s
BIH	.583 In/Sec	15.18 G-s
BIV	.348 In/Sec	2.328 G-s
BOH	.566 In/Sec	10.78 G-s
BOV	.398 In/Sec	2.436 G-s
BOA	.225 In/Sec	1.999 G-s

C-1300 - C-1300 SALES GAS COMP STG 1 (23-Oct-23)

	OVERALL LEVEL	1K-20KHz
MOH	.068 In/Sec	.456 G-s
MOV	.128 In/Sec	.082 G-s
MIH	.064 In/Sec	.317 G-s

MIV	.357 In/Sec	.107 G-s
MIA	.203 In/Sec	.154 G-s
CIA	.232 In/Sec	.416 G-s
CIH	.291 In/Sec	7.640 G-s
CIV	.317 In/Sec	.357 G-s
COH	.179 In/Sec	2.432 G-s
COV	.338 In/Sec	1.294 G-s
COA	.191 In/Sec	.893 G-s
P1	.166 In/Sec	1.837 G-s

C-1304 - C-1304 SALES GAS COMP STG 2 (23-Oct-23)

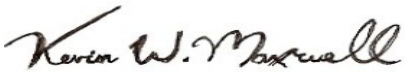
	OVERALL LEVEL	1K-20KHz
MOH	.141 In/Sec	.920 G-s
MOV	.067 In/Sec	1.149 G-s
MIH	.133 In/Sec	1.057 G-s
MIV	.078 In/Sec	.691 G-s
MIA	.104 In/Sec	.380 G-s
CIA	.125 In/Sec	.259 G-s
CIH	.153 In/Sec	.888 G-s
CIV	.102 In/Sec	.238 G-s
COH	.214 In/Sec	.385 G-s
COV	.120 In/Sec	.108 G-s
COA	.143 In/Sec	.182 G-s

Clarification Of Vibration Units:

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

As always, it has been a pleasure to serve South Shelby RNG. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



ISO Certified Vibration Analyst, Category III

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