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The following is a summary of findings from the October 2023 WEEK 1 and 2 vibration survey at the H2O2 Plant that was performed on October 13, 2023.

QualiTest® uses a four step rating system for defects.

<u>CLASS I</u>: Defect is present, but effect on reliability is not clear; no immediate action is required. Continue to normally monitor.

<u>CLASS II</u>: Defect (s) present that may cause problem in long term (2-6 months). Repair during normal maintenance scheduling. Continue to monitor.

<u>CLASS III</u>; 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.

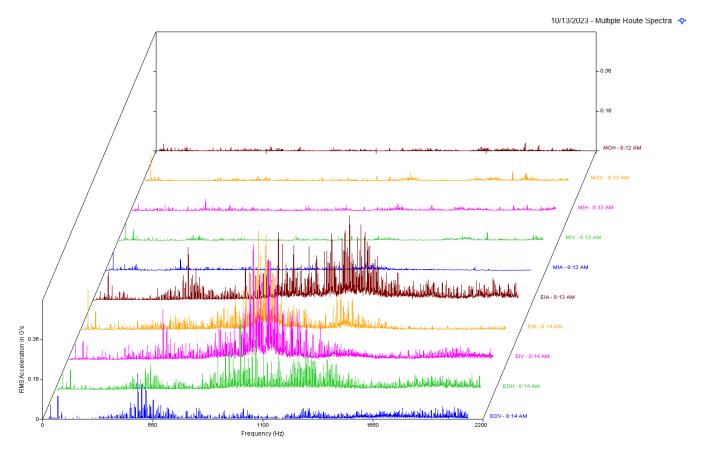
CLASS IV; Defect (s) present that makes continued reliability unpredictable, and possibility of secondary damage is high. Repairs should be made ASAP. An unscheduled shutdown should be considered for repairs

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.

Defect Summary

WEEK 2 H2O2 Plant

Pump 102 P102 CLASS I



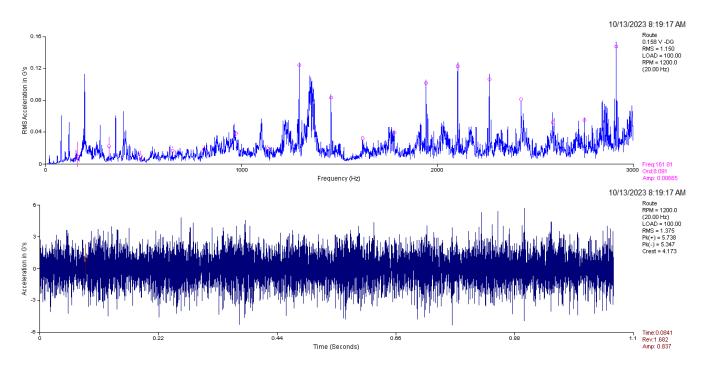
Observation:

Data above is a multipoint spectral waterfall. Pump data (EIA-EOV) shows axial vibration with multiple rpm harmonics throughout the pump spectra.

Recommendation:

The pump appears to have possible internal wear beginning to occur. The higher vibration in the axial direction may indicate excessive axial clearances. We are monitoring this very closely.

C Concentrator Vacuum Pump CLASS I



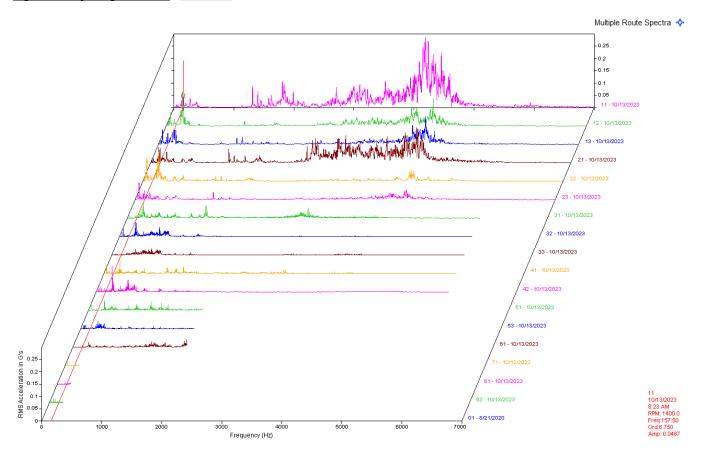
Observation:

Data above is the pump drive end horizontal. The small peaks in mid to high range of the spectrum are nonsynchronous peaks and are very likely bearing defect frequencies but may be impeller related if pump has 8 vanes.

Recommendation:

The pump appears to have early to mid-stage bearing defects/wear and or impeller issues. We need to confirm the number of vanes on impeller. We are monitoring this issue closely.

Agitator, Hydrogenator C CLASS I



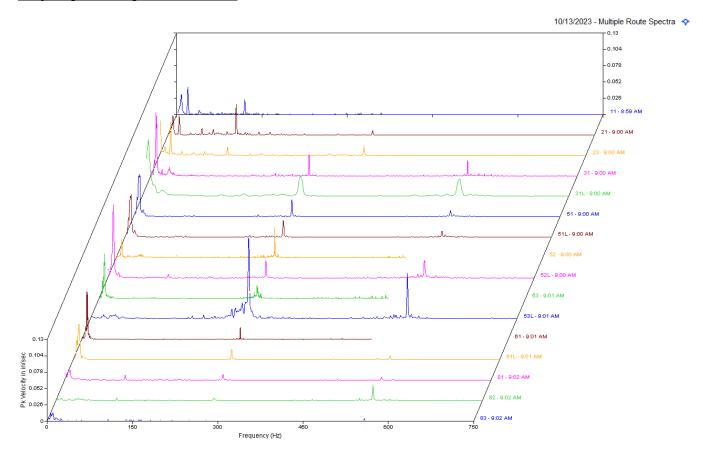
Observation:

Data above is a multipoint spectral waterfall. Data still shows some noise floor in the motor data. Data points labeled 11-23.

Recommendation:

Motor data still suggests a possible issue in the motor. May be rolling element defects in bearings. This issue appears to be minor at this time and we are monitoring this closely.

D Hydrogenator Agitator CLASS II



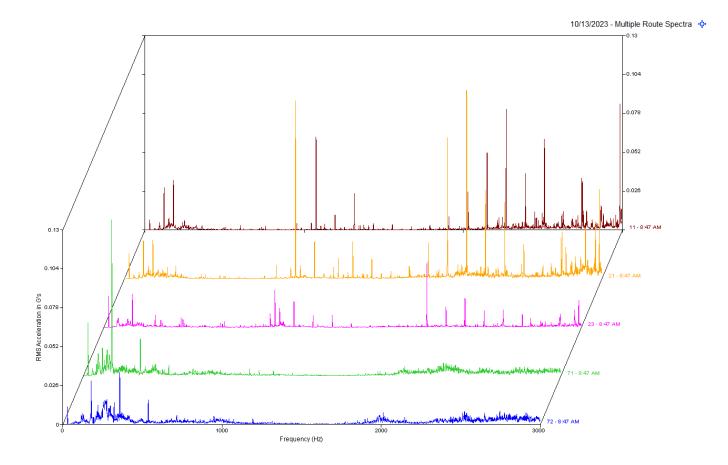
Observation:

Data above is a multi-point spectra of the motor and gear drive. There is quite a bit of low frequency vibration in the gear drive. Spectral and waveform data shows a dominant low frequency vibration that is likely a harmonic of output speed of the gearbox. Gearbox does appear to have visible torsional movement. There is also some gear mesh harmonics on the output axial that have increased in amplitude.

Recommendation:

Ensure output shaft does not excessive shaft defection. Check coupling hubs and shaft for run out using a dial indicator. Will continue to monitor closely.

236-04A Hydrogenator Precooler Feed Pump CLASS II



Observation:

Motor data shows both electrical and mechanical defects according to the multi point spectra above.

Recommendation:

Data suggests issues with this motor. Motor should be replaced as time allows.

Database:	Arkema.rbm	
Station:	PEROXIDE	
Route No.	1: ARK WK	1

MEASUREMEN	NT POINT	OVERALL LEVEL	HFD / VHFD
P102	- ARKEMA PUMP P1(12 (13	-Oct-23)
FIUZ	- ARICEMA FOMF FIC	•	
MOH		OVERALL LEVEL .114 In/Sec	.357 G-s
MON		.303 In/Sec	.357 G-S .470 G-S
MUN		.109 In/Sec	.560 G-s
MIN		212 Tp/Sec	.481 G-s
MIX		.212 In/Sec .205 In/Sec	.481 G-S .293 G-S
EIZ	-	.205 IN/Sec	.293 G-S
EIF			1.077 G-s
EIV		.498 In/Sec .306 In/Sec	1.001 G-s
EOF		.256 In/Sec	
EOV		.234 In/Sec	
236-06	- HYDRO FD PUMP N	1 236-06 -2FLR (13	
		OVERALL LEVEL	1-20 KHz
11		.111 In/Sec .079 In/Sec	.333 G-s .263 G-s
21		.079 In/Sec	.263 G-s
2130-6	- ABC SEC FILT FE	EED PUMP-NORTH (13	
		OVERALL LEVEL	1-20 KHz
11		.037 In/Sec	
21		.033 In/Sec	1.060 G-s
23		068 Tn/Sec	929 G-s
71		.199 In/Sec	
72		.130 In/Sec	1.206 G-s
9001-1	- EAST OXIDIZER F	FEED PUMP (13	-0ct-23)
5001 1		OVEDALL LEVEL	1-20 KH#
11		.031 In/Sec	.321 G-s
21		.045 In/Sec	.498 G-s
23		.063 In/Sec	
71		.101 In/Sec	.882 G-s
72		.104 In/Sec	.851 G-s
0001 0			
9001-2	- MIDDLE OXIDIZER	R FEED PUMP (13	
11		OVERALL LEVEL .043 In/Sec	1-20 KHZ
11			
21		.049 In/Sec	.657 G-S
23 71		.058 In/Sec .088 In/Sec	.765 G-s .412 G-s
71 72		.088 In/Sec .095 In/Sec	.412 G-s .586 G-s
7016-11	- WEST OXIDIZER H	FEED PUMP (13 OVERALL LEVEL	
11		.033 In/Sec	.721 G-s
21		.022 In/Sec	.931 G-s
23		.028 In/Sec	1 070 G-9
71			.554 G-s
72		.078 In/Sec	.945 G-s
234-01	- CHILL WATER PUN	4P 234-01 (13	
•-			1-20 KHz
11		OVERALL LEVEL .070 In/Sec	1.484 G-s
21		.033 In/Sec	.465 G-s
23		.049 In/Sec	
71		.190 In/Sec	.553 G-s
72		.030 In/Sec	.574 G-s

C-203		_	C-203 Comp			(13-0ct-23)
				OVERA	LL LEVEL	1-20 KHz
	11				In/Sec	
	12			.037	In/Sec In/Sec	1.107 G-s
	21					
	22			.023	In/Sec	.473 G-s
	23			.027	In/Sec	.811 G-s
	71M			OVERAL	LL LEVEL In/Sec	1-20 KHZ 4.030 G-s
	72M			.005	In/Sec In/Sec	4.030 G-s .739 G-s
	73M			113	In/Sec	.755 G S
	81M			.046	In/Sec	.886 G-s 7.922 G-s
	82M					1.578 G-s
	71F			.064	In/Sec	2.489 G-s
	72F			.052	In/Sec In/Sec	2.489 G-s 1.019 G-s
	73F			.074	In/Sec	.554 G-s
	81F			.039	In/Sec	5.169 G-s
	82F			.034	In/Sec	1.832 G-s
9000-0)2	_	D HYDROGENATOR FI	PUMP-	- EAST	(13-Oct-23)
				OVERA	LL LEVEL	1-20 KHz
	11			.037	In/Sec	.543 G-s
	21			050	Tn/Sec	899 C-s
	23			.060	In/Sec	.868 G-s
	71			.102	In/Sec	.688 G-s
	72			.079	In/Sec	.665 G-s
236-04	A	-	HYDROGNTOR PRECO			
				OVERA	LL LEVEL	1-20 KHz
	11			.040	In/Sec	.603 G-s
	21			.065	In/Sec	1.159 G-s
	23					2.552 G-s
	71					.391 G-s
	72			.053	In/Sec	.339 G-s
C-202		_	C-202 Comp			(13-0ct-23)
C-202		-		OVERA		
C-202	11	-			LL LEVEL In/Sec	1-20 KHz 4.205 G-s
C-202	11 12	-		.156	LL LEVEL In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s
C-202	11 12 21	-		.156 .073	LL LEVEL In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s
C-202	11 12 21 22	-		.156 .073 .063	LL LEVEL In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s
C-202	11 12 21	-		.156 .073 .063 .048	LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s
C-202	11 12 21 22 23	-		.156 .073 .063 .048 OVERAL	LL LEVEL In/Sec In/Sec In/Sec In/Sec LL LEVEL	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ
C-202	11 12 21 22 23 71M	-		.156 .073 .063 .048 OVERAL .054	LL LEVEL In/Sec In/Sec In/Sec In/Sec LL LEVEL In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s
C-202	11 12 21 22 23 71M 72M	_		.156 .073 .063 .048 OVERAI .054 .040	LL LEVEL In/Sec In/Sec In/Sec In/Sec LL LEVEL In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s
C-202	11 12 21 22 23 71M 72M 73M	-		.156 .073 .063 .048 OVERAI .054 .040 .094	LL LEVEL In/Sec In/Sec In/Sec In/Sec LL LEVEL In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s
C-202	11 12 21 22 23 71M 72M	_		.156 .073 .063 .048 OVERAI .054 .040 .094 .047	LL LEVEL In/Sec In/Sec In/Sec In/Sec LL LEVEL In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s
C-202	11 12 21 22 23 71M 72M 73M 81M	_		.156 .073 .063 .048 OVERAI .054 .040 .094 .047 .038	LL LEVEL In/Sec In/Sec In/Sec In/Sec LL LEVEL In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s
C-202	11 12 21 22 23 71M 72M 73M 81M 82M	_		.156 .073 .063 .048 OVERAI .054 .040 .094 .047 .038 .029 .065	LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s
C-202	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F	_		.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042	LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s
C-202	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F 81F	_		.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .042	LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s
C-202	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F	_		.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .042	LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s
C-202 C-201	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F			.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .042	LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s
	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .042 .046	LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s
	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178	LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-0ct-23) 1-20 KHz 6.473 G-s
	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F 11 12		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178 .056	LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-Oct-23) 1-20 KHz 6.473 G-s 1.564 G-s
	11 12 21 22 33 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F 11 12 21		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178 .056 .117	LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-Oct-23) 1-20 KHz 6.473 G-s 1.564 G-s 1.283 G-s
	11 12 21 22 33 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F 11 12 21 22		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178 .056 .117 .037	LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-Oct-23) 1-20 KHz 6.473 G-s 1.564 G-s 1.283 G-s .274 G-s
	11 12 21 22 33 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F 11 12 21		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178 .056 .117 .037 .058	LL LEVEL In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-Oct-23) 1-20 KHz 6.473 G-s 1.564 G-s 1.283 G-s .274 G-s .228 G-s
	11 12 21 22 23 71M 72M 73M 81M 82M 71F 73F 81F 82F 11 12 21 22 23		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178 .056 .117 .037 .058 OVERAJ	LL LEVEL In/Sec In/Sec In/Sec In/Sec LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-Oct-23) 1-20 KHz 6.473 G-s 1.283 G-s .274 G-s .228 G-s 1-20 KHZ
	11 12 21 22 33 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F 11 12 21 22 23 71M		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178 .056 .117 .037 .058 OVERAJ .071	LL LEVEL In/Sec In/Sec In/Sec In/Sec LL LEVEL In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-Oct-23) 1-20 KHz 6.473 G-s 1.283 G-s .274 G-s .228 G-s 1-20 KHZ 3.733 G-s
	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F 11 12 21 22 23 71M 72M		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178 .056 .117 .037 .058 OVERAJ .071 .043	LL LEVEL In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-Oct-23) 1-20 KHz 6.473 G-s 1.283 G-s .274 G-s .228 G-s 1-20 KHZ 3.733 G-s 1.349 G-s
	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F 11 12 21 22 23 71M 72M 73M		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178 .056 .117 .037 .058 OVERAJ .071 .043 .068	LL LEVEL In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-Oct-23) 1-20 KHz 6.473 G-s 1.283 G-s .274 G-s .228 G-s 1-20 KHZ 3.733 G-s 1.349 G-s 1.095 G-s
	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F 11 12 21 22 23 71M 72M 73M 81M		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178 .056 .117 .037 .058 OVERAJ .071 .043 .068 .039	LL LEVEL In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-Oct-23) 1-20 KHz 6.473 G-s 1.283 G-s .274 G-s .228 G-s 1-20 KHZ 3.733 G-s 1.349 G-s
	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F 11 12 21 22 23 71M 72M 73M		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178 .056 .117 .037 .058 OVERAJ .071 .043 .043 .039 .030	LL LEVEL In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-Oct-23) 1-20 KHz 6.473 G-s 1.283 G-s .274 G-s .228 G-s 1.205 KHZ 3.733 G-s 1.349 G-s 1.095 G-s 7.296 G-s
	11 12 21 22 23 71M 72M 73M 81M 82M 71F 72F 73F 81F 82F 11 12 21 22 23 71M 72M 73M 81M 82M		-	.156 .073 .063 .048 OVERAJ .054 .040 .094 .047 .038 .029 .065 .042 .046 OVERAJ .178 .056 .117 .037 .058 OVERAJ .071 .043 .068 .039 .030 .041	LL LEVEL In/Sec	1-20 KHz 4.205 G-s 1.291 G-s 1.163 G-s .290 G-s .372 G-s 1-20 KHZ 3.475 G-s .938 G-s 1.434 G-s 9.524 G-s .840 G-s 6.929 G-s 1.793 G-s 1.074 G-s 8.913 G-s 1.056 G-s (13-Oct-23) 1-20 KHz 6.473 G-s 1.283 G-s 1.283 G-s 1.283 G-s 1.283 G-s 1.283 G-s 1.284 G-s 1.284 G-s 1.284 G-s 1.284 G-s 1.285 G-s 1.290 KHZ 3.733 G-s 1.349 G-s 1.095 G-s 7.296 G-s .842 G-s

73F			•	.493 G-s
81F		.035	In/Sec	8.693 G-s
82F		.065	In/Sec	2.506 G-s
201-08A	- COMPRESSOR, NASH	I A 201-0)8A (13-Oct-23)
			LL LEVEL	1-20 KHz
11		.054	In/Sec	.115 G-s
12		.050	In/Sec	.149 G-s
13		.112	In/Sec	.130 G-s
21		.045	In/Sec	.123 G-s
22		.056	In/Sec	.045 G-s
23		.145	In/Sec	.059 G-s
71		.150	In/Sec	.539 G-s
72		.168	In/Sec	.063 G-s
73		.112	In/Sec	.063 G-s .127 G-s
81		.156	In/Sec	.280 G-s
82				.156 G-s
83		.155	In/Sec	.241 G-s
9002-10	- D-HYDROGENATOR	AGITATO	સ (13-0ct-23)
			LL LEVEL	1-20 KHz
11		.070	In/Sec	.297 G-s
21		.077	In/Sec	.229 G-s
23		.086	In/Sec	.070 G-s
		OVERA	LL LEVEL	1-20 KHZ
31		.170	In/Sec	.627 G-s
31L		.115	In/Sec	.671 G-s
		OVERA	LL LEVEL	1-20 KHz
51		.120	In/Sec	.360 G-s
51L		.120	In/Sec	.360 G-s
52		.080	In/Sec	.209 G-s
521		.163	In/Sec	.539 G-s
53		.143	In/Sec	.234 G-s
53L		.200	In/Sec	.260 G-s
61		.134	In/Sec	.224 G-s
61L		.095	In/Sec	.224 G-s
81		.038	In/Sec	.031 G-s
82		.033	In/Sec	.021 G-s
83		.029	In/Sec	.0088 G-s

Station:	PER	OXIDE
Route No.	2:	ARK WK 2

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
P102 - ARKEMA PUMP P10)2 (13	-Oct-23)
	OVERALL LEVEL	1K-20KHz
MOH	.114 In/Sec	.357 G-s
MOV	.303 In/Sec	.470 G-s
MIH	.109 In/Sec	.560 G-s
MIV	.212 In/Sec	.481 G-s
MIA	.205 In/Sec	.293 G-s
EIA	.282 In/Sec	1.503 G-s
EIH	.498 In/Sec	1.077 G-s
EIV	.306 In/Sec	1.001 G-s
EOH	.256 In/Sec	1.131 G-s
EOV	.234 In/Sec	.785 G-s
C-203 - C-203 Comp	(13	-Oct-23)
_	OVERALL LEVEL	1-20 KHz
11	.069 In/Sec	2.960 G-s
12	.037 In/Sec	1.107 G-s
21	.123 In/Sec	5.226 G-s
22	.023 In/Sec	.473 G-s
23	.027 In/Sec	.811 G-s
	OVERALL LEVEL	
71M	.065 In/Sec	4.030 G-s

	72M	.044 In/Sec	.739 G-s
	73M	.113 In/Sec	
	81M	.046 In/Sec	7.922 G-s
	82M	.040 IN/Sec	1.578 G-s
	71F	.064 In/Sec	2.489 G-s
	72F	.052 In/Sec	1.019 G-s
		.052 IN/Sec	
	73F		.554 G-s
	81F	.039 In/Sec	
	82F	.034 In/Sec	1.832 G-s
C-202		- C-202 Comp (1	L3-Oct-23)
0 202		OVERALL LEVEL	1-20 KHz
	11	.121 In/Sec	4.205 G-s
	12	.156 In/Sec	1.205 G S
	21	.150 IN/Sec	1.163 G-s
	22	.063 In/Sec	.290 G-s
	22	.003 11/Sec	.372 G-s
	23	OVERALL LEVEL	
	71.	.054 In/Sec	
	71M	.054 In/Sec .040 In/Sec	3.475 G-s
	72M	.040 In/Sec	.938 G-s
	73M	.094 In/Sec	1.434 G-s
	81M	.047 In/Sec	9.524 G-s
	82M	.038 In/Sec	.840 G-s
	71F	.029 In/Sec	6.929 G-s
	72F	.065 In/Sec	1.793 G-s
	73F	.042 In/Sec	1.074 G-s
	81F	.042 In/Sec	8.913 G-s
	82F	.046 In/Sec	1.056 G-s
0.001		0.001.0	12 0-1 02
C-201		- C-201 Comp (1 OVERALL LEVEL	L3-Oct-23) 1-20 KHz
	11	.178 In/Sec	
	12	.178 IN/Sec .056 In/Sec	
			1.564 G-s
	21	.117 In/Sec	1.283 G-s
	22	.037 In/Sec	.274 G-s
	23	.058 In/Sec	.228 G-s
	71.00	OVERALL LEVEL	1-20 KHZ
	71M	.071 In/Sec	3.733 G-s
	72M	.043 In/Sec	1.349 G-s
	73M	.068 In/Sec	1.095 G-s
	81M	.039 In/Sec	7.296 G-s
	82M	.030 In/Sec	.842 G-s
	71F	.041 In/Sec	2.449 G-s
	72F	.047 In/Sec	
	73F	.037 In/Sec	.493 G-S
	81F	.035 In/Sec	8.693 G-s
	82F	.065 In/Sec	2.506 G-s
201-08	7	- COMPRESSOR, NASH A 201-08A (1	3-0a+-23)
201-00	А	OVERALL LEVEL	
	11	.054 In/Sec	
	12	.054 11/Sec	
	13	112 Tp/Soc	120 0-0
	21	.045 In/Sec	.123 G-s
	22	.045 IN/Sec	.125 G-S
	23	.145 In/Sec	.045 G-s
	23 71	.145 IN/Sec	.539 G-s
	72	.150 In/Sec .168 In/Sec	
	73	.108 In/Sec .112 In/Sec	
	73 81	.112 In/Sec .156 In/Sec	.127 G-s .280 G-s
	81 82	.156 In/Sec .170 In/Sec	.280 G-s .156 G-s
	83	.170 IN/Sec	
	05	.155 11/560	.241 6-8
202-05		- NASH SEAL LIQUID PUMP-A (1	L3-Oct-23)
		OVERALL LEVEL	1-20 KHz
	11	.019 In/Sec	.109 G-s
	21	.021 In/Sec	.155 G-s
	23	.019 In/Sec	.059 G-s
	71	.030 In/Sec	.064 G-s
	72	.017 In/Sec	.042 G-s

9002-10	- D-HYDROGENATOR	Δατπαπορ	(13 - 0c + -23)
JUUZ-10	D-HIDROGENATOR	OVERALL LEVEL	
11			.297 G-s
21		.077 In/Sec	
23		.086 In/Sec	.070 G-s
		OVERALL LEVEL	
31		.170 In/Sec	
31		.115 In/Sec	
		OVERALL LEVEL	
51		.120 In/Sec	
51	L	.120 In/Sec	.360 G-s
52		.080 In/Sec	.209 G-s
52	L	.163 In/Sec	.539 G-s
53		.143 In/Sec	.234 G-s
53	L	.200 In/Sec	.260 G-s
61		.134 In/Sec	.224 G-s
61	L	.095 In/Sec	.224 G-s
81		.038 In/Sec	.031 G-s
82		.033 In/Sec	.021 G-s
83			.0088 G-s
			(10.0.1.00)
9003-01	- D-HYDRO PRIMAR		
		OVERALL LEVEL	1-20 KHz
11		.021 In/Sec	.578 G-s
21		.030 In/Sec	.711 G-s
23		.026 In/Sec	.103 G-s
71		.094 In/Sec	
72		.100 In/Sec	.073 G-s
9001-01	- D-HYDRO SECOND	. FILT FD PUMP	(13-Oct-23)
		OVERALL LEVEL	1-20 KHz
11		.042 In/Sec	.843 G-s
21		.048 In/Sec	.630 G-s
23		.039 In/Sec	.146 G-s
71		.084 In/Sec	.706 G-s
72		.099 In/Sec	.200 G-s
192-03	- Two Stage Wate:	r Dump A-WEST	(13 - 0c + -23)
192-03	INO SLAYE WALE.	OVERALL LEVEL	
11			.719 G-s
21		073 Th/Sec	900 6-5
21		079 Th/Sec	.900 G-s .296 G-s
23			.296 G-s 1.600 G-s
71		.105 In/Sec	
191-07	- M MIX BED WATE		
		OVERALL LEVEL	
11		.078 In/Sec	
21		.061 In/Sec	
23		.079 In/Sec	
71		.229 In/Sec	
72		.266 In/Sec	.107 G-s
arificatio	n Of Vibration Uni	 ts:	
	> G-s PK		

Vel --> In/Sec PK

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

Sincerely,

Kevin W. Maxuell

ISO Certified Vibration Analyst, Category III



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