

January 19, 2022

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

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

Reportable equipment

Middle and South Boiler Feed Water Pumps

Data shows shaft speed vibrations in the pumps. There could be wear causing possible imbalance or run out. No action required. **Rated a Class I Defect.**

Boiler 3 Fan, Motor Bearings

Bearing defect frequencies are still present in the motor vibration data. The acceleration trend has increased this survey. The overalls are 4 g's RMS. Expect to change out the bearings in the future.

Rated a Class II Defect.

Boiler 3 Fan, Fan Bearings

The inboard fan bearing still shows strong non-synchronous peaks in the acceleration spectrum up around 2500 Hz. Vibrations are over 11 g's RMS overall. Expect to change out the bearings in the future. **Rated a Class II Defect.**

Service Water Pump 8

The shaft speed vibrations in the motor radial and axial are still reportable. Harmonics of shaft speed are present in the pump input bearing which could indicate looseness in the bearing fits. Check for loose fasteners, shaft misalignment, bent shafts, or coupling defects. Perform a lift check on the pump shaft. **Rated a Class II Defect.**

Service Water Pump 7

The vibration data for the pump still shows strong 1x and 2x RPM vibrations. This is usually a good indicator of misalignment or shaft/coupling run out. Inspect the shafts and coupling for run out and alignment. Check all fasteners, feet, and the base. **Rated a Class II Defect.**

2nd Floor South Hot Water Pump

Shaft speed vibration still dominates the motor axial vibration data at near 0.6" per second velocity peak. A 2x RPM vibration is also present. Inspect the unit base, structure, coupling and fasteners for issues. Have the shaft alignment checked too. **Rated a Class I Defect.**

GF-VP2 GALLERY DA VAC PUMP-SKID 2

Multiple vibrations throughout unit are still above 1"/second at shaft speed. The pump input is almost 2"/second. Inspect the coupling and alignment first. Check the shaft and coupling for run out and alignment. Inspect the structure, fasteners, and feet. The pump could be worn or have stuck vanes.

Rated a Class IV Defect.

GF-CP2 GALLERY DA CIRC PUMP- SKID 2

Motor vertical shows a 1x and smaller 2x RPM vibration; however this unit is close to the vacuum pump that has a very high vibration. Check the unit fasteners, feet, and structure. Impeller could be worn.

Rated a Class II Defect.

Sugar Tank Viking Pump #3

The pump data still shows slight non-synchronous harmonic peaks in the data. This could indicate distress in the unit bearings. We will watch for changes. **Rated a Class I Defect.**

Sugar Tank Viking Pump #4

Gearbox data still shows multiple low level harmonics that could be early signs of wear and looseness. The Pump was replaced. **Rated a Class II Defect.**

Administration HVAC Hot Water Pump

Motor and pump vibration is still about 0.4"/second velocity peak overall. There could still be an alignment or coupling issue. Inspect the coupling and check the shaft alignment. **Rated a Class I Defect.**

Filter Cellar Chill Water Circulator Pump 1

Vibrations are still at 2x line frequency. Unbalanced electrical phases or poor connections can cause the vibration since it changes in amplitude over time. Perform a motor phase and voltage analysis up to and including PDMA if necessary. Check for soft foot in the motor. **Rated a Class I Defect.**

Units previously reported but not running or difficult access this survey

Boiler Fan 2

Vibrations are very high in the motor. Velocity overall is still over 1.75"/second peak for radial and 01.3" for axial measurements. Ensure all foot bolts on the motor and all fan bearing bolts are torqued and there is no soft foot. This is more than likely a fan imbalance that is transferring through the motor. Still recommend having fan pulled and shop balanced on a balance stand. **Rated as a Class III Defect.**

Yellow Box Filtered Water Pump

Shaft speed vibration is still evident in the inboard pump horizontal. Inspect the coupling first for signs of wear that could cause imbalance. Check the alignment if the coupling looks good. The pump could be in distress if the coupling and alignment are good. **Rated a Class II Defect.**

Service Water Pump 3

There has been an increase in what appears to be a 2x shaft speed vibration in the motor, and it is the dominant vibration. This could be caused by shaft misalignment, bent shaft, or coupling defects. There is also a slight possibility it could be an electrical or mechanical air gap issue in the motor if this unit is on a drive. Check all electrical connections and check for soft foot if this is the case. **Rated a Class II Defect.**

Service Water Pump 5

The unit still has signs of possible misalignment or coupling defects. Check in the near future. The pump also has multiple non-synchronous vibration peaks in the upper frequencies, which we believe to be bearing defects. **Rated a Class II Defect.**

RO Water Pump 1

Data is collected infrequently on this unit. This pump has two vibrations at 128 and 149 Hz that come into and out of phase causing a beat vibration. There could be wear in the pump, damage, or there could be a flow issue. We recommend further inspection and adjustments of flow related controls, filters, screens, or piping and finally internal inspection if needed. **Rated a Class II Defect.**

WORTA-WORT TRANSFER PUMP A

The pump axial vibration at shaft speed has been slowly increasing over time. Check the shaft alignment as well as the coupling for wear and run out. Check unit fasteners, feet, and base. **Rated a Class I Defect.**

Alcohol Pump Room Skid 1 RO Pump 3

The pump vibration data shows an increased vibration at shaft speed to over 0.4"/second velocity peak in the time waveform. Inspect the unit fasteners and structure. Inspect the pump impeller as time allows. **Rated a Class I Defect.**

W COOL A-CHILL WATER WORT COOL SIDE A (5)

Last data in May with same recommendation.

There appears to be sidebands around shaft speed in the motor. Perform an inspection of the coupling, fasteners, and structure as soon as possible. If nothing is found, we suggest the motor needs to be inspected as well as all electrical connections. Motor replacement should be considered if all else reveals nothing. **Rated a Class III Defect.**

G Cellar Cold Glycol Pump #5

Motor still has a dominant vibration at 4X shaft speed with sidebands or shaft speed harmonics. Inspect for loose fasteners, coupling, and alignment issues. Could be a pump issue too if it has 4 flutes in the impeller. **Rated a Class II Defect.**

G Cellar 128 NANO Pump

Vibrations at shaft speed are still excessive. Ensure all fasteners are tight and support structure is sound. Check for pipe strain. Make sure coupling is in good shape and shaft alignment is precise.

Rated a Class II Defect.

G Cellar 129 NANO Pump

Motor bearings have signs of early defects. No action required at this time other than ensuring the bearings have lubrication. **Rated a Class I Defect.**

Abbreviated Last Measurement Summary *****

Database: Blues_city.rbm
Station: POWER HOUSE
Report Date: 19-Jan-22 13:19

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD	MACHINE SPEED
-----	-----	-----	-----
AIR COMP 3 - COMPRESSOR #3 - 250HP (19-Jan-22)			
	OVERALL LEVEL	1-20 KHZ	
11	.117 In/Sec	1.868 G-s	1792.0 RPM
12	.074 In/Sec	.828 G-s	
13	.060 In/Sec	.516 G-s	
21	.094 In/Sec	.747 G-s	
22	.085 In/Sec	.780 G-s	
23	.170 In/Sec	1.061 G-s	
71	.105 In/Sec	.664 G-s	3655.7 RPM
72	.054 In/Sec	.427 G-s	
73	.115 In/Sec	.741 G-s	
81	.067 In/Sec	.407 G-s	
82	.088 In/Sec	.519 G-s	
83	.117 In/Sec	.668 G-s	
AIR COMP 5 - COMPRESSOR #5 (19-Jan-22)			
	OVERALL LEVEL	1-20 KHZ	
11	.165 In/Sec	.569 G-s	1788.0 RPM
12	.085 In/Sec	1.289 G-s	
13	.145 In/Sec	.335 G-s	
21	.199 In/Sec	.264 G-s	
22	.088 In/Sec	.613 G-s	
23	.121 In/Sec	.901 G-s	
71	.153 In/Sec	.682 G-s	1785.0 RPM
72	.134 In/Sec	.510 G-s	
73	.174 In/Sec	.836 G-s	
81	.154 In/Sec	.714 G-s	
82	.047 In/Sec	.908 G-s	
AIR COMP 6 - COMPRESSOR #6 (19-Jan-22)			
	OVERALL LEVEL	1-20 KHZ	
11	.167 In/Sec	.309 G-s	1788.0 RPM

12	.077 In/Sec	1.570 G-s	
21	.151 In/Sec	.407 G-s	
22	.086 In/Sec	.400 G-s	
23	.083 In/Sec	.292 G-s	
71	.113 In/Sec	.563 G-s	1785.0 RPM
72	.102 In/Sec	.455 G-s	
73	.170 In/Sec	.893 G-s	
81	.116 In/Sec	1.239 G-s	
82	.079 In/Sec	.571 G-s	
83	.140 In/Sec	.248 G-s	

BFWPMIDLE2 - BOILER FEED WATER PUMP MID 2 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.219 In/Sec	.517 G-s	3540.0 RPM
12	.141 In/Sec	.532 G-s	
21	.141 In/Sec	.223 G-s	
22	.082 In/Sec	.425 G-s	
23	.086 In/Sec	.470 G-s	
71	.311 In/Sec	1.390 G-s	
72	.203 In/Sec	1.326 G-s	
73	.074 In/Sec	1.613 G-s	
81	.115 In/Sec	.892 G-s	
82	.082 In/Sec	.944 G-s	

BFWPSOUTH1 - BOILER FEED WATER PUMP S 1 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.092 In/Sec	.179 G-s	3540.0 RPM
12	.124 In/Sec	.460 G-s	
21	.127 In/Sec	.424 G-s	
22	.101 In/Sec	.286 G-s	
23	.146 In/Sec	.037 G-s	
71	.197 In/Sec	1.180 G-s	
72	.173 In/Sec	1.476 G-s	
73	.079 In/Sec	.939 G-s	
81	.072 In/Sec	1.003 G-s	
82	.064 In/Sec	.487 G-s	

BOILERFAN3 - BOILER FAN #3 - 1780 RPM Max (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.202 In/Sec	2.120 G-s	1780.0 RPM
12	.187 In/Sec	4.099 G-s	
21	.194 In/Sec	1.839 G-s	
22	.235 In/Sec	3.584 G-s	
23	.135 In/Sec	.658 G-s	
71	.246 In/Sec	11.29 G-s	
72	.116 In/Sec	3.843 G-s	
73	.196 In/Sec	9.693 G-s	
81	.119 In/Sec	.367 G-s	

CR PUMP 1 - CARBON RECIRC PUMP (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.039 In/Sec	.186 G-s	3545.0 RPM
12	.049 In/Sec	.157 G-s	
21	.047 In/Sec	.146 G-s	
22	.049 In/Sec	.236 G-s	
23	.047 In/Sec	.114 G-s	
71	.031 In/Sec	.186 G-s	

72	.033 In/Sec	.323 G-s
73	.035 In/Sec	.046 G-s
81	.022 In/Sec	.057 G-s
82	.023 In/Sec	.076 G-s

ROBLUEPUMP - RO BLUE PUMP (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.091 In/Sec	.812 G-s	3545.0 RPM
12	.082 In/Sec	.761 G-s	
21	.084 In/Sec	.386 G-s	
22	.125 In/Sec	.868 G-s	
23	.093 In/Sec	1.436 G-s	
71	.087 In/Sec	.710 G-s	
72	.169 In/Sec	.973 G-s	
73	.102 In/Sec	1.770 G-s	
81	.082 In/Sec	1.758 G-s	
82	.121 In/Sec	1.489 G-s	

SW PUMP 8 - SERVICE WATER PUMP 8 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.152 In/Sec	.296 G-s	3545.0 RPM
12	.331 In/Sec	.527 G-s	
21	.096 In/Sec	.667 G-s	
22	.091 In/Sec	.528 G-s	
23	.563 In/Sec	.225 G-s	
71	.409 In/Sec	.718 G-s	
72	.279 In/Sec	.638 G-s	
73	.136 In/Sec	.751 G-s	
81	.203 In/Sec	1.037 G-s	
82	.179 In/Sec	.257 G-s	

SW PUMP 7 - SERVICE WATER PUMP 7 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.192 In/Sec	.373 G-s	3545.0 RPM
12	.135 In/Sec	.325 G-s	
21	.265 In/Sec	.910 G-s	
22	.452 In/Sec	.701 G-s	
23	.441 In/Sec	.877 G-s	
71	.442 In/Sec	1.049 G-s	
72	.255 In/Sec	1.451 G-s	
73	.301 In/Sec	1.342 G-s	
81	.454 In/Sec	1.928 G-s	
82	.207 In/Sec	2.050 G-s	

RO 2 - RO WATER PUMP 2 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.082 In/Sec	.428 G-s	3545.0 RPM
12	.054 In/Sec	.343 G-s	
21	.072 In/Sec	.836 G-s	
22	.068 In/Sec	.437 G-s	
23	.050 In/Sec	.273 G-s	
71	.329 In/Sec	.602 G-s	
72	.143 In/Sec	.292 G-s	
73	.159 In/Sec	.573 G-s	
81	.083 In/Sec	.438 G-s	
82	.089 In/Sec	.444 G-s	

AMMCOMP 2 - AMMONIA COMP - #2 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.054 In/Sec	.043 G-s	3592.0 RPM
12	.062 In/Sec	.221 G-s	
13	.066 In/Sec	.092 G-s	
21	.068 In/Sec	.258 G-s	
22	.065 In/Sec	.118 G-s	
23	.128 In/Sec	.067 G-s	
71	.096 In/Sec	.660 G-s	
72	.138 In/Sec	.727 G-s	
73	.106 In/Sec	.348 G-s	
81	.117 In/Sec	.945 G-s	
82	.208 In/Sec	.421 G-s	
83	.122 In/Sec	.301 G-s	
71F	.094 In/Sec	.646 G-s	
72F	.123 In/Sec	.463 G-s	
73F	.118 In/Sec	.736 G-s	
81F	.072 In/Sec	.615 G-s	
82F	.113 In/Sec	.335 G-s	
83F	.102 In/Sec	.341 G-s	

AMMCOMP 5 - AMMONIA COMP #5 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.100 In/Sec	.835 G-s	3580.0 RPM
11H	.099 In/Sec	.858 G-s	
12	.070 In/Sec	.567 G-s	
12H	.073 In/Sec	.918 G-s	
13	.053 In/Sec	.874 G-s	
21	.109 In/Sec	.817 G-s	
22	.062 In/Sec	1.208 G-s	
23	.072 In/Sec	.955 G-s	
71	.087 In/Sec	.727 G-s	3592.0 RPM
72	.182 In/Sec	.379 G-s	
73	.081 In/Sec	.838 G-s	
81	.088 In/Sec	1.036 G-s	
82	.155 In/Sec	.592 G-s	
83	.076 In/Sec	.538 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: 19-Jan-22 13:20

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD	MACHINE SPEED
-----	-----	-----	-----
2SHWP - 2ND FLOOR S. HOT WATER PUMP			(19-Jan-22)
	OVERALL LEVEL	1-20 KHZ	
11	.111 In/Sec	.395 G-s	3545.0 RPM
12	.442 In/Sec	.720 G-s	
21	.148 In/Sec	.704 G-s	

22	.423 In/Sec	.946 G-s
23	.610 In/Sec	.509 G-s
71	.117 In/Sec	.779 G-s
72	.148 In/Sec	1.601 G-s
73	.102 In/Sec	2.282 G-s
81	.080 In/Sec	1.043 G-s
82	.109 In/Sec	1.937 G-s

GF-VP2 - GALLERY DA VAC PUMP-SKID 2 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.763 In/Sec	.270 G-s	1770.0 RPM
12	.756 In/Sec	.381 G-s	
21	.207 In/Sec	.415 G-s	
22	1.459 In/Sec	.282 G-s	
23	.366 In/Sec	.193 G-s	
71	.213 In/Sec	2.434 G-s	3610.8 RPM
72	1.956 In/Sec	2.183 G-s	
73	.438 In/Sec	2.005 G-s	
81	1.170 In/Sec	2.552 G-s	
82	1.295 In/Sec	2.656 G-s	

GF-DP2 - GALLERY DA DISCH PUMP-SKID 2 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.350 In/Sec	.058 G-s	3520.0 RPM
12	.403 In/Sec	.209 G-s	
21	.174 In/Sec	.388 G-s	
22	.328 In/Sec	.349 G-s	
23	.335 In/Sec	.398 G-s	

GF-CP2 - GALLERY DA CIRC PUMP- SKID 2 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.213 In/Sec	.325 G-s	3535.0 RPM
12	.459 In/Sec	.405 G-s	
21	.344 In/Sec	.223 G-s	
22	.503 In/Sec	.491 G-s	
23	.614 In/Sec	.234 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: 19-Jan-22 13:20

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

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

Abbreviated Last Measurement Summary

Database: Blues_city.rbm
 Station: BREWING BASEMENT

Report Date: 19-Jan-22 13:20

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD	MACHINE SPEED

WORTA	- WORT TRANSFER PUMP A	(17-Nov-21)	
	OVERALL LEVEL	1-20 KHZ	
11	.138 In/Sec	.307 G-s	3565.0 RPM
12	.168 In/Sec	.381 G-s	
21	.163 In/Sec	.414 G-s	
22	.103 In/Sec	.448 G-s	
23	.239 In/Sec	.108 G-s	
71	.133 In/Sec	.576 G-s	
72	.149 In/Sec	.388 G-s	
73	.401 In/Sec	.865 G-s	
81	.071 In/Sec	.677 G-s	
82	.110 In/Sec	.592 G-s	

Clarification Of Vibration Units:

Acc	-->	G-s	PK	
Vel	-->	In/Sec	PK	Abbreviated Last Measurement

Summary

Database: Blues_city.rbm
Station: GRAIN TRANSFER
Report Date: 19-Jan-22 13:20

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD	MACHINE SPEED

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

Database: Blues_city.rbm
Station: SUGAR PUMPS
Report Date: 19-Jan-22 13:20

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD	MACHINE SPEED

V3	- SUGAR TANK VIKING PUMP #3	(19-Jan-22)	
	OVERALL LEVEL	1-20 KHZ	
11	.089 In/Sec	.362 G-s	1750.0 RPM
12	.144 In/Sec	.226 G-s	
21	.090 In/Sec	.835 G-s	
22	.120 In/Sec	.306 G-s	
23	.145 In/Sec	.356 G-s	
31	.139 In/Sec	1.535 G-s	
32	.173 In/Sec	.771 G-s	
33	.126 In/Sec	.907 G-s	
61	.158 In/Sec	1.011 G-s	
62	.150 In/Sec	1.090 G-s	
63	.115 In/Sec	.747 G-s	
71	.196 In/Sec	.200 G-s	

72	.109 In/Sec	.290 G-s
73	.073 In/Sec	.446 G-s

V4 - SUGAR TANK VIKING PUMP #4 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.047 In/Sec	.408 G-s	1750.0 RPM
12	.055 In/Sec	.361 G-s	
21	.068 In/Sec	.637 G-s	
22	.108 In/Sec	.790 G-s	
23	.076 In/Sec	.619 G-s	
31	.071 In/Sec	.904 G-s	
32	.105 In/Sec	.732 G-s	
33	.232 In/Sec	.988 G-s	
61	.082 In/Sec	1.311 G-s	
62	.099 In/Sec	1.106 G-s	
63	.225 In/Sec	.300 G-s	
71	.175 In/Sec	.514 G-s	
72	.162 In/Sec	.687 G-s	
73	.083 In/Sec	.733 G-s	

V5 - SUGAR TANK VIKING PUMP #5 (19-Jan-22)

	OVERALL LEVEL	1-20 KHZ	
11	.173 In/Sec	.206 G-s	1175.0 RPM
12	.074 In/Sec	.360 G-s	
21	.206 In/Sec	.545 G-s	
22	.057 In/Sec	.441 G-s	
23	.115 In/Sec	.314 G-s	
71	.124 In/Sec	.241 G-s	
72	.102 In/Sec	.510 G-s	
73	.085 In/Sec	.134 G-s	
81	.115 In/Sec	.132 G-s	
82	.107 In/Sec	.393 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: 19-Jan-22 13:20

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD	MACHINE SPEED
-----	-----	-----	-----
SK1 RO1 - SKID 1 - RO PUMP #1		(16-Dec-21)	
	OVERALL LEVEL	1-20 KHZ	
11	.051 In/Sec	.456 G-s	3555.0 RPM
12	.047 In/Sec	.590 G-s	
21	.076 In/Sec	.306 G-s	
22	.202 In/Sec	.235 G-s	
23	.076 In/Sec	.370 G-s	
SK1 RO4 - SKID 1 - RO PUMP #4		(16-Dec-21)	
	OVERALL LEVEL	1-20 KHZ	

11	.075 In/Sec	.154 G-s	3515.0 RPM
12	.132 In/Sec	.224 G-s	
21	.078 In/Sec	.133 G-s	
22	.135 In/Sec	.286 G-s	
23	.128 In/Sec	.148 G-s	
SK1 RO3	- SKID 1 - RO PUMP #3	(16-Dec-21)	
	OVERALL LEVEL	1-20 KHZ	
11	.246 In/Sec	.770 G-s	3550.0 RPM
12	.218 In/Sec	.561 G-s	
21	.171 In/Sec	.884 G-s	
22	.207 In/Sec	1.194 G-s	
23	.215 In/Sec	.540 G-s	
71	.146 In/Sec	.662 G-s	
72	.288 In/Sec	.711 G-s	
73	.158 In/Sec	.541 G-s	
81	.174 In/Sec	.795 G-s	
82	.427 In/Sec	.654 G-s	
SK1 RO2	- SKID 1 - RO PUMP #2	(16-Dec-21)	
	OVERALL LEVEL	1-20 KHZ	
11	.098 In/Sec	.371 G-s	3570.0 RPM
12	.045 In/Sec	.714 G-s	
21	.085 In/Sec	.718 G-s	
22	.059 In/Sec	.573 G-s	
23	.050 In/Sec	.271 G-s	
71	.069 In/Sec	.452 G-s	
72	.038 In/Sec	.380 G-s	
73	.081 In/Sec	.362 G-s	
81	.093 In/Sec	.768 G-s	
82	.050 In/Sec	.478 G-s	
SK2 RO1	- SKID 2 - RO PUMP #1	(16-Dec-21)	
	OVERALL LEVEL	1-20 KHZ	
11	.084 In/Sec	.358 G-s	3555.0 RPM
12	.037 In/Sec	.252 G-s	
21	.057 In/Sec	.320 G-s	
22	.202 In/Sec	.413 G-s	
23	.151 In/Sec	.161 G-s	
SK2 RO4	- SKID 2 - RO PUMP #4	(16-Dec-21)	
	OVERALL LEVEL	1-20 KHZ	
11	.068 In/Sec	.039 G-s	3515.0 RPM
12	.112 In/Sec	.274 G-s	
21	.070 In/Sec	.077 G-s	
22	.088 In/Sec	.169 G-s	
23	.089 In/Sec	.049 G-s	
SK2 RO3	- SKID 2 - RO PUMP #3	(16-Dec-21)	
	OVERALL LEVEL	1-20 KHZ	
11	.198 In/Sec	1.150 G-s	3550.0 RPM
12	.267 In/Sec	.755 G-s	
21	.115 In/Sec	.648 G-s	
22	.279 In/Sec	1.283 G-s	
23	.170 In/Sec	.500 G-s	
71	.152 In/Sec	.664 G-s	
72	.280 In/Sec	.506 G-s	

73	.281 In/Sec	.251 G-s
81	.135 In/Sec	.658 G-s
82	.148 In/Sec	.680 G-s

SK2 RO2	- SKID 2 - RO PUMP #2	(16-Dec-21)	
	OVERALL LEVEL	1-20 KHZ	
11	.052 In/Sec	.210 G-s	3570.0 RPM
12	.035 In/Sec	.439 G-s	
21	.046 In/Sec	.592 G-s	
22	.036 In/Sec	.701 G-s	
23	.033 In/Sec	.142 G-s	
71	.051 In/Sec	.329 G-s	
72	.043 In/Sec	.317 G-s	
73	.173 In/Sec	.447 G-s	
81	.090 In/Sec	.468 G-s	
82	.127 In/Sec	.450 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: 19-Jan-22 13:20

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD	MACHINE SPEED
-----	-----	-----	-----
HVAC COLD - HVAC COLD GLYCOL CIRC PUMP	(19-Jan-22)		
	OVERALL LEVEL	1-20 KHZ	
11	.073 In/Sec	.560 G-s	3600.0 RPM
12	.064 In/Sec	.507 G-s	
21	.126 In/Sec	.414 G-s	
22	.058 In/Sec	.289 G-s	
23	.072 In/Sec	.152 G-s	
71	.179 In/Sec	.248 G-s	
72	.133 In/Sec	.331 G-s	
73	.071 In/Sec	.162 G-s	
81	.228 In/Sec	.394 G-s	
82	.121 In/Sec	.321 G-s	
HVAC HOT - HVAC HOT WATER CIRC PUMP	(19-Jan-22)		
	OVERALL LEVEL	1-20 KHZ	
11	.162 In/Sec	.153 G-s	3600.0 RPM
12	.313 In/Sec	.317 G-s	
21	.179 In/Sec	.618 G-s	
22	.452 In/Sec	1.032 G-s	
23	.387 In/Sec	.225 G-s	
71	.246 In/Sec	.556 G-s	
72	.383 In/Sec	.653 G-s	
73	.134 In/Sec	.363 G-s	
81	.154 In/Sec	.287 G-s	
82	.148 In/Sec	.501 G-s	

```

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

```

```

Database:  Blues_city.rbm
Station:   FILTER CELLAR
Report Date: 19-Jan-22   13:20

```

```

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

```

```

CHILL 1      - CHILL WATER CIRC PUMP #1      (19-Jan-22)
              OVERALL LEVEL      1-20 KHZ
11            .262 In/Sec      .884 G-s      3600.0 RPM
12            .217 In/Sec      .803 G-s
21            .276 In/Sec      .854 G-s
22            .224 In/Sec      .616 G-s
23            .236 In/Sec      1.115 G-s
71            .133 In/Sec      .692 G-s
72            .111 In/Sec      .665 G-s
73            .141 In/Sec      1.265 G-s
81            .072 In/Sec      .815 G-s
82            .088 In/Sec      .330 G-s

```

```

WARM GLY 1 - WARM GLYCOL PUMP #1      (19-Jan-22)
              OVERALL LEVEL      1-20 KHZ
11            .037 In/Sec      .282 G-s      3600.0 RPM
12            .015 In/Sec      .332 G-s
21            .029 In/Sec      .327 G-s
22            .015 In/Sec      .130 G-s
23            .021 In/Sec      .112 G-s
71            .055 In/Sec      .060 G-s
72            .027 In/Sec      .058 G-s
73            .020 In/Sec      .147 G-s
81            .035 In/Sec      .086 G-s
82            .017 In/Sec      .108 G-s

```

```

WARM GLY 5 - WARM GLYCOL PUMP #5      (19-Jan-22)
              OVERALL LEVEL      1-20 KHZ
11            .049 In/Sec      .055 G-s      3600.0 RPM
12            .026 In/Sec      .243 G-s
21            .036 In/Sec      .628 G-s
22            .058 In/Sec      .146 G-s
23            .042 In/Sec      .519 G-s
71            .030 In/Sec      .184 G-s
72            .020 In/Sec      .289 G-s
73            .044 In/Sec      .372 G-s
81            .026 In/Sec      .249 G-s
82            .027 In/Sec      .214 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: 19-Jan-22 13:20

MEASUREMENT POINT OVERALL LEVEL HFD / VHFD MACHINE SPEED

COLD GLY 2 - COLD GLYCOL PUMP #2 (19-Jan-22)
OVERALL LEVEL 1-20 KHZ
11 .175 In/Sec .164 G-s 3600.0 RPM
12 .085 In/Sec .459 G-s
21 .131 In/Sec .227 G-s
22 .082 In/Sec .101 G-s
23 .062 In/Sec .443 G-s
71 .074 In/Sec .857 G-s
72 .065 In/Sec .427 G-s
73 .049 In/Sec .230 G-s
81 .051 In/Sec .314 G-s
82 .050 In/Sec .352 G-s

COLD GLY 3 - COLD GLYCOL PUMP #3 (19-Jan-22)
OVERALL LEVEL 1-20 KHZ
11 .041 In/Sec .409 G-s 3600.0 RPM
12 .040 In/Sec .259 G-s
21 .063 In/Sec .704 G-s
22 .079 In/Sec .710 G-s
23 .079 In/Sec 1.243 G-s
71 .113 In/Sec .271 G-s
72 .061 In/Sec .276 G-s
73 .075 In/Sec .142 G-s
81 .085 In/Sec .235 G-s
82 .039 In/Sec .204 G-s

PACK GLY 1 - PACKAGING COLD GLYCOL PUMP 1 (19-Jan-22)
OVERALL LEVEL 1-20 KHZ
11 .029 In/Sec .405 G-s 3600.0 RPM
12 .025 In/Sec .579 G-s
21 .054 In/Sec .191 G-s
22 .026 In/Sec .618 G-s
23 .018 In/Sec .404 G-s
71 .067 In/Sec .286 G-s
72 .106 In/Sec .289 G-s
73 .040 In/Sec .515 G-s
81 .050 In/Sec .362 G-s
82 .076 In/Sec .416 G-s

Clarification Of Vibration Units:

Acc --> G-s PK
Vel --> In/Sec PK Abbreviated Last Measurement
Summary

Database: Blues_city.rbm
Station: UNUSED / REMOVED
Report Date: 19-Jan-22 13:20

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

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