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June 21, 2024

South Shelby RNG
Memphis, TN

The following is a summary of findings from the monthly vibration survey that was performed on June 21, 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 vibration especially in the vertical direction. Compressor spectra have lobe pass harmonics with high peak amplitude. An 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. 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. An 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 1 x rpm vibration. Compressor data also 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


MEASUREMENT POINT              OVERALL LEVEL        HFD / VHFD
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C-551B     - C-551B VACUUM COMPRESSOR B     (21-Jun-24)
                                OVERALL LEVEL     1K-20KHz
       MOH                        .066 In/Sec      2.126 G-s
       MOV                        .045 In/Sec       .442 G-s
       MIH                        .114 In/Sec      1.172 G-s
       MIV                        .091 In/Sec       .344 G-s
       MIA                        .085 In/Sec       .325 G-s
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CIA	.181 In/Sec	.696 G-s
CIH	.163 In/Sec	2.573 G-s
CIV	.249 In/Sec	.611 G-s
COH	.170 In/Sec	3.355 G-s
COV	.187 In/Sec	.889 G-s
COA	.146 In/Sec	1.209 G-s

C-551A - C-551A VACUUM COMPRESSOR A (21-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.075 In/Sec	1.355 G-s
MOV	.082 In/Sec	.189 G-s
MIH	.095 In/Sec	.768 G-s
MIV	.076 In/Sec	.292 G-s
MIA	.058 In/Sec	.227 G-s
CIA	.423 In/Sec	.722 G-s
CIH	.328 In/Sec	2.414 G-s
CIV	.335 In/Sec	.662 G-s
COH	.337 In/Sec	5.202 G-s
COV	.248 In/Sec	.917 G-s
COA	.355 In/Sec	1.219 G-s

C-601B - C-601B N2 RECYCLE COMP B (21-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.110 In/Sec	.501 G-s
MOV	.044 In/Sec	.207 G-s
MIH	.122 In/Sec	.802 G-s
MIV	.046 In/Sec	.244 G-s
MIA	.049 In/Sec	.210 G-s
CIA	.127 In/Sec	.575 G-s
CIH	.125 In/Sec	2.085 G-s
CIV	.148 In/Sec	.454 G-s
COH	.142 In/Sec	4.169 G-s
COV	.109 In/Sec	1.268 G-s
COA	.117 In/Sec	.676 G-s

C-601A - C-601A N2 RECYCLE COMP A (21-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.060 In/Sec	.711 G-s
MOV	.042 In/Sec	.454 G-s
MIH	.095 In/Sec	.971 G-s
MIV	.033 In/Sec	.293 G-s
MIA	.030 In/Sec	.310 G-s
CIA	.183 In/Sec	.610 G-s
CIH	.171 In/Sec	1.588 G-s
CIV	.286 In/Sec	.303 G-s
COH	.111 In/Sec	1.859 G-s
COV	.093 In/Sec	.553 G-s
COA	.070 In/Sec	.599 G-s

C-0600A - C-0600A FEED GAS COMP A (21-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.098 In/Sec	.484 G-s
MOV	.086 In/Sec	.106 G-s
MIH	.084 In/Sec	.484 G-s
MIV	.081 In/Sec	.183 G-s
MIA	.054 In/Sec	.198 G-s
CIA	.450 In/Sec	.387 G-s
CIH	.446 In/Sec	1.532 G-s
CIV	1.082 In/Sec	.419 G-s
COH	.290 In/Sec	1.652 G-s
COV	.750 In/Sec	.635 G-s
COA	.525 In/Sec	.581 G-s

C-0600B - C-0600B FEED GAS COMP B (21-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.180 In/Sec	.398 G-s
MOV	.147 In/Sec	.158 G-s
MIH	.229 In/Sec	.584 G-s
MIV	.146 In/Sec	.361 G-s
MIA	.078 In/Sec	.215 G-s

CIA	.247 In/Sec	.610 G-s
CIH	.339 In/Sec	2.402 G-s
CIV	.534 In/Sec	.414 G-s
COH	.333 In/Sec	1.931 G-s
COV	.574 In/Sec	.421 G-s
COA	.249 In/Sec	.735 G-s

C-0600C - C-0600C FEED GAS COMP C (21-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.396 In/Sec	.319 G-s
MOV	.300 In/Sec	.213 G-s
MIH	.384 In/Sec	.526 G-s
MIV	.138 In/Sec	.358 G-s
MIA	.178 In/Sec	.292 G-s
CIA	.524 In/Sec	1.007 G-s
CIH	.699 In/Sec	2.957 G-s
CIV	.735 In/Sec	.856 G-s
COH	.593 In/Sec	2.051 G-s
COV	1.023 In/Sec	.774 G-s
COA	.588 In/Sec	.820 G-s

BLR-0200A - BLR-0200A LFG BLOWER A (21-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.122 In/Sec	2.131 G-s
MOV	.127 In/Sec	.552 G-s
MIH	.160 In/Sec	2.901 G-s
MIV	.159 In/Sec	.557 G-s
MIA	.150 In/Sec	.840 G-s
BIA	.301 In/Sec	3.565 G-s
BIV	.511 In/Sec	3.032 G-s
BOV	.413 In/Sec	3.789 G-s
BOA	.286 In/Sec	4.336 G-s

BLR-0200B - BLR-0200B LFG BLOWER B (21-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.135 In/Sec	1.976 G-s
MOV	.099 In/Sec	.398 G-s
MIH	.187 In/Sec	3.347 G-s
MIV	.241 In/Sec	.450 G-s
MIA	.208 In/Sec	.736 G-s
BIA	.253 In/Sec	2.404 G-s
BIH	.427 In/Sec	11.31 G-s
BIV	.513 In/Sec	2.378 G-s
BOH	.483 In/Sec	14.79 G-s
BOV	.523 In/Sec	2.286 G-s
BOA	.320 In/Sec	2.158 G-s

BLR-0200C - BLR-0200C LFG BLOWER C (21-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.104 In/Sec	1.052 G-s
MOV	.129 In/Sec	.238 G-s
MIH	.073 In/Sec	1.156 G-s
MIV	.164 In/Sec	.174 G-s
MIA	.146 In/Sec	.215 G-s
BIA	.300 In/Sec	3.079 G-s
BIV	.582 In/Sec	3.484 G-s
BOV	.530 In/Sec	3.840 G-s
BOA	.422 In/Sec	3.106 G-s

C-1300 - C-1300 SALES GAS COMP STG 1 (21-Jun-24)

	OVERALL LEVEL	1K-20KHz
MOH	.087 In/Sec	.434 G-s
MOV	.058 In/Sec	.069 G-s
MIH	.065 In/Sec	.299 G-s
MIV	.164 In/Sec	.067 G-s
MIA	.118 In/Sec	.221 G-s
CIA	.291 In/Sec	.683 G-s
CIH	.291 In/Sec	4.607 G-s
CIV	.261 In/Sec	.977 G-s
COH	.232 In/Sec	2.138 G-s

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            COV                      .219 In/Sec       .718 G-s
            COA                      .213 In/Sec       .905 G-s

      C-1304     - C-1304 SALES GAS COMP STG 2   (21-Jun-24)
                                   OVERALL LEVEL     1K-20KHz
            MOH                      .148 In/Sec       .915 G-s
            MOV                      .103 In/Sec       .409 G-s
            MIH                      .142 In/Sec      1.153 G-s
            MIV                      .093 In/Sec       .619 G-s
            MIA                      .080 In/Sec       .274 G-s
            CIA                      .166 In/Sec       .160 G-s
            CIH                      .226 In/Sec       .568 G-s
            CIV                      .141 In/Sec       .207 G-s
            COH                      .231 In/Sec       .664 G-s
            COV                      .170 In/Sec       .260 G-s
            COA                      .144 In/Sec       .424 G-s
            2SH                      .272 In/Sec      1.586 G-s
            2SV                      .226 In/Sec       .209 G-s
            2SA                      .267 In/Sec       .167 G-s
            3SH                      .264 In/Sec       .713 G-s
            3SV                      .319 In/Sec       .316 G-s
            3SA                      .336 In/Sec       .305 G-s

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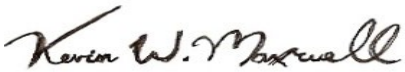
As always, it has been a pleasure to serve South Shelby RNG. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



ISO Certified Vibration Analyst, Category III

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