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August 14, 2024

South Shelby RNG
Memphis, TN

The following is a summary of findings from the monthly vibration survey that was performed on August 12, 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

Defects

C-0600 A Feed Gas Compressor
Compressor data is still showing some high 1 x input rpm vibration especially in the vertical direction. Check compressor fasteners and ensure compressor does have a soft foot. Ensure compressor adapter blocks aren't bowed and are flush with the main base. Rated as a **CLASS II** defect.

C-0600 B Feed Gas Compressor
Baseline data on the new compressor shows lower overall amplitude. There does still seem to be some 4 x rpm (lobe pass) and harmonics of 4 x in the compressor spectra. We will continue to monitor this closely. Rated as a **CLASS I** defect.

C-0600 C Feed Gas Compressor
Compressor data also shows high harmonic vibrations that are related to 1 x male and female rotor and 4 x rpm of the male rotor. Compressor likely has internal fit looseness/wear. Compressor will need attention soon. Motor has some 1 x rpm vibration as well. When installing new compressor, ensure motor and compressor do not have soft foot condition. Inspect coupling hubs and element also. Rated as a **CLASS III** defect.

BLR-0200 B, Blower MOTOR
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 motor. This could be a lube issue, but is more likely to be caused by defective motor bearings. Motor should be inspected soon. Rated as a **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

MEASUREMENT POINT            OVERALL LEVEL       HFD / VHFD
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C-551B     - C-551B VACUUM COMPRESSOR B    (14-Aug-24)
                              OVERALL LEVEL     1K-20KHz
       MOH                     .073 In/Sec      2.143 G-s
       MOV                     .064 In/Sec       .459 G-s
       MIH                     .108 In/Sec      1.662 G-s
       MIV                     .104 In/Sec       .314 G-s
       MIA                     .082 In/Sec       .414 G-s
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	CIA	.217 In/Sec	1.289 G-s
	CIH	.132 In/Sec	3.250 G-s
	CIV	.239 In/Sec	1.161 G-s
	COH	.173 In/Sec	5.003 G-s
	COV	.208 In/Sec	.866 G-s
	COA	.185 In/Sec	1.222 G-s

C-551A - C-551A VACUUM COMPRESSOR A (14-Aug-24)

		OVERALL LEVEL	1K-20KHz
	MOH	.053 In/Sec	2.163 G-s
	MOV	.060 In/Sec	.286 G-s
	MIH	.094 In/Sec	1.401 G-s
	MIV	.077 In/Sec	.223 G-s
	MIA	.051 In/Sec	.444 G-s
	CIA	.412 In/Sec	1.943 G-s
	CIH	.258 In/Sec	3.245 G-s
	CIV	.399 In/Sec	1.991 G-s
	COH	.284 In/Sec	5.573 G-s
	COV	.346 In/Sec	1.589 G-s
	COA	.235 In/Sec	1.737 G-s

C-601B - C-601B N2 RECYCLE COMP B (14-Aug-24)

		OVERALL LEVEL	1K-20KHz
	MOH	.084 In/Sec	.678 G-s
	MOV	.023 In/Sec	.199 G-s
	MIH	.112 In/Sec	.652 G-s
	MIV	.047 In/Sec	.175 G-s
	MIA	.044 In/Sec	.140 G-s
	CIA	.097 In/Sec	.909 G-s
	CIH	.105 In/Sec	1.579 G-s
	CIV	.121 In/Sec	.809 G-s
	COH	.130 In/Sec	2.565 G-s
	COV	.141 In/Sec	.634 G-s
	COA	.127 In/Sec	.726 G-s

C-601A - C-601A N2 RECYCLE COMP A (14-Aug-24)

		OVERALL LEVEL	1K-20KHz
	MOH	.039 In/Sec	.501 G-s
	MOV	.027 In/Sec	.295 G-s
	MIH	.088 In/Sec	1.130 G-s
	MIV	.028 In/Sec	.394 G-s
	MIA	.030 In/Sec	.262 G-s
	CIA	.176 In/Sec	.642 G-s
	CIH	.135 In/Sec	1.368 G-s
	CIV	.204 In/Sec	.327 G-s
	COH	.142 In/Sec	1.189 G-s
	COV	.207 In/Sec	.517 G-s
	COA	.145 In/Sec	.486 G-s

C-0600A - C-0600A FEED GAS COMP A (14-Aug-24)

		OVERALL LEVEL	1K-20KHz
	MOH	.061 In/Sec	.366 G-s
	MOV	.046 In/Sec	.135 G-s
	MIH	.071 In/Sec	.368 G-s
	MIV	.059 In/Sec	.078 G-s
	MIA	.070 In/Sec	.145 G-s
	CIA	.369 In/Sec	.417 G-s
	CIH	.247 In/Sec	1.000 G-s
	CIV	.759 In/Sec	.326 G-s
	COH	.238 In/Sec	2.562 G-s
	COV	.368 In/Sec	.656 G-s
	COA	.350 In/Sec	.416 G-s

C-0600B - C-0600B FEED GAS COMP B (14-Aug-24)

		OVERALL LEVEL	1K-20KHz
	MOH	.153 In/Sec	.425 G-s
	MOV	.132 In/Sec	.140 G-s
	MIH	.163 In/Sec	.538 G-s
	MIV	.098 In/Sec	.338 G-s
	MIA	.138 In/Sec	.237 G-s

CIA	.312 In/Sec	.577 G-s
CIH	.324 In/Sec	2.308 G-s
CIV	.641 In/Sec	.914 G-s
COH	.293 In/Sec	1.772 G-s
COV	.702 In/Sec	.795 G-s
COA	.287 In/Sec	.541 G-s

C-0600C - C-0600C FEED GAS COMP C (14-Aug-24)

	OVERALL LEVEL	1K-20KHz
MOH	.348 In/Sec	.357 G-s
MOV	.280 In/Sec	.072 G-s
MIH	.357 In/Sec	.536 G-s
MIV	.097 In/Sec	.153 G-s
MIA	.169 In/Sec	.215 G-s
CIA	.934 In/Sec	1.184 G-s
CIH	.690 In/Sec	4.069 G-s
CIV	.700 In/Sec	1.009 G-s
COH	.665 In/Sec	3.092 G-s
COV	1.328 In/Sec	1.635 G-s
COA	.878 In/Sec	1.722 G-s

BLR-0200B - BLR-0200B LFG BLOWER B (14-Aug-24)

	OVERALL LEVEL	1K-20KHz
MOH	.224 In/Sec	1.917 G-s
MOV	.174 In/Sec	.406 G-s
MIH	.241 In/Sec	3.191 G-s
MIV	.271 In/Sec	.475 G-s
MIA	.073 In/Sec	.990 G-s
BIA	.170 In/Sec	1.828 G-s
BIH	.279 In/Sec	7.453 G-s
BIV	.258 In/Sec	1.891 G-s
BOH	.266 In/Sec	9.883 G-s
BOV	.383 In/Sec	1.850 G-s
BOA	.153 In/Sec	2.294 G-s

BLR-0200C - BLR-0200C LFG BLOWER C (14-Aug-24)

	OVERALL LEVEL	1K-20KHz
MOH	.121 In/Sec	.909 G-s
MOV	.131 In/Sec	.228 G-s
MIH	.107 In/Sec	1.074 G-s
MIV	.116 In/Sec	.179 G-s
MIA	.060 In/Sec	.264 G-s
BIA	.238 In/Sec	2.300 G-s
BIH	.529 In/Sec	12.73 G-s
BIV	.390 In/Sec	2.518 G-s
BOH	.596 In/Sec	13.51 G-s
BOV	.381 In/Sec	2.443 G-s
BOA	.175 In/Sec	2.435 G-s

BLR-0200D - BLR-0200D LFG BLOWER D (14-Aug-24)

	OVERALL LEVEL	1K-20KHz
MOH	.190 In/Sec	.785 G-s
MOV	.132 In/Sec	.261 G-s
MIH	.183 In/Sec	1.250 G-s
MIV	.299 In/Sec	.166 G-s
MIA	.117 In/Sec	.224 G-s
BIA	.250 In/Sec	2.781 G-s
BIH	.375 In/Sec	17.09 G-s
BIV	.352 In/Sec	3.057 G-s
BOH	.441 In/Sec	17.48 G-s
BOV	.331 In/Sec	2.490 G-s
BOA	.237 In/Sec	2.456 G-s

C-1300 - C-1300 SALES GAS COMP STG 1 (14-Aug-24)

	OVERALL LEVEL	1K-20KHz
MOH	.089 In/Sec	.455 G-s
MOV	.043 In/Sec	.090 G-s
MIH	.040 In/Sec	.264 G-s
MIV	.248 In/Sec	.063 G-s
MIA	.135 In/Sec	.150 G-s

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            CIA                      .326 In/Sec       .560 G-s
            CIH                      .201 In/Sec      2.393 G-s
            CIV                      .399 In/Sec       .671 G-s
            COH                      .268 In/Sec      1.225 G-s
            COV                      .240 In/Sec       .241 G-s
            COA                      .240 In/Sec       .275 G-s

      C-1304     - C-1304 SALES GAS COMP STG 2    (14-Aug-24)
                                   OVERALL LEVEL     1K-20KHz
            MOH                      .135 In/Sec       .863 G-s
            MOV                      .128 In/Sec       .658 G-s
            MIH                      .143 In/Sec      1.941 G-s
            MIV                      .100 In/Sec       .624 G-s
            MIA                      .106 In/Sec       .434 G-s
            CIA                      .153 In/Sec       .122 G-s
            CIH                      .144 In/Sec       .402 G-s
            CIV                      .105 In/Sec       .159 G-s
            COH                      .160 In/Sec       .415 G-s
            COV                      .166 In/Sec       .164 G-s
            COA                      .137 In/Sec       .122 G-s
            1SH                      .184 In/Sec       .504 G-s
            1SV                      .222 In/Sec       .125 G-s
            1SA                      .203 In/Sec       .149 G-s
            2SH                      .310 In/Sec       .664 G-s
            2SV                      .162 In/Sec       .208 G-s
            2SA                      .178 In/Sec       .221 G-s


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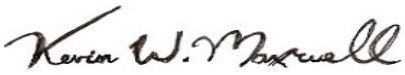
As always, it has been a pleasure to serve South Shelby RNG. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



ISO Certified Vibration Analyst, Category III

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