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April 10, 2024

South Shelby RNG
Memphis, TN

The following is a summary of findings from the monthly vibration survey that was performed on April 10, 2024.

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-0600 A Feed Gas Compressor

Compressor data shows an increase in input side vibration (mainly 1 x input rpm vibration) especially in the vertical direction. Check compressor fasteners and ensure couplings and alignment are good. Rated as a **CLASS II** 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; however, overall vibration is lower than average. 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. We will continue to monitor closely. Rated as a **CLASS II** defect.

C-0600 C Feed Gas Compressor

Motor and compressor have lower 1 x rpm vibration this survey but overall still above .4 ips-pk. Compressor data shows high harmonic vibrations that are related to 1 x male rotor and 4 x rpm of the male rotor. Compressor may have internal fit looseness causing internal clearance issues. For now, we recommend performing a lift check of the input shaft and perform 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, Blower MOTORS

Motor data is showing an increase in non-synchronous vibration, noise floor, and 1-20 Khz. amplitude. There are all indications of bearing issues in the motors. This could be a lube issue, but is more likely to be caused by defective motor bearings. Motors need attention soon. Rated as a high **CLASS II** defect.

C-1300 Sales Gas Compressor Stage 1

Compressor drive end data still shows some high frequency vibration that may be related to gear mesh frequency of the internal mating gears. Amplitude is slightly lower this survey, but these peaks are still present. We need more internal information such as gear ratio and number of gear teeth to confirm issue. Rated as a **CLASS I** defect 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    (10-Apr-24)
                                OVERALL LEVEL     1K-20KHz
          MOH                     .071 In/Sec      1.352 G-s
          MOV                     .060 In/Sec       .329 G-s
          MIH                     .100 In/Sec      2.520 G-s
          MIV                     .085 In/Sec       .496 G-s
          MIA                     .059 In/Sec       .387 G-s
          CIA                     .168 In/Sec      1.164 G-s
          CIH                     .121 In/Sec      2.922 G-s
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CIV	.236 In/Sec	1.024 G-s
COH	.202 In/Sec	6.933 G-s
COV	.190 In/Sec	.910 G-s
COA	.159 In/Sec	2.005 G-s

C-551A - C-551A VACUUM COMPRESSOR A (10-Apr-24)

	OVERALL LEVEL	1K-20KHz
MOH	.057 In/Sec	1.515 G-s
MOV	.076 In/Sec	.382 G-s
MIH	.101 In/Sec	1.014 G-s
MIV	.084 In/Sec	.387 G-s
MIA	.065 In/Sec	.313 G-s
CIA	.214 In/Sec	.589 G-s
CIH	.192 In/Sec	2.550 G-s
CIV	.318 In/Sec	.834 G-s
COH	.247 In/Sec	4.183 G-s
COV	.273 In/Sec	.924 G-s
COA	.177 In/Sec	1.194 G-s

C-601B - C-601B N2 RECYCLE COMP B (10-Apr-24)

	OVERALL LEVEL	1K-20KHz
MOH	.085 In/Sec	.913 G-s
MOV	.035 In/Sec	.364 G-s
MIH	.108 In/Sec	.552 G-s
MIV	.036 In/Sec	.219 G-s
MIA	.040 In/Sec	.140 G-s
CIA	.163 In/Sec	.460 G-s
CIH	.138 In/Sec	1.356 G-s
CIV	.150 In/Sec	.328 G-s
COH	.089 In/Sec	2.160 G-s
COV	.133 In/Sec	.563 G-s
COA	.106 In/Sec	.761 G-s

C-601A - C-601A N2 RECYCLE COMP A (10-Apr-24)

	OVERALL LEVEL	1K-20KHz
MOH	.045 In/Sec	1.381 G-s
MOV	.027 In/Sec	.982 G-s
MIH	.079 In/Sec	.966 G-s
MIV	.026 In/Sec	.232 G-s
MIA	.025 In/Sec	.240 G-s
CIA	.106 In/Sec	.685 G-s
CIH	.100 In/Sec	1.831 G-s
CIV	.168 In/Sec	.278 G-s
COH	.106 In/Sec	1.910 G-s
COV	.095 In/Sec	.635 G-s
COA	.109 In/Sec	.625 G-s

C-0600A - C-0600A FEED GAS COMP A (10-Apr-24)

	OVERALL LEVEL	1K-20KHz
MOH	.069 In/Sec	.415 G-s
MOV	.047 In/Sec	.147 G-s
MIH	.064 In/Sec	.585 G-s
MIV	.083 In/Sec	.165 G-s
MIA	.044 In/Sec	.127 G-s
CIA	.252 In/Sec	.277 G-s
CIH	.381 In/Sec	1.114 G-s
CIV	.956 In/Sec	.365 G-s
COH	.231 In/Sec	2.117 G-s
COV	.361 In/Sec	.290 G-s
COA	.332 In/Sec	.537 G-s
P1	.497 In/Sec	1.115 G-s

C-0600B - C-0600B FEED GAS COMP B (10-Apr-24)

	OVERALL LEVEL	1K-20KHz
MOH	.127 In/Sec	.464 G-s
MOV	.065 In/Sec	.091 G-s
MIH	.158 In/Sec	.428 G-s
MIV	.083 In/Sec	.141 G-s
MIA	.080 In/Sec	.350 G-s
CIA	.205 In/Sec	.885 G-s

	CIH	.307 In/Sec	2.253 G-s
	CIV	.403 In/Sec	.472 G-s
	COH	.289 In/Sec	2.813 G-s
	COV	.395 In/Sec	.343 G-s
	COA	.188 In/Sec	.674 G-s
	P1	1.086 In/Sec	.471 G-s

C-0600C - C-0600C FEED GAS COMP C (10-Apr-24)

		OVERALL LEVEL	1K-20KHz
	MOH	.363 In/Sec	.285 G-s
	MOV	.294 In/Sec	.066 G-s
	MIH	.343 In/Sec	.492 G-s
	MIV	.114 In/Sec	.160 G-s
	MIA	.164 In/Sec	.191 G-s
	CIA	.350 In/Sec	.817 G-s
	CIH	.437 In/Sec	2.700 G-s
	CIV	.491 In/Sec	.639 G-s
	COH	.396 In/Sec	1.993 G-s
	COV	.867 In/Sec	.473 G-s
	COA	.362 In/Sec	.617 G-s
	P1	.783 In/Sec	1.064 G-s

BLR-0200A - BLR-0200A LFG BLOWER A (10-Apr-24)

		OVERALL LEVEL	1K-20KHz
	MOH	.100 In/Sec	2.010 G-s
	MOV	.096 In/Sec	.669 G-s
	MIH	.125 In/Sec	3.382 G-s
	MIV	.117 In/Sec	.425 G-s
	MIA	.052 In/Sec	.765 G-s
	BIA	.175 In/Sec	2.928 G-s
	BIH	.474 In/Sec	18.78 G-s
	BIV	.466 In/Sec	2.709 G-s
	BOH	.580 In/Sec	18.95 G-s
	BOV	.369 In/Sec	3.736 G-s
	BOA	.212 In/Sec	2.711 G-s

BLR-0200B - BLR-0200B LFG BLOWER B (10-Apr-24)

		OVERALL LEVEL	1K-20KHz
	MOH	.096 In/Sec	2.071 G-s
	MOV	.074 In/Sec	.384 G-s
	MIH	.136 In/Sec	3.512 G-s
	MIV	.099 In/Sec	.664 G-s
	MIA	.070 In/Sec	.703 G-s
	BIA	.156 In/Sec	1.767 G-s
	BIH	.379 In/Sec	9.767 G-s
	BIV	.352 In/Sec	1.849 G-s
	BOH	.414 In/Sec	10.30 G-s
	BOV	.320 In/Sec	2.230 G-s
	BOA	.150 In/Sec	1.897 G-s

BLR-0200C - BLR-0200C LFG BLOWER C (10-Apr-24)

		OVERALL LEVEL	1K-20KHz
	MOH	.084 In/Sec	.914 G-s
	MOV	.111 In/Sec	.269 G-s
	MIH	.088 In/Sec	1.052 G-s
	MIV	.109 In/Sec	.208 G-s
	MIA	.093 In/Sec	.280 G-s
	BIA	.214 In/Sec	2.997 G-s
	BIH	.567 In/Sec	15.37 G-s
	BIV	.423 In/Sec	3.854 G-s
	BOH	.660 In/Sec	15.21 G-s
	BOV	.401 In/Sec	2.620 G-s
	BOA	.420 In/Sec	3.240 G-s

C-1300 - C-1300 SALES GAS COMP STG 1 (10-Apr-24)

		OVERALL LEVEL	1K-20KHz
	MOH	.062 In/Sec	.413 G-s
	MOV	.168 In/Sec	.043 G-s
	MIH	.065 In/Sec	.310 G-s
	MIV	.284 In/Sec	.094 G-s

MIA	.172 In/Sec	.165 G-s
CIA	.262 In/Sec	.581 G-s
CIH	.215 In/Sec	3.763 G-s
CIV	.288 In/Sec	.832 G-s
COH	.220 In/Sec	1.081 G-s
COV	.202 In/Sec	.465 G-s
COA	.210 In/Sec	.574 G-s
P1	.135 In/Sec	1.382 G-s

C-1304 - C-1304 SALES GAS COMP STG 2 (10-Apr-24)

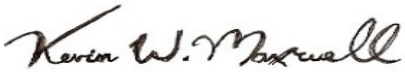
	OVERALL LEVEL	1K-20KHz
MOH	.142 In/Sec	1.133 G-s
MOV	.110 In/Sec	.606 G-s
MIH	.144 In/Sec	1.094 G-s
MIV	.106 In/Sec	.657 G-s
MIA	.124 In/Sec	.258 G-s
CIA	.110 In/Sec	.103 G-s
CIH	.154 In/Sec	.339 G-s
CIV	.109 In/Sec	.136 G-s
COH	.152 In/Sec	.346 G-s
COV	.150 In/Sec	.120 G-s
COA	.123 In/Sec	.153 G-s
2SH	.234 In/Sec	.569 G-s
2SV	.184 In/Sec	.140 G-s
2SA	.289 In/Sec	.165 G-s
3SH	.473 In/Sec	.759 G-s
3SV	.182 In/Sec	.182 G-s
3SA	.199 In/Sec	.154 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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