HI-SPEED INDUSTRIAL SERVICE

MILLINGTON, TN

January 3, 2020

Blues City Brewery

Subject: January vibration service

Most of the machines surveyed were found to be in good condition with the exception of the following:

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

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.

This completes our assessment of your equipment for this survey. Thank you for your business and don't hesitate to call if you have any comments or questions.

Sincerely,

David W. Shook
Senior Reliability Specialists
Hi-Speed **Industrial Service**
dshook@gohispeed.com

7030 Ryburn Drive
Millington, TN 38053
P. 901-873-5300
F. 901-873-5301

Reportable equipment

Boiler Feed Water Pump 2 Middle
The pump still has a 1x RPM vibration at 0.43"/sec velocity peak at the pump top. Check for loose fasteners, poor condition of the shaft coupling or alignment, and or wear in the pump. **Rated a Class II Defect.**

Boiler Feed Water Pump 1 South
The pump still has a 1x RPM vibration similar the middle pump but at 0.49"/sec. Check for loose fasteners, poor condition of the shaft coupling or alignment, and or wear in the pump. **Rated a Class II Defect.**

Boiler 3 Fan Motor Bearings
Bearing defect frequencies are still in the motor; which look to be from fluting. The acceleration trend has leveled off this survey; however the overalls are above 7 g's peak. Expect to change out the bearings in the future. **Rated a Class II Defect.**

Yellow Box Filtered Water Pump
The vibrations have jumped up for this unit. A 1x RPM vibration dominates the Motor axial data. We suspect a worn coupling, or alignment issue. Repair during next opportunity. **Rated a Class III Defect.**

RO Water Pump 2
This unit still appears to have a vibration at what appears to be vane pass, (5x RPM); however the overall vibration dropped to 0.7"/sec velocity peak. There could be wear in the pump, or there could be a flow issue. We recommend further inspection and adjustments of flow related controls, filters, screens or piping. Pump replacement might be considered to reduce the vibration. **Rated a Class II Defect.**

HVAC Hot Water Circulator Pump
The unit vibrations are still at or near 0.5"/sec velocity peak. Ensure the coupling and alignment are good, and that there is no soft foot or pipe strain. **Rated a Class II Defect.**

Ammonia Compressor 1
The fundamental and the first three harmonics are dominant in the data for the motor axial. We suspect an alignment or coupling issue. Have the coupling inspected and the alignment checked. Ensure all fasteners are torqued. **Rated a Class II Defect.**

Ammonia Compressor 2
The unit sounded odd at the time of the service. Upon inspection of the control panel, we discovered the unit running at 45%. Within a few minutes we started collecting data as the unit began to load up. It appears the unit is rough when unloaded. Data collection ended due to an apparent ammonia leak, as we left the room before every point was acquired.

2nd Floor South Hot Water Pump
Shaft speed vibration dominated the unit vibration data at over ½" per second velocity peak. Inspect the unit base, structure, coupling and fasteners for issues. Have the shaft alignment checked as time allows. **Rated a Class III Defect.**

Sugar Tank Viking Pump 4
The gearbox shows a large number of harmonics in the data for several points. We suspect the gearbox internals are worn. Inspect the unit couplings first for damage, then the gearbox. **Rated a Class II Defect.**

HVAC Hot Water Circulation Pump
The motor axial is up again. Have the coupling inspected and the alignment checked and adjusted. **Rated a Class II Defect.**

Filter Cellar Chill Water Circulator Pump 1
High vibrations are still at 2x line frequency and could indicate an air gap issue in the motor. Air gap issues are variations in the distance between the surface of the rotor and stator. This could be caused by poor machining of the motor housing and end bells or possibly a soft foot. Unbalanced electrical phases can duplicate the vibration also. Start inspections with a precision alignment and soft foot check, followed by a motor phase and voltage analysis up to and including PDMA if necessary. **Rated a Class III Defect.**

G Cellar #4 Cold Glycol Pump
Pump data still shows multiple shaft speed harmonics throughout. Inspect the couplings for wear, and the pump bearings, shaft and fits for looseness. Check all fasteners. **Rated a Class III Defect.**

Reported prior, but not running this survey

Air Compressor 4
The unit vibrations still seems to be dominated by lobe passing fundamental frequency and harmonics. Check the fasteners for the motor and compressor just to be sure. We will keep an eye on it closely.
Rated a Class I Defect.

Chill Water Wort A
Data indicates distress in the pump bearings. Be prepared to replace the pump in the near future.
Rated a Class II Defect.

Last Monitored Machine List
****

Database: Blues_city.rbm
Station: POWER HOUSE
Report Date: 03-Jan-20 09:17
Report Interval: 04-Dec-19 To 03-Jan-20

PERIODIC VIBRATION TECHNOLOGY

Collected Machine...

MACHINE ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
AIR COMP 2	COMPRESSOR #2 - 175HP	12 OUT OF 12	02-Jan-20
AIR COMP 1	COMPRESSOR #1	12 OUT OF 12	02-Jan-20
AIR COMP 5	COMPRESSOR #5	12 OUT OF 12	02-Jan-20
AIR COMP 6	COMPRESSOR #6	12 OUT OF 12	02-Jan-20
BFWPMIDLE2	BOILER FEED WATER PUMP MID 2	10 OUT OF 10	02-Jan-20
BFWPSOUTH1	BOILER FEED WATER PUMP S 1	10 OUT OF 10	02-Jan-20
BOILERFAN1	BOILER FAN #1	7 OUT OF 8	02-Jan-20
BOILERFAN2	BOILER FAN #2	1 OUT OF 5	02-Jan-20
BOILERFAN3	BOILER FAN #3 - 1780 RPM Max	10 OUT OF 10	02-Jan-20
CR PUMP 1	CARBON RECIRC PUMP	10 OUT OF 10	02-Jan-20
YB PUMP 1	YELLOW BOX FILTERED WATER	10 OUT OF 10	02-Jan-20
SW PUMP 8	SERVICE WATER PUMP 8	10 OUT OF 10	02-Jan-20
RO 2	RO WATER PUMP 2	10 OUT OF 10	02-Jan-20
AMMCOMP 1	AMMONIA COMP #1	18 OUT OF 18	02-Jan-20
AMMCOMP 2	AMMONIA COMP - #2	11 OUT OF 18	02-Jan-20

Missed Machine...

MACHINE ID	DESCRIPTION	
AIR COMP 3	COMPRESSOR #3 - 250HP	0 OUT OF 12
AIR COMP 4	COMPRESSOR #4 - 150HP	0 OUT OF 12
BFWPNORTH3	BOILER FEED WATER PUMP N 3	0 OUT OF 10
MAKEUP #1	CHILLED WATER MAKEUP PUMP 1	0 OUT OF 10

MAKEUP #2	CHILLED WATER MAKEUP PUMP 2	0 OUT OF 10
MAKEUP #3	CHILLED WATER MAKEUP PUMP 3	0 OUT OF 10
SW PUMP 1	SERVICE WATER PUMP 1	0 OUT OF 10
SW PUMP 2	SERVICE WATER PUMP 2	0 OUT OF 10
SW PUMP 3	SERVICE WATER PUMP 3	0 OUT OF 10
SW PUMP 4	SERVICE WATER PUMP 4	0 OUT OF 10
SW PUMP 5	SERVICE WATER PUMP 5	0 OUT OF 10
SW PUMP 6	SERVICE WATER PUMP 6	0 OUT OF 10
RO 1	RO WATER PUMP 1	0 OUT OF 10
AMMCOMP 3	AMMONIA COMP #3	0 OUT OF 20
CW PUMP 1	CHILLED WATER FEED PUMP	0 OUT OF 10

Monitored Point Total = 163 OUT OF 332
Monitored Machine Total = 16 OUT OF 30

Last Monitored Machine List
****

Database: Blues_city.rbm
Station: UPPER FLOORS
Report Date: 03-Jan-20 09:17
Report Interval: 04-Dec-19 To 03-Jan-20

PERIODIC VIBRATION TECHNOLOGY

Collected Machine...

MACHINE ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
2SHWP	2ND FLOOR S. HOT WATER PUMP	10 OUT OF 10	02-Jan-20

Missed Machine...

MACHINE ID	DESCRIPTION	
4GB	4th FLOOR GRAIN BLOWER	0 OUT OF 10
3MM-N	3RD FLOOR MALT MILL #3 - N	0 OUT OF 59
3MM-S	3RD FLOOR MALT MILL#2 - S	0 OUT OF 59
2NHWP	2ND FLOOR N. HOT WATER PUMP	0 OUT OF 10
GF-VP2	GALLERY DA VAC PUMP-SKID 2	0 OUT OF 10
GF-DP2	GALLERY DA DISCH PUMP-SKID 2	0 OUT OF 5
GF-CP2	GALLERY DA CIRC PUMP- SKID 2	0 OUT OF 5
GF-VP1	GALLERY DA VAC PUMP-SKID 1	0 OUT OF 10
GF-DP1	GALLERY DA DISCH PUMP-SKID 1	0 OUT OF 5
GF-CP1	GALLERY DA CIRC PUMP- SKID 1	0 OUT OF 5

Monitored Point Total = 10 OUT OF 188
Monitored Machine Total = 1 OUT OF 11

Last Monitored Machine List
****

Database: Blues_city.rbm
Station: BREWING 1ST FLOOR
Report Date: 03-Jan-20 09:17
Report Interval: 04-Dec-19 To 03-Jan-20

PERIODIC VIBRATION TECHNOLOGY

No Collected Machine...

Missed Machine...

MACHINE ID	DESCRIPTION	
LT-L1	LAUDER TUN - LEFT SIDE	0 OUT OF 14
LT-R1	LAUDER TUN - RIGHT SIDE	0 OUT OF 14

Last Monitored Machine List

****

Database: Blues_city.rbm
Station: BREWING BASEMENT
Report Date: 03-Jan-20 09:17
Report Interval: 04-Dec-19 To 03-Jan-20

PERIODIC VIBRATION TECHNOLOGY

No Collected Machine...

Missed Machine...

MACHINE ID	DESCRIPTION	
CIP1	CIP PUMP @ WORT TRANS PUMP	0 OUT OF 10
WORTA	WORT TRANSFER PUMP A	0 OUT OF 10
MASH TRANS	MASH TUN TRANSFER PUMP	0 OUT OF 10
TNK 63 PMP	TANK 63 SUCROSE PUMP	0 OUT OF 10
KCP1	KETTLE CIRC PUMP 1	0 OUT OF 10
KCP2	KETTLE CIRC PUMP 2	0 OUT OF 10
BKP1	BREW KETTLE PUMP (IN PIT)	0 OUT OF 10
SGB-A	SPENT GRAIN BLOWER A	0 OUT OF 10

Last Monitored Machine List

****

Database: Blues_city.rbm
Station: GRAIN TRANSFER
Report Date: 03-Jan-20 09:17
Report Interval: 04-Dec-19 To 03-Jan-20

PERIODIC VIBRATION TECHNOLOGY

No Collected Machine...

Missed Machine...

MACHINE ID	DESCRIPTION	
VB-E	VACUUM BLOWER EAST	0 OUT OF 10
VB-W	VACUUM BLOWER WEST	0 OUT OF 10

GUB-N	GRAIN UNLOAD BLOWER NORTH	0 OUT OF 10
GUB-S	GRAIN UNLOAD BLOWER SOUTH	0 OUT OF 10

Last Monitored Machine List

****

Database: Blues_city.rbm
Station: SUGAR PUMPS
Report Date: 03-Jan-20 09:17
Report Interval: 04-Dec-19 To 03-Jan-20

PERIODIC VIBRATION TECHNOLOGY

Collected Machine...

MACHINE ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
V3	SUGAR TANK VIKING PUMP #3	16 OUT OF 17	02-Jan-20
V4	SUGAR TANK VIKING PUMP #4	16 OUT OF 17	02-Jan-20
V5	SUGAR TANK VIKING PUMP #5	10 OUT OF 16	02-Jan-20

No Missed Machine...

Monitored Point Total = 42 OUT OF 50
Monitored Machine Total = 3 OUT OF 3

Last Monitored Machine List

****

Database: Blues_city.rbm
Station: ALCOHOL PUMP ROOM
Report Date: 03-Jan-20 09:17
Report Interval: 04-Dec-19 To 03-Jan-20

PERIODIC VIBRATION TECHNOLOGY

Collected Machine...

MACHINE ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
SK1 RO1	SKID 1 - RO PUMP #1	5 OUT OF 5	02-Jan-20
SK1 RO4	SKID 1 - RO PUMP #4	5 OUT OF 5	02-Jan-20
SK1 RO3	SKID 1 - RO PUMP #3	10 OUT OF 10	02-Jan-20
SK1 RO2	SKID 1 - RO PUMP #2	10 OUT OF 10	02-Jan-20
SK2 RO1	SKID 2 - RO PUMP #1	5 OUT OF 5	02-Jan-20
SK2 RO4	SKID 2 - RO PUMP #4	5 OUT OF 5	02-Jan-20
SK2 RO3	SKID 2 - RO PUMP #3	10 OUT OF 10	02-Jan-20
SK2 RO2	SKID 2 - RO PUMP #2	10 OUT OF 10	02-Jan-20

No Missed Machine...

Monitored Point Total = 60 OUT OF 60
Monitored Machine Total = 8 OUT OF 8

Last Monitored Machine List

****

Database: Blues_city.rbm

Station: ADMINISTRATIVE AREA
Report Date: 03-Jan-20 09:17
Report Interval: 04-Dec-19 To 03-Jan-20

PERIODIC VIBRATION TECHNOLOGY

Collected Machine...

MACHINE ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
HVAC COLD	HVAC COLD GLYCOL CIRC PUMP	10 OUT OF 10	02-Jan-20
HVAC HOT	HVAC HOT WATER CIRC PUMP	10 OUT OF 10	02-Jan-20

No Missed Machine...

Monitored Point Total = 20 OUT OF 20
Monitored Machine Total = 2 OUT OF 2
Last Monitored Machine List
****

Database: Blues_city.rbm
Station: FILTER CELLAR
Report Date: 03-Jan-20 09:17
Report Interval: 04-Dec-19 To 03-Jan-20

PERIODIC VIBRATION TECHNOLOGY

Collected Machine...

MACHINE ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
CHILL 1	CHILL WATER CIRC PUMP #1	10 OUT OF 10	02-Jan-20
WARM GLY 1	WARM GLYCOL PUMP #1	10 OUT OF 10	02-Jan-20

Missed Machine...

MACHINE ID	DESCRIPTION	
CHILL 2	CHILL WATER CIRC PUMP #2	0 OUT OF 10
CHILL 3	CHILL WATER CIRC PUMP #3	0 OUT OF 10
W COOL A	CHILL WATER WORT COOL SIDE A	0 OUT OF 10
W COOL B	CHILL WATER WORT COOL SIDE B	0 OUT OF 10
WARM GLY 2	WARM GLYCOL PUMP #2	0 OUT OF 10
WARM GLY 3	WARM GLYCOL PUMP #3	0 OUT OF 10
WARM GLY 4	WARM GLYCOL PUMP #4	0 OUT OF 10
WARM GLY 5	WARM GLYCOL PUMP #5	0 OUT OF 10

Monitored Point Total = 20 OUT OF 100
Monitored Machine Total = 2 OUT OF 10
Last Monitored Machine List
****

Database: Blues_city.rbm
Station: GOVERNMENT CELLAR
Report Date: 03-Jan-20 09:18

Report Interval: 04-Dec-19 To 03-Jan-20

PERIODIC VIBRATION TECHNOLOGY

Collected Machine...

MACHINE ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
COLD GLY 1	COLD GLYCOL PUMP #1	10 OUT OF 10	02-Jan-20
COLD GLY 4	COLD GLYCOL PUMP #4	10 OUT OF 10	02-Jan-20
COLD GLY 5	COLD GLYCOL PUMP #5	10 OUT OF 10	02-Jan-20
COLD GLY 6	COLD GLYCOL PUMP #6	10 OUT OF 10	02-Jan-20
PACK GLY 1	PACKAGING COLD GLYCOL PUMP 1	10 OUT OF 10	02-Jan-20
NANO 126	NANO SKID PUMP 126	10 OUT OF 10	02-Jan-20
NANO 127	NANO SKID PUMP 127	10 OUT OF 10	02-Jan-20
NANO 128	NANO SKID PUMP 128	10 OUT OF 10	02-Jan-20
NANO 129	NANO SKID PUMP 129	10 OUT OF 10	02-Jan-20

Missed Machine...

MACHINE ID	DESCRIPTION	
COLD GLY 2	COLD GLYCOL PUMP #2	0 OUT OF 10
COLD GLY 3	COLD GLYCOL PUMP #3	0 OUT OF 10
PACK GLY 2	PACKAGING COLD GLYCOL PUMP 2	0 OUT OF 10
AHU 2	AHU 2	0 OUT OF 10
AHU 3	AHU 3	0 OUT OF 10

Monitored Point Total = 90 OUT OF 140
Monitored Machine Total = 9 OUT OF 14

Last Monitored Machine List
****

Database: Blues_city.rbm
Station: UNUSED / REMOVED
Report Date: 03-Jan-20 09:18
Report Interval: 04-Dec-19 To 03-Jan-20

PERIODIC VIBRATION TECHNOLOGY

No Collected Machine...

Missed Machine...

MACHINE ID	DESCRIPTION	
CC-1	CEREAL COOKER	0 OUT OF 15
MT-1	MASH TUN	0 OUT OF 15

Last Monitored Machine List
****

Database: Blues_city.rbm
The Entire Database
Report Date: 03-Jan-20 09:18

Report Interval: 04-Dec-19 To 03-Jan-20

****
********** OVERALL SUMMARY **********
****

PERIODIC VIBRATION TECHNOLOGY

Collected Machine...

Monitored Point Total = 405 OUT OF 890
Monitored Machine Total = 41 OUT OF 78

Abbreviated Last Measurement Summary
****

Database: Blues_city.rbm
Station: POWER HOUSE
Report Date: 03-Jan-20 09:12

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
AIR COMP 2 - COMPRESSOR #2 - 175HP	(02-Jan-20)	
	OVERALL LEVEL	1-20 KHZ
11 - MOTOR OUTBOARD HORIZ	.109 In/Sec	.445 G-s
12 - MOTOR OUTBOARD VERT	.158 In/Sec	.988 G-s
13 - MOTOR OUTBOARD AXIAL	.101 In/Sec	.241 G-s
21 - MOTOR INBOARD HORIZ	.100 In/Sec	.944 G-s
22 - MOTOR INBOARD VERT	.163 In/Sec	1.388 G-s
23 - MOTOR INBOARD AXIAL	.058 In/Sec	.372 G-s
	OVERALL LEVEL	1-20 KHz
71 - CPLG END HORIZ	.198 In/Sec	1.247 G-s
72 - CPLG END VERT	.226 In/Sec	3.089 G-s
73 - CPLG END AXIAL	.198 In/Sec	1.368 G-s
81 - OPP END HORIZ	.189 In/Sec	1.253 G-s
82 - OPP END VERT	.154 In/Sec	1.799 G-s
83 - OPP END AXIAL	.180 In/Sec	1.539 G-s
AIR COMP 1 - COMPRESSOR #1	(02-Jan-20)	
	OVERALL LEVEL	1-20 KHZ
11 - MOTOR OUTBOARD HORIZ	.086 In/Sec	1.477 G-s
12 - MOTOR OUTBOARD VERT	.157 In/Sec	.953 G-s
13 - MOTOR OUTBOARD AXIAL	.169 In/Sec	.247 G-s
21 - MOTOR INBOARD HORIZ	.111 In/Sec	1.112 G-s
22 - MOTOR INBOARD VERT	.121 In/Sec	1.040 G-s
23 - MOTOR INBOARD AXIAL	.166 In/Sec	.327 G-s
	OVERALL LEVEL	1-20 KHz
71 - CPLG END HORIZ	.088 In/Sec	1.042 G-s
72 - CPLG END VERT	.228 In/Sec	1.107 G-s
73 - CPLG END AXIAL	.179 In/Sec	1.040 G-s
81 - OPP END HORIZ	.105 In/Sec	1.154 G-s
82 - OPP END VERT	.169 In/Sec	1.240 G-s

83	– OPP END AXIAL	.162 In/Sec	1.442 G-s
AIR COMP 5 – COMPRESSOR #5		(02-Jan-20)	
		OVERALL LEVEL	1-20 KHZ
11	– MOTOR OUTBOARD HORIZ	.174 In/Sec	.607 G-s
12	– MOTOR OUTBOARD VERT	.113 In/Sec	.840 G-s
13	– MOTOR OUTBOARD AXIAL	.135 In/Sec	.677 G-s
21	– MOTOR INBOARD HORIZ	.180 In/Sec	.882 G-s
22	– MOTOR INBOARD VERT	.086 In/Sec	.874 G-s
23	– MOTOR INBOARD AXIAL	.144 In/Sec	.393 G-s
		OVERALL LEVEL	1-20 KHz
71	– CPLG END HORIZ	.098 In/Sec	.532 G-s
72	– CPLG END VERT	.139 In/Sec	.592 G-s
73	– CPLG END AXIAL	.149 In/Sec	.647 G-s
81	– OPP END HORIZ	.087 In/Sec	.677 G-s
82	– OPP END VERT	.045 In/Sec	.884 G-s
83	– OPP END AXIAL	.168 In/Sec	1.007 G-s
AIR COMP 6 – COMPRESSOR #6		(02-Jan-20)	
		OVERALL LEVEL	1-20 KHZ
11	– MOTOR OUTBOARD HORIZ	.104 In/Sec	.732 G-s
12	– MOTOR OUTBOARD VERT	.077 In/Sec	1.295 G-s
13	– MOTOR OUTBOARD AXIAL	.109 In/Sec	.661 G-s
21	– MOTOR INBOARD HORIZ	.122 In/Sec	.201 G-s
22	– MOTOR INBOARD VERT	.111 In/Sec	.867 G-s
23	– MOTOR INBOARD AXIAL	.103 In/Sec	.327 G-s
		OVERALL LEVEL	1-20 KHz
71	– CPLG END HORIZ	.082 In/Sec	.637 G-s
72	– CPLG END VERT	.088 In/Sec	.512 G-s
73	– CPLG END AXIAL	.179 In/Sec	.708 G-s
81	– OPP END HORIZ	.112 In/Sec	.749 G-s
82	– OPP END VERT	.075 In/Sec	.427 G-s
83	– OPP END AXIAL	.144 In/Sec	.867 G-s
BFWPMIDLE2 – BOILER FEED WATER PUMP MID 2		(02-Jan-20)	
		OVERALL LEVEL	1-20 KHZ
11	– MOTOR TOP N-S	.236 In/Sec	.932 G-s
12	– MOTOR TOP E-W	.085 In/Sec	.994 G-s
21	– MOTOR BOTTOM N-S	.176 In/Sec	1.009 G-s
22	– MOTOR BOTTOM E-W	.072 In/Sec	.851 G-s
23	– MOTOR BOTTOM AXIAL	.090 In/Sec	.346 G-s
71	– PUMP TOP N-S	.430 In/Sec	1.132 G-s
72	– PUMP TOP E-W	.140 In/Sec	.959 G-s
73	– PUMP TOP AXIAL	.084 In/Sec	1.383 G-s
81	– PUMP BOTTOM N-S	.374 In/Sec	1.646 G-s
82	– PUMP BOTTOM E-W	.077 In/Sec	1.166 G-s
BFWPSOUTH1 – BOILER FEED WATER PUMP S 1		(02-Jan-20)	
		OVERALL LEVEL	1-20 KHZ
11	– MOTOR TOP N-S	.160 In/Sec	.133 G-s
12	– MOTOR TOP E-W	.073 In/Sec	.313 G-s
21	– MOTOR BOTTOM N-S	.156 In/Sec	.508 G-s
22	– MOTOR BOTTOM E-W	.071 In/Sec	.521 G-s
23	– MOTOR BOTTOM AXIAL	.137 In/Sec	.127 G-s
71	– PUMP TOP N-S	.494 In/Sec	1.739 G-s
72	– PUMP TOP E-W	.197 In/Sec	1.272 G-s
73	– PUMP TOP AXIAL	.077 In/Sec	1.552 G-s

81 – PUMP BOTTOM N-S	.411 In/Sec	1.823 G-s
82 – PUMP BOTTOM E-W	.228 In/Sec	1.131 G-s

BOILERFAN1 – BOILER FAN #1 (02-Jan-20)

	OVERALL LEVEL	1-20 KHZ
11 – MOTOR OUTBOARD HORIZ	.094 In/Sec	.321 G-s
12 – MOTOR OUTBOARD VERT	.076 In/Sec	.477 G-s
21 – MOTOR INBOARD HORIZ	.096 In/Sec	.403 G-s
22 – MOTOR INBOARD VERT	.076 In/Sec	.376 G-s
23 – MOTOR INBOARD AXIAL	.102 In/Sec	.454 G-s
71 – FAN BRG HORIZONTAL	.024 In/Sec	.013 G-s
72 – FAN BRG VERTICAL	.017 In/Sec	.012 G-s

BOILERFAN2 – BOILER FAN #2 (02-Jan-20)

	OVERALL LEVEL	1-20 KHZ
11 – MOTOR OUTBOARD HORIZ	.024 In/Sec	.034 G-s

BOILERFAN3 – BOILER FAN #3 – 1780 RPM Max (02-Jan-20)

	OVERALL LEVEL	1-20 KHZ
11 – MOTOR OUTBOARD HORIZ	.091 In/Sec	3.559 G-s
12 – MOTOR OUTBOARD VERT	.146 In/Sec	7.113 G-s
21 – MOTOR INBOARD HORIZ	.101 In/Sec	6.666 G-s
22 – MOTOR INBOARD VERT	.126 In/Sec	7.584 G-s
23 – MOTOR INBOARD AXIAL	.117 In/Sec	4.072 G-s
71 – FAN BEARING INBOARD HORZ	.089 In/Sec	1.434 G-s
72 – FAN BEARING INBOARD VERT	.078 In/Sec	1.398 G-s
73 – FAN BEARING INBOARD AXIAL	.116 In/Sec	1.293 G-s
81 – FAN BEARING OUTBOARD HORZ	.104 In/Sec	.263 G-s
82 – FAN BEARING OUTBOARD VERT	.164 In/Sec	.309 G-s

CR PUMP 1 – CARBON RECIRC PUMP (02-Jan-20)

	OVERALL LEVEL	1-20 KHZ
11 – MOTOR OUTBOARD HORIZ	.033 In/Sec	.130 G-s
12 – MOTOR OUTBOARD VERT	.031 In/Sec	.087 G-s
21 – MOTOR INBOARD HORIZ	.034 In/Sec	.153 G-s
22 – MOTOR INBOARD VERT	.047 In/Sec	.106 G-s
23 – MOTOR INBOARD AXIAL	.039 In/Sec	.067 G-s
71 – PUMP CPLG END HORIZ	.031 In/Sec	.202 G-s
72 – PUMP CPLG END VERT	.028 In/Sec	.305 G-s
73 – PUMP CPLG END AXIAL	.022 In/Sec	.135 G-s
81 – PUMP OPP END HORIZ	.037 In/Sec	.359 G-s
82 – PUMP OPP END VERT	.023 In/Sec	.116 G-s

YB PUMP 1 – YELLOW BOX FILTERED WATER (02-Jan-20)

	OVERALL LEVEL	1-20 KHZ
11 – MOTOR OUTBOARD HORIZ	.340 In/Sec	.995 G-s
12 – MOTOR OUTBOARD VERT	.219 In/Sec	1.255 G-s
21 – MOTOR INBOARD HORIZ	.317 In/Sec	1.082 G-s
22 – MOTOR INBOARD VERT	.355 In/Sec	.755 G-s
23 – MOTOR INBOARD AXIAL	.605 In/Sec	.632 G-s
71 – PUMP CPLG END HORIZ	.511 In/Sec	.217 G-s
72 – PUMP CPLG END VERT	.259 In/Sec	.221 G-s
73 – PUMP CPLG END AXIAL	.193 In/Sec	.231 G-s
81 – PUMP OPP END HORIZ	.259 In/Sec	.219 G-s
82 – PUMP OPP END VERT	.091 In/Sec	.282 G-s

SW PUMP 8 – SERVICE WATER PUMP 8 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.092 In/Sec	.273 G-s
12	- MOTOR OUTBOARD VERT	.243 In/Sec	1.226 G-s
21	- MOTOR INBOARD HORIZ	.072 In/Sec	.652 G-s
22	- MOTOR INBOARD VERT	.215 In/Sec	1.006 G-s
23	- MOTOR INBOARD AXIAL	.263 In/Sec	.467 G-s
71	- PUMP CPLG END HORIZ	.200 In/Sec	.578 G-s
72	- PUMP CPLG END VERT	.215 In/Sec	.740 G-s
73	- PUMP CPLG END AXIAL	.095 In/Sec	1.029 G-s
81	- PUMP OPP END HORIZ	.133 In/Sec	.911 G-s
82	- PUMP OPP END VERT	.125 In/Sec	.930 G-s

RO 2 - RO WATER PUMP 2 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.119 In/Sec	.691 G-s
12	- MOTOR OUTBOARD VERT	.100 In/Sec	.881 G-s
21	- MOTOR INBOARD HORIZ	.107 In/Sec	.993 G-s
22	- MOTOR INBOARD VERT	.151 In/Sec	.720 G-s
23	- MOTOR INBOARD AXIAL	.104 In/Sec	.870 G-s
71	- PUMP CPLG END HORIZ	.686 In/Sec	.436 G-s
72	- PUMP CPLG END VERT	.185 In/Sec	.546 G-s
73	- PUMP CPLG END AXIAL	.487 In/Sec	.573 G-s
81	- PUMP OPP END HORIZ	.178 In/Sec	.661 G-s
82	- PUMP OPP END VERT	.255 In/Sec	.747 G-s

AMMCOMP 1 - AMMONIA COMP #1 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.098 In/Sec	.112 G-s
12	- MOTOR OUTBOARD VERT	.187 In/Sec	.110 G-s
13	- MOTOR OUTBOARD AXIAL	.383 In/Sec	.055 G-s
21	- MOTOR INBOARD HORIZ	.084 In/Sec	.118 G-s
22	- MOTOR INBOARD VERT	.153 In/Sec	.115 G-s
23	- MOTOR INBOARD AXIAL	.171 In/Sec	.075 G-s
		OVERALL LEVEL	1-20 KHz
71	- MALE - CPLG END HORIZ	.108 In/Sec	1.168 G-s
72	- MALE - CPLG END VERT	.117 In/Sec	1.035 G-s
73	- MALE-CPLG END AXIAL	.175 In/Sec	1.332 G-s
81	- MALE- OPP END HORIZ	.115 In/Sec	1.237 G-s
82	- MALE- OPP END VERT	.124 In/Sec	.906 G-s
83	- MALE-OPP END AXIAL	.179 In/Sec	.889 G-s
71F	- FEMALE - CPLG END HORIZ	.121 In/Sec	.778 G-s
72F	- FEMALE- CPLG END VERT	.073 In/Sec	.787 G-s
73F	- FEMALE-CPLG END AXIAL	.143 In/Sec	1.264 G-s
81F	- FEMALE- OPP END HORIZ	.130 In/Sec	1.059 G-s
82F	- FEMALE- OPP END VERT	.100 In/Sec	1.096 G-s
83F	- FEMALE- OPP END AXIAL	.171 In/Sec	1.130 G-s

AMMCOMP 2 - AMMONIA COMP - #2 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.042 In/Sec	.031 G-s
12	- MOTOR OUTBOARD VERT	.066 In/Sec	.221 G-s
13	- MOTOR OUTBOARD AXIAL	.052 In/Sec	.055 G-s
21	- MOTOR INBOARD HORIZ	.082 In/Sec	.057 G-s
22	- MOTOR INBOARD VERT	.075 In/Sec	.065 G-s
23	- MOTOR INBOARD AXIAL	.068 In/Sec	.075 G-s
		OVERALL LEVEL	1-20 KHz
71	- MALE - CPLG END HORIZ	.148 In/Sec	.553 G-s

```
   72  - MALE - CPLG END VERT                    .205 In/Sec       .705 G-s
   73  - MALE-CPLG END AXIAL                     .188 In/Sec       .502 G-s
   81  - MALE- OPP END HORIZ                     .145 In/Sec       .890 G-s
   82  - MALE- OPP END VERT      BAD READING    2.222 In/Sec       .077 G-s

-------------------------------------------------------------------------------
   Clarification Of Vibration Units:
      Acc      -->  G-s      PK
      Vel      -->  In/Sec   PK                      Abbreviated Last Measurement
Summary
                     ***********************************

               Database:  Blues_city.rbm
               Station:   UPPER FLOORS
               Report Date:  03-Jan-20   09:12

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

   2SHWP      - 2ND FLOOR S. HOT WATER PUMP   (02-Jan-20)
                                               OVERALL LEVEL     1-20 KHZ
   11  - MOTOR OUTBOARD HORIZ                    .158 In/Sec       .684 G-s
   12  - MOTOR OUTBOARD VERT                     .270 In/Sec      1.351 G-s
   21  - MOTOR INBOARD HORIZ                     .134 In/Sec      1.302 G-s
   22  - MOTOR INBOARD VERT                      .311 In/Sec      1.640 G-s
   23  - MOTOR INBOARD AXIAL                     .391 In/Sec       .828 G-s
   71  - PUMP CPLG END HORIZ                     .158 In/Sec      1.077 G-s
   72  - PUMP CPLG END VERT                      .384 In/Sec      1.152 G-s
   73  - PUMP CPLG END AXIAL                     .630 In/Sec      2.233 G-s
   81  - PUMP OPP END HORIZ                      .259 In/Sec      1.969 G-s
   82  - PUMP OPP END VERT                       .288 In/Sec      2.291 G-s

-------------------------------------------------------------------------------
   Clarification Of Vibration Units:
      Acc      -->  G-s      PK
      Vel      -->  In/Sec   PK                      Abbreviated Last Measurement
Summary
                     ***********************************

               Database:  Blues_city.rbm
               Station:   BREWING 1ST FLOOR
               Report Date:  03-Jan-20   09:12

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

             ***  NO DATA Was Found That Meets the Report Specification ***
Abbreviated Last Measurement Summary
                     ***********************************

               Database:  Blues_city.rbm
               Station:   BREWING BASEMENT
               Report Date:  03-Jan-20   09:12

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

*** NO DATA Was Found That Meets the Report Specification ***

Abbreviated Last Measurement Summary

****

Database: Blues_city.rbm
Station: GRAIN TRANSFER
Report Date: 03-Jan-20 09:12

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD

*** NO DATA Was Found That Meets the Report Specification ***

Abbreviated Last Measurement Summary

****

Database: Blues_city.rbm
Station: SUGAR PUMPS
Report Date: 03-Jan-20 09:12

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
V3 - SUGAR TANK VIKING PUMP #3	(02-Jan-20)	
	OVERALL LEVEL	1-20 KHZ
11 - MOTOR OB HORZ	.101 In/Sec	.322 G-s
12 - MOTOR OB VERT	.137 In/Sec	.221 G-s
21 - MOTOR IB HORZ	.108 In/Sec	.400 G-s
22 - MOTOR IB VERT	.113 In/Sec	.242 G-s
23 - MOTOR IB AXIAL	.109 In/Sec	.363 G-s
	OVERALL LEVEL	1-20 KHz
31 - GEARBOX INPUT HORZ	.095 In/Sec	.966 G-s
32 - GEARBOX INPUT VERT	.098 In/Sec	1.175 G-s
33 - GEARBOX INPUT AXIAL	.069 In/Sec	.642 G-s
61 - GEARBOX OUTPUT HORZ	.101 In/Sec	1.154 G-s
62 - GEARBOX OUTPUT VERT	.084 In/Sec	.617 G-s
63 - GEARBOX OUTPUT AXIAL	.082 In/Sec	.802 G-s
	OVERALL LEVEL	1-20 KHZ
71 - PUMP IB HORZ	.105 In/Sec	.389 G-s
72 - PUMP IB VERT	.080 In/Sec	.272 G-s
73 - PUMP IB AXIAL	.088 In/Sec	.512 G-s
81 - PUMP OB HORZ	.083 In/Sec	.097 G-s
82 - PUMP OB VERT	.083 In/Sec	.082 G-s
V4 - SUGAR TANK VIKING PUMP #4	(02-Jan-20)	
	OVERALL LEVEL	1-20 KHZ
11 - MOTOR OB HORZ	.072 In/Sec	.195 G-s
12 - MOTOR OB VERT	.089 In/Sec	.259 G-s
21 - MOTOR IB HORZ	.107 In/Sec	.744 G-s
22 - MOTOR IB VERT	.169 In/Sec	1.102 G-s
23 - MOTOR IB AXIAL	.273 In/Sec	.274 G-s
	OVERALL LEVEL	1-20 KHz
31 - GEARBOX INPUT HORZ	.158 In/Sec	.281 G-s
32 - GEARBOX INPUT VERT	.276 In/Sec	.263 G-s
33 - GEARBOX INPUT AXIAL	.542 In/Sec	.325 G-s
61 - GEARBOX OUTPUT HORZ	.134 In/Sec	.466 G-s
62 - GEARBOX OUTPUT VERT	.204 In/Sec	.334 G-s
63 - GEARBOX OUTPUT AXIAL	.514 In/Sec	.325 G-s

		OVERALL LEVEL	1-20 KHZ
71	- PUMP IB HORZ	.156 In/Sec	.203 G-s
72	- PUMP IB VERT	.278 In/Sec	.675 G-s
73	- PUMP IB AXIAL	.306 In/Sec	.946 G-s
81	- PUMP OB HORZ	.104 In/Sec	.407 G-s
82	- PUMP OB VERT	.087 In/Sec	.427 G-s

V5 - SUGAR TANK VIKING PUMP #5 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OB HORZ	.075 In/Sec	.540 G-s
12	- MOTOR OB VERT	.034 In/Sec	.408 G-s
21	- MOTOR IB HORZ	.063 In/Sec	.614 G-s
22	- MOTOR IB VERT	.025 In/Sec	.433 G-s
23	- MOTOR IB AXIAL	.070 In/Sec	.244 G-s
71	- PUMP IB HORZ	.088 In/Sec	1.489 G-s
72	- PUMP IB VERT	.087 In/Sec	1.275 G-s
73	- PUMP IB AXIAL	.083 In/Sec	.911 G-s
81	- PUMP OB HORZ	.044 In/Sec	.824 G-s
82	- PUMP OB VERT	.066 In/Sec	.657 G-s

Clarification Of Vibration Units:
Acc --> G-s PK
Vel --> In/Sec PK

Abbreviated Last Measurement Summary

****

Database: Blues_city.rbm
Station: ALCOHOL PUMP ROOM
Report Date: 03-Jan-20 09:12

MEASUREMENT POINT		OVERALL LEVEL	HFD / VHFD

SK1 RO1 - SKID 1 - RO PUMP #1 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.051 In/Sec	.615 G-s
12	- MOTOR OUTBOARD VERT	.038 In/Sec	.516 G-s
21	- MOTOR INBOARD HORIZ	.091 In/Sec	.643 G-s
22	- MOTOR INBOARD VERT	.125 In/Sec	.616 G-s
23	- MOTOR INBOARD AXIAL	.071 In/Sec	.480 G-s

SK1 RO4 - SKID 1 - RO PUMP #4 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.055 In/Sec	.224 G-s
12	- MOTOR OUTBOARD VERT	.104 In/Sec	.215 G-s
21	- MOTOR INBOARD HORIZ	.060 In/Sec	.268 G-s
22	- MOTOR INBOARD VERT	.071 In/Sec	.208 G-s
23	- MOTOR INBOARD AXIAL	.076 In/Sec	.086 G-s

SK1 RO3 - SKID 1 - RO PUMP #3 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.203 In/Sec	1.145 G-s
12	- MOTOR OUTBOARD VERT	.178 In/Sec	1.132 G-s
21	- MOTOR INBOARD HORIZ	.159 In/Sec	1.802 G-s
22	- MOTOR INBOARD VERT	.231 In/Sec	1.899 G-s
23	- MOTOR INBOARD AXIAL	.173 In/Sec	.666 G-s

71	– PUMP CPLG END HORIZ	.126 In/Sec	.648 G-s
72	– PUMP CPLG END VERT	.293 In/Sec	.767 G-s
73	– PUMP CPLG END AXIAL	.136 In/Sec	.595 G-s
81	– PUMP OPP END HORIZ	.124 In/Sec	.549 G-s
82	– PUMP OPP END VERT	.134 In/Sec	.487 G-s

SK1 RO2 – SKID 1 – RO PUMP #2 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	– MOTOR OUTBOARD HORIZ	.063 In/Sec	.619 G-s
12	– MOTOR OUTBOARD VERT	.035 In/Sec	.652 G-s
21	– MOTOR INBOARD HORIZ	.065 In/Sec	.909 G-s
22	– MOTOR INBOARD VERT	.060 In/Sec	.879 G-s
23	– MOTOR INBOARD AXIAL	.062 In/Sec	.427 G-s
71	– PUMP CPLG END HORIZ	.067 In/Sec	.441 G-s
72	– PUMP CPLG END VERT	.024 In/Sec	.421 G-s
73	– PUMP CPLG END AXIAL	.072 In/Sec	.917 G-s
81	– PUMP OPP END HORIZ	.069 In/Sec	.970 G-s
82	– PUMP OPP END VERT	.055 In/Sec	.611 G-s

SK2 RO1 – SKID 2 – RO PUMP #1 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	– MOTOR OUTBOARD HORIZ	.095 In/Sec	.507 G-s
12	– MOTOR OUTBOARD VERT	.082 In/Sec	.489 G-s
21	– MOTOR INBOARD HORIZ	.090 In/Sec	.954 G-s
22	– MOTOR INBOARD VERT	.148 In/Sec	.650 G-s
23	– MOTOR INBOARD AXIAL	.146 In/Sec	.369 G-s

SK2 RO4 – SKID 2 – RO PUMP #4 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	– MOTOR OUTBOARD HORIZ	.065 In/Sec	.176 G-s
12	– MOTOR OUTBOARD VERT	.100 In/Sec	.186 G-s
21	– MOTOR INBOARD HORIZ	.055 In/Sec	.132 G-s
22	– MOTOR INBOARD VERT	.064 In/Sec	.160 G-s
23	– MOTOR INBOARD AXIAL	.058 In/Sec	.125 G-s

SK2 RO3 – SKID 2 – RO PUMP #3 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	– MOTOR OUTBOARD HORIZ	.217 In/Sec	1.681 G-s
12	– MOTOR OUTBOARD VERT	.265 In/Sec	1.128 G-s
21	– MOTOR INBOARD HORIZ	.101 In/Sec	1.173 G-s
22	– MOTOR INBOARD VERT	.244 In/Sec	.937 G-s
23	– MOTOR INBOARD AXIAL	.140 In/Sec	.489 G-s
71	– PUMP CPLG END HORIZ	.136 In/Sec	1.024 G-s
72	– PUMP CPLG END VERT	.250 In/Sec	.880 G-s
73	– PUMP CPLG END AXIAL	.211 In/Sec	.768 G-s
81	– PUMP OPP END HORIZ	.129 In/Sec	.713 G-s
82	– PUMP OPP END VERT	.236 In/Sec	.651 G-s

SK2 RO2 – SKID 2 – RO PUMP #2 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	– MOTOR OUTBOARD HORIZ	.047 In/Sec	.286 G-s
12	– MOTOR OUTBOARD VERT	.030 In/Sec	.807 G-s
21	– MOTOR INBOARD HORIZ	.037 In/Sec	1.749 G-s
22	– MOTOR INBOARD VERT	.035 In/Sec	1.158 G-s
23	– MOTOR INBOARD AXIAL	.029 In/Sec	.604 G-s
71	– PUMP CPLG END HORIZ	.061 In/Sec	.712 G-s
72	– PUMP CPLG END VERT	.064 In/Sec	.423 G-s

73	- PUMP CPLG END AXIAL	.115 In/Sec	.909 G-s
81	- PUMP OPP END HORIZ	.100 In/Sec	.814 G-s
82	- PUMP OPP END VERT	.100 In/Sec	.729 G-s

Clarification Of Vibration Units:
Acc --> G-s PK
Vel --> In/Sec PK

Abbreviated Last Measurement Summary

****

Database: Blues_city.rbm
Station: ADMINISTRATIVE AREA
Report Date: 03-Jan-20 09:12

MEASUREMENT POINT		OVERALL LEVEL	HFD / VHFD
HVAC COLD	- HVAC COLD GLYCOL CIRC PUMP	(02-Jan-20)	
		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.050 In/Sec	.499 G-s
12	- MOTOR OUTBOARD VERT	.045 In/Sec	.389 G-s
21	- MOTOR INBOARD HORIZ	.135 In/Sec	.422 G-s
22	- MOTOR INBOARD VERT	.087 In/Sec	.395 G-s
23	- MOTOR INBOARD AXIAL	.064 In/Sec	.156 G-s
71	- PUMP CPLG END HORIZ	.172 In/Sec	.339 G-s
72	- PUMP CPLG END VERT	.123 In/Sec	.413 G-s
73	- PUMP CPLG END AXIAL	.062 In/Sec	.566 G-s
81	- PUMP OPP END HORIZ	.242 In/Sec	.344 G-s
82	- PUMP OPP END VERT	.112 In/Sec	.276 G-s
HVAC HOT	- HVAC HOT WATER CIRC PUMP	(02-Jan-20)	
		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.271 In/Sec	.972 G-s
12	- MOTOR OUTBOARD VERT	.247 In/Sec	1.005 G-s
21	- MOTOR INBOARD HORIZ	.120 In/Sec	.846 G-s
22	- MOTOR INBOARD VERT	.259 In/Sec	.719 G-s
23	- MOTOR INBOARD AXIAL	.455 In/Sec	.503 G-s
71	- PUMP CPLG END HORIZ	.343 In/Sec	.394 G-s
72	- PUMP CPLG END VERT	.186 In/Sec	.618 G-s
73	- PUMP CPLG END AXIAL	.176 In/Sec	.514 G-s
81	- PUMP OPP END HORIZ	.217 In/Sec	.375 G-s
82	- PUMP OPP END VERT	.239 In/Sec	.447 G-s

Clarification Of Vibration Units:
Acc --> G-s PK
Vel --> In/Sec PK

Abbreviated Last Measurement Summary

****

Database: Blues_city.rbm
Station: FILTER CELLAR
Report Date: 03-Jan-20 09:12

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD

CHILL 1 - CHILL WATER CIRC PUMP #1	(02-Jan-20)		
	OVERALL LEVEL	1-20 KHZ	
11 - MOTOR OUTBOARD HORIZ	.814 In/Sec	.712 G-s	
12 - MOTOR OUTBOARD VERT	.087 In/Sec	.515 G-s	
21 - MOTOR INBOARD HORIZ	.907 In/Sec	.553 G-s	
22 - MOTOR INBOARD VERT	.086 In/Sec	.681 G-s	
23 - MOTOR INBOARD AXIAL	.131 In/Sec	.687 G-s	
71 - PUMP CPLG END HORIZ	.233 In/Sec	.928 G-s	
72 - PUMP CPLG END VERT	.123 In/Sec	.521 G-s	
73 - PUMP CPLG END AXIAL	.123 In/Sec	.795 G-s	
81 - PUMP OPP END HORIZ	.123 In/Sec	.594 G-s	
82 - PUMP OPP END VERT	.068 In/Sec	.786 G-s	
WARM GLY 1 - WARM GLYCOL PUMP #1	(02-Jan-20)		
	OVERALL LEVEL	1-20 KHZ	
11 - MOTOR OUTBOARD HORIZ	.036 In/Sec	.382 G-s	
12 - MOTOR OUTBOARD VERT	.098 In/Sec	.279 G-s	
21 - MOTOR INBOARD HORIZ	.081 In/Sec	.512 G-s	
22 - MOTOR INBOARD VERT	.094 In/Sec	.222 G-s	
23 - MOTOR INBOARD AXIAL	.117 In/Sec	.101 G-s	
71 - PUMP CPLG END HORIZ	.168 In/Sec	.175 G-s	
72 - PUMP CPLG END VERT	.194 In/Sec	.156 G-s	
73 - PUMP CPLG END AXIAL	.071 In/Sec	.145 G-s	
81 - PUMP OPP END HORIZ	.089 In/Sec	.158 G-s	
82 - PUMP OPP END VERT	.096 In/Sec	.260 G-s	

Clarification Of Vibration Units:
Acc --> G-s PK
Vel --> In/Sec PK

Abbreviated Last Measurement Summary

****

Database: Blues_city.rbm
Station: GOVERNMENT CELLAR
Report Date: 03-Jan-20 09:12

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
COLD GLY 1 - COLD GLYCOL PUMP #1	(02-Jan-20)	
	OVERALL LEVEL	1-20 KHZ
11 - MOTOR OUTBOARD HORIZ	.076 In/Sec	.178 G-s
12 - MOTOR OUTBOARD VERT	.038 In/Sec	.195 G-s
21 - MOTOR INBOARD HORIZ	.088 In/Sec	.213 G-s
22 - MOTOR INBOARD VERT	.063 In/Sec	.381 G-s
23 - MOTOR INBOARD AXIAL	.094 In/Sec	.261 G-s
71 - PUMP CPLG END HORIZ	.103 In/Sec	.882 G-s
72 - PUMP CPLG END VERT	.097 In/Sec	1.263 G-s
73 - PUMP CPLG END AXIAL	.108 In/Sec	.945 G-s
81 - PUMP OPP END HORIZ	.096 In/Sec	.408 G-s
82 - PUMP OPP END VERT	.084 In/Sec	.843 G-s
COLD GLY 4 - COLD GLYCOL PUMP #4	(02-Jan-20)	
	OVERALL LEVEL	1-20 KHZ
11 - MOTOR OUTBOARD HORIZ	.152 In/Sec	.565 G-s

12	– MOTOR OUTBOARD VERT	.042 In/Sec	.635 G-s
21	– MOTOR INBOARD HORIZ	.112 In/Sec	.604 G-s
22	– MOTOR INBOARD VERT	.079 In/Sec	.626 G-s
23	– MOTOR INBOARD AXIAL	.086 In/Sec	.298 G-s
71	– PUMP CPLG END HORIZ	.376 In/Sec	2.392 G-s
72	– PUMP CPLG END VERT	.220 In/Sec	2.174 G-s
73	– PUMP CPLG END AXIAL	.276 In/Sec	2.670 G-s
81	– PUMP OPP END HORIZ	.308 In/Sec	2.349 G-s
82	– PUMP OPP END VERT	.218 In/Sec	.886 G-s

COLD GLY 5 – COLD GLYCOL PUMP #5 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	– MOTOR OUTBOARD HORIZ	.105 In/Sec	.171 G-s
12	– MOTOR OUTBOARD VERT	.027 In/Sec	.087 G-s
21	– MOTOR INBOARD HORIZ	.117 In/Sec	.160 G-s
22	– MOTOR INBOARD VERT	.059 In/Sec	.224 G-s
23	– MOTOR INBOARD AXIAL	.124 In/Sec	.069 G-s
71	– PUMP CPLG END HORIZ	.036 In/Sec	.155 G-s
72	– PUMP CPLG END VERT	.035 In/Sec	.089 G-s
73	– PUMP CPLG END AXIAL	.034 In/Sec	.181 G-s
81	– PUMP OPP END HORIZ	.043 In/Sec	.098 G-s
82	– PUMP OPP END VERT	.041 In/Sec	.085 G-s

COLD GLY 6 – COLD GLYCOL PUMP #6 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	– MOTOR OUTBOARD HORIZ	.039 In/Sec	.519 G-s
12	– MOTOR OUTBOARD VERT	.041 In/Sec	.450 G-s
21	– MOTOR INBOARD HORIZ	.116 In/Sec	.670 G-s
22	– MOTOR INBOARD VERT	.066 In/Sec	.499 G-s
23	– MOTOR INBOARD AXIAL	.058 In/Sec	.464 G-s
71	– PUMP CPLG END HORIZ	.043 In/Sec	.080 G-s
72	– PUMP CPLG END VERT	.028 In/Sec	.078 G-s
73	– PUMP CPLG END AXIAL	.036 In/Sec	.167 G-s
81	– PUMP OPP END HORIZ	.028 In/Sec	.101 G-s
82	– PUMP OPP END VERT	.028 In/Sec	.139 G-s

PACK GLY 1 – PACKAGING COLD GLYCOL PUMP 1 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	– MOTOR OUTBOARD HORIZ	.187 In/Sec	1.307 G-s
12	– MOTOR OUTBOARD VERT	.064 In/Sec	1.262 G-s
21	– MOTOR INBOARD HORIZ	.184 In/Sec	.975 G-s
22	– MOTOR INBOARD VERT	.064 In/Sec	1.635 G-s
23	– MOTOR INBOARD AXIAL	.080 In/Sec	1.140 G-s
71	– PUMP CPLG END HORIZ	.087 In/Sec	.282 G-s
72	– PUMP CPLG END VERT	.036 In/Sec	.295 G-s
73	– PUMP CPLG END AXIAL	.062 In/Sec	.311 G-s
81	– PUMP OPP END HORIZ	.051 In/Sec	.228 G-s
82	– PUMP OPP END VERT	.017 In/Sec	.312 G-s

NANO 126 – NANO SKID PUMP 126 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	– MOTOR OUTBOARD HORIZ	.076 In/Sec	.728 G-s
12	– MOTOR OUTBOARD VERT	.115 In/Sec	1.030 G-s
21	– MOTOR INBOARD HORIZ	.106 In/Sec	.459 G-s
22	– MOTOR INBOARD VERT	.068 In/Sec	.667 G-s
23	– MOTOR INBOARD AXIAL	.176 In/Sec	.478 G-s
71	– PUMP CPLG END HORIZ	.128 In/Sec	.650 G-s

72	- PUMP CPLG END VERT	.082 In/Sec	.597 G-s
73	- PUMP CPLG END AXIAL	.070 In/Sec	.395 G-s
81	- PUMP OPP END HORIZ	.154 In/Sec	.340 G-s
82	- PUMP OPP END VERT	.058 In/Sec	.287 G-s

NANO 127 - NANO SKID PUMP 127 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.156 In/Sec	.653 G-s
12	- MOTOR OUTBOARD VERT	.110 In/Sec	1.293 G-s
21	- MOTOR INBOARD HORIZ	.190 In/Sec	.889 G-s
22	- MOTOR INBOARD VERT	.180 In/Sec	.485 G-s
23	- MOTOR INBOARD AXIAL	.202 In/Sec	.620 G-s
71	- PUMP CPLG END HORIZ	.096 In/Sec	.465 G-s
72	- PUMP CPLG END VERT	.201 In/Sec	.549 G-s
73	- PUMP CPLG END AXIAL	.097 In/Sec	.428 G-s
81	- PUMP OPP END HORIZ	.309 In/Sec	.409 G-s
82	- PUMP OPP END VERT	.134 In/Sec	.418 G-s

NANO 128 - NANO SKID PUMP 128 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.318 In/Sec	.510 G-s
12	- MOTOR OUTBOARD VERT	.155 In/Sec	.917 G-s
21	- MOTOR INBOARD HORIZ	.372 In/Sec	.949 G-s
22	- MOTOR INBOARD VERT	.179 In/Sec	.630 G-s
23	- MOTOR INBOARD AXIAL	.164 In/Sec	.674 G-s
71	- PUMP CPLG END HORIZ	.121 In/Sec	.460 G-s
72	- PUMP CPLG END VERT	.209 In/Sec	.494 G-s
73	- PUMP CPLG END AXIAL	.101 In/Sec	.432 G-s
81	- PUMP OPP END HORIZ	.096 In/Sec	.313 G-s
82	- PUMP OPP END VERT	.100 In/Sec	.358 G-s

NANO 129 - NANO SKID PUMP 129 (02-Jan-20)

		OVERALL LEVEL	1-20 KHZ
11	- MOTOR OUTBOARD HORIZ	.106 In/Sec	.648 G-s
12	- MOTOR OUTBOARD VERT	.124 In/Sec	1.773 G-s
21	- MOTOR INBOARD HORIZ	.090 In/Sec	.961 G-s
22	- MOTOR INBOARD VERT	.127 In/Sec	1.034 G-s
23	- MOTOR INBOARD AXIAL	.137 In/Sec	.466 G-s
71	- PUMP CPLG END HORIZ	.100 In/Sec	.856 G-s
72	- PUMP CPLG END VERT	.107 In/Sec	.549 G-s
73	- PUMP CPLG END AXIAL	.086 In/Sec	.532 G-s
81	- PUMP OPP END HORIZ	.105 In/Sec	.399 G-s
82	- PUMP OPP END VERT	.102 In/Sec	.585 G-s

Clarification Of Vibration Units:
Acc --> G-s PK
Vel --> In/Sec PK

Abbreviated Last Measurement Summary