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December 13, 2021

St. Jude Research Hospital
Memphis, TN

The following is a summary of findings from the 2021 annual Chili's AHU and EF vibration survey.

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

Chili's Building

AHU P SF
Data of the motor is still showing bearing issues along with some electrical vibrations. This has likely led to electrical fluting of the motor bearings. Motor should be inspected as scheduling. Rated as a **CLASS II** defect.

AHU P RF
Measured vibration data is all within acceptable limits. No work is recommended at this time.

AHU 1 SF
Measured vibration data is all within acceptable limits. No work is recommended at this time.

AHU 1 RF
Measured vibration data is all within acceptable limits. No work is recommended at this time.

AHU 2 SF
Overall peak to peak waveform amplitude has increased in the motor drive end bearing from 1.2 g's to over 8 g's peak to peak in a years' time. Data of the motor is suggesting bearing issues. This may be electrical fluting of the motor bearings and or lubrication issue. Motor should be inspected as time allows. Rated as a **CLASS II** defect.

AHU 2 RF
Motor data indicates increased high frequency vibration at the axial direction of the motor which appears to be caused by electrical fluting of the motor bearings. We will monitor this closely. Rated as a **CLASS I** defect.

AHU 3 SF
Measured vibration data is all within acceptable limits. No work is recommended at this time.

AHU 3 RF
Motor data indicates significant high frequency vibration which appears to be caused by electrical fluting of the motor bearings. Motor will need attention SOON. Rated as a **CLASS III** defect.

AHU 4 SF
Measured vibration data is all within acceptable limits. No work is recommended at this time.

AHU 4 RF
Measured vibration data is all within acceptable limits. No work is recommended at this time.

AHU 5 SF
Measured vibration data is all within acceptable limits. No work is recommended at this time.

AHU 5 RF
Measured vibration data is all within acceptable limits. No work is recommended at this time.

AHU 6 SF
Measured vibration data is all within acceptable limits. No work is recommended at this time.

AHU 6 RF
Measured vibration data is all within acceptable limits. No work is recommended at this time.

EF1 Toilet
Measured vibration data is all within acceptable limits. No work is recommended at this time.

EF2 General Building
Measured vibration data is all within acceptable limits. No work is recommended at this time.

EF3 Isolation
Measured vibration data is all within acceptable limits. No work is recommended at this time.

EF5 Cyclotron
Motor and fan axial vibration has high amplitude this survey. Data indicates sheave and or belt issue. Inspect sheave alignment and ensure sheaves do not have axial run-out. Ensure belts are in good shape and tensioned properly. Rated as a **CLASS II** defect.

EF6 Cyclotron Standby
Motor and fan bearings appear to have bearing issues. Unit may need to be scheduled for motor and fan bearing replacement within the next few months. Rated as a **CLASS II** defect.

Abbreviated Last Measurement Summary
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Database: stjude~1.rbm
Station: CHILIS

MEASUREMENT POINT		OVERALL LEVEL	HFD / VHFD
AHU P-SF	- AHU P-SF	(10-Dec-21)	
		OVERALL LEVEL	1 - 20 KHz
	MOH	.171 In/Sec	.567 G-s
	MIH	.111 In/Sec	.733 G-s
	MIA	.286 In/Sec	.317 G-s
AHU P RF	- AHU P-RF	(10-Dec-21)	
		OVERALL LEVEL	1 - 20 KHz
	MOH	.101 In/Sec	.463 G-s
	MIH	.074 In/Sec	.342 G-s
	MIA	.151 In/Sec	.426 G-s
AHU 1SF	- AHU 1 SUPPLY	(10-Dec-21)	
		OVERALL LEVEL	1 - 20 KHz
	MOH	.082 In/Sec	.459 G-s
	MIH	.066 In/Sec	.333 G-s
	MIA	.059 In/Sec	.217 G-s
AHU 1 RF	- AHU 1 RETURN	(10-Dec-21)	
		OVERALL LEVEL	1 - 20 KHz
	MOH	.055 In/Sec	.091 G-s
	MIH	.060 In/Sec	.169 G-s
	MIA	.089 In/Sec	.151 G-s
AHU 2SF	- AHU 2 SUPPLY	(10-Dec-21)	
		OVERALL LEVEL	1 - 20 KHz
	MOH	.091 In/Sec	.796 G-s
	MIH	.099 In/Sec	1.277 G-s
	MIA	.156 In/Sec	.737 G-s

AHU 2 RF - AHU 2 RETURN (10-Dec-21)

	OVERALL LEVEL	1 - 20 KHz
MOH	.084 In/Sec	.080 G-s
MIH	.052 In/Sec	.097 G-s
MIA	.118 In/Sec	.127 G-s

AHU 3SF - AHU 3 SUPPLY (10-Dec-21)

	OVERALL LEVEL	1 - 20 KHz
MOH	.179 In/Sec	1.906 G-s
MIH	.108 In/Sec	1.700 G-s
MIA	.103 In/Sec	1.178 G-s
FIA	.149 In/Sec	.239 G-s
FIH	.102 In/Sec	.377 G-s
FOH	.157 In/Sec	.342 G-s

AHU 3RF - AHU 3 RETURN (10-Dec-21)

	OVERALL LEVEL	1 - 20 KHz
MOH	.316 In/Sec	3.382 G-s
MIH	.296 In/Sec	4.095 G-s
MIA	.236 In/Sec	1.493 G-s
FOH	.087 In/Sec	.270 G-s

AHU 5 SF - AHU 5 SUPPLY (10-Dec-21)

	OVERALL LEVEL	1 - 20 KHz
MOH	.096 In/Sec	.757 G-s
MIH	.042 In/Sec	.711 G-s
MIA	.061 In/Sec	.273 G-s

AHU 5 RF - AHU 5 RETURN (10-Dec-21)

	OVERALL LEVEL	1 - 20 KHz
MOH	.124 In/Sec	.415 G-s
MIH	.074 In/Sec	.361 G-s
MIA	.107 In/Sec	.235 G-s

AHU 6 SF - AHU 6 SUPPLY (10-Dec-21)

	OVERALL LEVEL	1 - 20 KHz
MOH	.048 In/Sec	1.580 G-s
MIH	.036 In/Sec	1.636 G-s
MIA	.057 In/Sec	.379 G-s

AHU 6 RF - AHU 6 RETURN (10-Dec-21)

	OVERALL LEVEL	1 - 20 KHz
MOH	.113 In/Sec	.342 G-s
MIH	.090 In/Sec	.290 G-s
MIA	.122 In/Sec	.305 G-s

AHU 4 SF - AHU 4 SUPPLY (10-Dec-21)

	OVERALL LEVEL	1 - 20 KHz
MOH	.033 In/Sec	.784 G-s
MIH	.034 In/Sec	.438 G-s
MIA	.045 In/Sec	.546 G-s

AHU 4 RF - AHU 4 RETURN (10-Dec-21)

	OVERALL LEVEL	1 - 20 KHz
MOH	.037 In/Sec	.544 G-s
MIH	.035 In/Sec	.680 G-s
MIA	.029 In/Sec	.395 G-s

Clarification Of Vibration Units:

Acc --> G-s RMS

Vel --> In/Sec PK

As always, it has been a pleasure to serve St. Jude Research Hospital. If there are any comments or questions, do not hesitate to contact us.

Sincerely,

ISO Certified Vibration Analyst, Category III

HI-SPEED INDUSTRIAL SERVICE

QualiTest® Diagnostics

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