7030 Ryburn Dr. Millington, TN Phone: (901) 873-5300 Fax: (901) 873-5301 www.gohispeed.com

April 16, 2021

South Shelby RNG
Memphis, TN

The following is a summary of findings from the monthly vibration survey that was performed on April 15, 2021. Please let us know if there are any questions or comments.

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

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

Cell: 901-486-4565
Email: kwilliam@gohispeed.com

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-0600A Feed Gas Compressor
Motor still has a slightly higher than normal 1 x rpm vibration in the horizontal direction DE and ODE. Compressor also has high vibrations that are related to 4 x the speed of the male rotor. Compressor vibrations decreased slightly in amplitude this month. Rated as a **CLASS I** defect for now.

C-0600 B Feed Gas Compressor
Compressor is showing 1/3 harmonics of the higher rpm rotor fundamental (1 x rpm). This indicates some type of internal fit looseness. Unit is also still experiencing some 1 x motor horizontal vibration. Internal clearance issue or some other loading issue may be causing the 4 x rpm and harmonics thereof also seen in the compressor data. We will continue to monitor closely. Rated as a **CLASS I** defect.

C-0600 C Feed Gas Compressor
Acceleration amplitudes seemed to be lower this month. Motor still has a slightly higher than normal 1 x rpm vibration in the horizontal direction DE and ODE. Compressor also has high vibrations that are related to 4 x the speed of the male rotor. Compressor vibrations were higher this month. We will continue to monitor these issues closely. Rated as a **CLASS I** defect for now.

BLR-0200 A, B, C, and D LFG Blowers
These blowers also have very high amplitudes of velocity and high frequency vibrations. Amplitudes are around the same as last survey. 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 range from 3 to nearly 40 g's peak to peak which seems very high for newer equipment; however, this is possibly a characteristic of this blowers' sliding vanes. Rated as **CLASS I** defects for now.

C-1300 Sales Gas Compressor Stage 1
The compressor vertical vibration is lower this survey after modifying the base. There is a slight increase in 1 x motor rpm vibration. We would like to inspect the coupling, coupling orientation, perform motor soft foot check, and recheck alignment during the next down time. Rated as a **CLASS I** defect for now.

C-1300 Sales Gas Compressor Stage 2
Overall vibration increased slightly this survey. The high vibration seen previously was possibly due to a natural frequency coinciding with a forcing frequency from the compressor causing resonance. We are possibly planning on performing some other vibration testing with the VFD in local control so we can determine what frequencies may be causing the vibrations seen recently. Rated as a **CLASS I** defect for now.

```
Abbreviated Last Measurement Summary
                    ************************************

               Database:  South Shelby RNG.rbm
               Area:      SOUTH SHELBY PLANT

      MEASUREMENT POINT            OVERALL LEVEL       HFD / VHFD
      -----------------            -------------       ----------
```

C-551B - C-551B VACUUM COMPRESSOR B (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.090 In/Sec	.585 G-s
MOV	.046 In/Sec	.407 G-s
MIH	.109 In/Sec	.546 G-s
MIV	.089 In/Sec	.797 G-s
MIA	.060 In/Sec	.479 G-s
CIA	.254 In/Sec	3.001 G-s
CIH	.220 In/Sec	3.444 G-s
CIV	.224 In/Sec	3.485 G-s
COH	.249 In/Sec	3.478 G-s
COV	.242 In/Sec	3.529 G-s
COA	.227 In/Sec	3.505 G-s

C-551A - C-551A VACUUM COMPRESSOR A (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.090 In/Sec	1.105 G-s
MOV	.041 In/Sec	.507 G-s
MIH	.084 In/Sec	.257 G-s
MIV	.064 In/Sec	.848 G-s
MIA	.078 In/Sec	.447 G-s
CIA	.253 In/Sec	3.407 G-s
CIH	.353 In/Sec	4.419 G-s
CIV	.200 In/Sec	2.411 G-s
COH	.249 In/Sec	4.224 G-s
COV	.267 In/Sec	3.675 G-s
COA	.265 In/Sec	3.727 G-s

C-601B - C-601B N2 RECYCLE COMP B (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.076 In/Sec	.980 G-s
MOV	.041 In/Sec	.467 G-s
MIH	.107 In/Sec	.648 G-s
MIV	.032 In/Sec	.415 G-s
MIA	.029 In/Sec	.725 G-s
CIA	.135 In/Sec	1.134 G-s
CIH	.171 In/Sec	1.152 G-s
CIV	.125 In/Sec	1.760 G-s
COH	.157 In/Sec	1.435 G-s
COV	.166 In/Sec	1.293 G-s
COA	.142 In/Sec	1.250 G-s

C-601A - C-601A N2 RECYCLE COMP A (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.036 In/Sec	.512 G-s
MOV	.049 In/Sec	.979 G-s
MIH	.083 In/Sec	.687 G-s
MIV	.047 In/Sec	.751 G-s
MIA	.047 In/Sec	1.088 G-s
CIA	.130 In/Sec	1.330 G-s
CIH	.164 In/Sec	1.744 G-s
CIV	.155 In/Sec	1.868 G-s
COH	.258 In/Sec	1.491 G-s
COV	.200 In/Sec	2.630 G-s
COA	.135 In/Sec	2.894 G-s

C-0600A - C-0600A FEED GAS COMP A (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.300 In/Sec	2.173 G-s
MOV	.204 In/Sec	2.010 G-s
MIH	.264 In/Sec	.357 G-s
MIV	.132 In/Sec	.710 G-s
MIA	.149 In/Sec	1.603 G-s
CIA	.325 In/Sec	2.712 G-s
CIH	.306 In/Sec	2.371 G-s
CIV	.373 In/Sec	3.466 G-s
COH	.332 In/Sec	2.890 G-s
COV	.335 In/Sec	2.248 G-s
COA	.312 In/Sec	2.246 G-s
P1	.298 In/Sec	1.173 G-s

P2	.178 In/Sec	.839 G-s
P3	.663 In/Sec	1.301 G-s
P4	.268 In/Sec	1.163 G-s
P5	.200 In/Sec	.853 G-s
P6	.483 In/Sec	1.915 G-s
P7	.189 In/Sec	1.458 G-s
P8	.272 In/Sec	1.986 G-s
P9	.359 In/Sec	.817 G-s
P10	.070 In/Sec	.593 G-s
P11	.150 In/Sec	.488 G-s
P12	.191 In/Sec	.648 G-s
P13	.375 In/Sec	1.221 G-s
P14	.237 In/Sec	1.929 G-s
VSI	.610 In/Sec	.342 G-s
VLW	.301 In/Sec	.345 G-s
VSL	.378 In/Sec	.279 G-s
VRW	.313 In/Sec	.393 G-s
2SL	.873 In/Sec	.803 G-s
2SW	.505 In/Sec	.805 G-s
2SR	.735 In/Sec	.727 G-s
2RW	.599 In/Sec	.629 G-s

C-0600B - C-0600B FEED GAS COMP B (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.268 In/Sec	1.846 G-s
MOV	.236 In/Sec	1.689 G-s
MIH	.211 In/Sec	.534 G-s
MIV	.144 In/Sec	.691 G-s
MIA	.158 In/Sec	1.560 G-s
CIA	.458 In/Sec	2.498 G-s
CIH	.434 In/Sec	2.998 G-s
CIV	.456 In/Sec	4.916 G-s
COH	.419 In/Sec	2.274 G-s
COV	.403 In/Sec	2.571 G-s
COA	.353 In/Sec	2.594 G-s
P1	.341 In/Sec	.692 G-s
P2	.204 In/Sec	1.553 G-s
P3	.822 In/Sec	2.475 G-s
P4	.246 In/Sec	1.581 G-s
P5	1.037 In/Sec	1.425 G-s
P6	.600 In/Sec	1.772 G-s
P7	.576 In/Sec	1.415 G-s
P8	.353 In/Sec	2.166 G-s
P9	.641 In/Sec	1.084 G-s
P10	.269 In/Sec	.973 G-s
P11	.111 In/Sec	.758 G-s
P12	.314 In/Sec	.697 G-s
P13	.742 In/Sec	1.427 G-s
P14	1.139 In/Sec	2.334 G-s
VLL	1.085 In/Sec	.344 G-s
VLW	.744 In/Sec	.409 G-s
VRL	.618 In/Sec	.242 G-s
VRW	.686 In/Sec	.320 G-s

C-0600C - C-0600C FEED GAS COMP C (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.369 In/Sec	.817 G-s
MOV	.112 In/Sec	.976 G-s
MIH	.250 In/Sec	1.024 G-s
MIV	.131 In/Sec	.436 G-s
MIA	.129 In/Sec	1.297 G-s
CIA	.364 In/Sec	2.001 G-s
CIH	.292 In/Sec	2.332 G-s
CIV	.296 In/Sec	3.829 G-s
COH	.361 In/Sec	1.408 G-s
COV	.279 In/Sec	2.282 G-s
COA	.246 In/Sec	2.097 G-s
P1	.180 In/Sec	.660 G-s
P2	.277 In/Sec	.792 G-s
P3	.316 In/Sec	1.058 G-s

P4	.184 In/Sec	.669 G-s
P5	.705 In/Sec	.905 G-s
P6	.490 In/Sec	1.153 G-s
P7	.284 In/Sec	1.439 G-s
P8	.215 In/Sec	1.772 G-s
P9	.355 In/Sec	.922 G-s
P10	.150 In/Sec	.920 G-s
P11	.343 In/Sec	.371 G-s
P12	.188 In/Sec	.413 G-s
P13	.281 In/Sec	.838 G-s
P14	.275 In/Sec	1.082 G-s
VSL	.453 In/Sec	.409 G-s
SLW	.806 In/Sec	.734 G-s
SRL	.572 In/Sec	.482 G-s
RSW	.880 In/Sec	.521 G-s

BLR-0200A - BLR-0200A LFG BLOWER A (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.122 In/Sec	1.111 G-s
MOV	.079 In/Sec	1.056 G-s
MIH	.226 In/Sec	2.400 G-s
MIV	.170 In/Sec	1.586 G-s
MIA	.084 In/Sec	.899 G-s
BIA	1.111 In/Sec	18.25 G-s
BIH	1.118 In/Sec	17.11 G-s
BIV	.961 In/Sec	14.01 G-s
BOH	.936 In/Sec	13.93 G-s
BOV	1.061 In/Sec	18.85 G-s
BOA	1.273 In/Sec	19.98 G-s

BLR-0200B - BLR-0200B LFG BLOWER B (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.116 In/Sec	1.336 G-s
MOV	.067 In/Sec	.585 G-s
MIH	.286 In/Sec	4.110 G-s
MIV	.118 In/Sec	.902 G-s
MIA	.100 In/Sec	.963 G-s
BIA	.559 In/Sec	9.723 G-s
BIH	.379 In/Sec	6.493 G-s
BIV	.523 In/Sec	8.169 G-s
BOH	.590 In/Sec	10.91 G-s
BOV	.800 In/Sec	14.55 G-s
BOA	1.160 In/Sec	17.66 G-s

BLR-0200D - BLR-0200D LFG BLOWER D (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.119 In/Sec	1.517 G-s
MOV	.094 In/Sec	.733 G-s
MIH	.153 In/Sec	2.168 G-s
MIV	.163 In/Sec	1.740 G-s
MIA	.080 In/Sec	.883 G-s
BIA	.764 In/Sec	13.97 G-s
BIH	.597 In/Sec	9.323 G-s
BIV	.675 In/Sec	10.91 G-s
BOH	.944 In/Sec	17.01 G-s
BOV	.786 In/Sec	15.21 G-s
BOA	.861 In/Sec	15.02 G-s

C-1300 - C-1300 SALES GAS COMP STG 1 (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.132 In/Sec	1.819 G-s
MOV	.255 In/Sec	2.703 G-s
MIH	.079 In/Sec	.589 G-s
MIV	.253 In/Sec	.621 G-s
MIA	.174 In/Sec	1.846 G-s
CIA	.210 In/Sec	1.144 G-s
CIH	.117 In/Sec	1.206 G-s
CIV	.284 In/Sec	1.818 G-s
COH	.205 In/Sec	1.099 G-s
COV	.232 In/Sec	1.139 G-s

COA	.188 In/Sec	1.343 G-s
P1	.111 In/Sec	.128 G-s
P2	.125 In/Sec	.453 G-s
P3	.336 In/Sec	1.048 G-s
P4	.131 In/Sec	.708 G-s
P5	.247 In/Sec	.231 G-s
P6	.311 In/Sec	.415 G-s
P7	.268 In/Sec	.378 G-s
P8	.224 In/Sec	.347 G-s
P9	.145 In/Sec	.182 G-s
P10	.263 In/Sec	.604 G-s
P11	.048 In/Sec	.165 G-s
P12	.086 In/Sec	.308 G-s
P13	.104 In/Sec	.360 G-s
P14	.196 In/Sec	.885 G-s
VSL	.618 In/Sec	.323 G-s
VSR	.401 In/Sec	.573 G-s

C-1304 - C-1304 SALES GAS COMP STG 2 (15-Apr-21)

	OVERALL LEVEL	1K-20KHz
MOH	.165 In/Sec	.536 G-s
MOV	.109 In/Sec	.400 G-s
MIH	.192 In/Sec	.550 G-s
MIV	.104 In/Sec	.248 G-s
MIA	.103 In/Sec	.259 G-s
CIA	.144 In/Sec	.616 G-s
CIH	.238 In/Sec	.477 G-s
CIV	.126 In/Sec	.626 G-s
COH	.276 In/Sec	.282 G-s
COV	.138 In/Sec	.428 G-s
COA	.126 In/Sec	.443 G-s
FHL	.658 In/Sec	.103 G-s
FHW	.586 In/Sec	.184 G-s
PL	.299 In/Sec	.077 G-s
PW	1.856 In/Sec	.104 G-s

Clarification Of Vibration Units:

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