HI-SPEED INDUSTRIAL SERVICE QualiTest® Diagnostics

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February 20, 2024

Tim Busby
Mark Busby
Atlantic Dry Ice
Brandon, MS

Tim/Mark,

The following is a summary of findings from the quarterly vibration survey on the Ammonia Compressors that was performed on 2/15/24 at the Brandon, MS plant. 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

Summary

C-1 Ammonia Compressor

Motor has some high acceleration (g's)in the motor. Data shows a peak at 28 orders with 120 HZ. sidebands. This is likely rotor bar pass vibration if rotor has 28 bars. This vibration electrical in nature. We are monitoring this closely. Rated as a **CLASS I** defect.

C-2 Ammonia Compressor

Compressor data shows some possible signs of internal wear of the compressor. Heavy load on the compressor can also be a factor. The compressor verticals show a dominant vibration at lobe pass (4 x rpm) with harmonics. We will continue to monitor this closely. Rated as a **CLASS I** defect.

C-3 Ammonia Compressor

Motor has similar issue as C-1 motor; however, the rotor bar pass frequency is higher. This rotor likely has more rotor bars. We are monitoring this closely. Rated as a **CLASS I** defect.

Abbreviated Last Measurement Summary

Database: Atlantic Dry Ice.rbm
Area: Brandon MS Plant
Route No. 1: ADI BRANDON MS

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
C-1 - C-1 AMMONIA COMPRESSOR	(15-Feb-24)	
	OVERALL LEVEL	1K-20KHz
MOH	.095 In/Sec	1.248 G-s
MOV	.098 In/Sec	.631 G-s
MIH	.169 In/Sec	3.241 G-s
MIV	.123 In/Sec	1.321 G-s
MIA	.071 In/Sec	.488 G-s
CIA	.112 In/Sec	.072 G-s
CIH	.091 In/Sec	.265 G-s
CIV	.071 In/Sec	.096 G-s
COH	.070 In/Sec	.353 G-s
COV	.079 In/Sec	.076 G-s
C-2 - C-2 AMMONIA COMPRESSOR	(15-Feb-24)	
	OVERALL LEVEL	1K-20KHz
MOH	.141 In/Sec	.685 G-s
MOV	.122 In/Sec	.182 G-s
MIH	.125 In/Sec	.639 G-s
MIV	.086 In/Sec	.157 G-s
MIA	.074 In/Sec	.169 G-s
CIA	.210 In/Sec	.107 G-s
CIH	.087 In/Sec	.324 G-s
CIV	.397 In/Sec	.128 G-s
COH	.106 In/Sec	.619 G-s
COV	.137 In/Sec	.109 G-s

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C-3        - C-3 AMMONIA COMPRESSOR        (15-Feb-24)
                                 OVERALL LEVEL     1K-20KHz
          MOH                     .128 In/Sec      2.047 G-s
          MOV                     .057 In/Sec       .229 G-s
          MIH                     .077 In/Sec      1.292 G-s
          MIV                     .125 In/Sec       .275 G-s
          MIA                     .128 In/Sec      1.013 G-s
          CIA                     .117 In/Sec       .120 G-s
          CIH                     .052 In/Sec       .341 G-s
          CIV                     .091 In/Sec       .159 G-s
          COH                     .059 In/Sec       .364 G-s
          COV                     .104 In/Sec       .121 G-s

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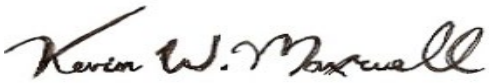
As always, it has been a pleasure to serve Atlantic Dry Ice. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



ISO Certified Vibration Analyst, Category III

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