HI-SPEED INDUSTRIAL SERVICE QualiTest® Diagnostics

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May 15, 2025

Craig Lindsey
Tetra Technologies
West Memphis, AR

Craig,

The following is a summary of findings from the vibration survey that was performed on May 14, 2025.

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

P301
Pump was not in service during this survey.

P305
Motor data indicates defects are present in motor bearings. Inspect motor as time allows. Rated as a **CLASS II** defect.

P306
Pump was not in service during this survey.

P307
This unit appears to be in good condition. No actions are recommended.

P308
Pump data shows a high vane pass vibration. This is indication of a possible issue with the impeller. Inpsect pump internals as time allows. Rated as a **CLASS II** defect.

P309
Pump has a high 1 x rpm vertical and axial vibration. Inpsect pump base and fasteners as time allows. Rated as a **CLASS II** defect.

P312
Motor data indicates defects are present in motor bearings. Motor will likely need to be replaced in the next few months. Rated as a **CLASS II** defect.

P314
This unit appears to be in good condition. No action is recommended.

P315
Motor data indicates defects are present in motor bearings. Motor will likely need to be replaced in the next few months. Rated as a **CLASS II** defect.

P402
This unit appears to be in good condition. No action is recommended.

P415
Motor data indicates defects are present in motor bearings. Motor will likely need to be replaced in the next few months. Rated as a **CLASS II** defect.

P416
This unit appears to be in good condition. No action is recommended.

P421
This unit appears to be in good condition. No action is recommended.

P424
This unit appears to be in good condition. No action is recommended.

P501
Pump was not in service during this survey.

P602
Pump was not in service during this survey.

P700
Pump was not in service during this survey.

P701
Pump was not in service during this survey.

P702
Pump was not in service during this survey.

P703
Pump was not in service during this survey.

P704

P706
Pump was not in service during this survey.

P604
Motor and pump have elevated 1 x rpm vibration. Check base bolts and motor/pump fasteners. Check coupling and alignment as well. Rated as a **CLASS II** defect.

P406
Pump was not in service during this survey.

P311
Pump was not in service during this survey.

CTP-701
Data shows light defects present in motor bearings. Rated as a **CLASS I** defect.

CTP-300
This unit appears to be in good condition. No action is recommended.

E-201 Blower
Data suggests a sheave/belt issue. Ensure sheaves are aligned properly with minimal face run out. Rated as a **CLASS II** defect. **Guard needs to modified in order to access blower bearings.**

E-302 Blower
Motor data shows impacting. Motor bearing data also show sign of defects. Inspect motor soon. Rated as a **CLASS II** defect. **Guard needs to modified in order to access blower bearings.**

E-203 Blower
This unit appears to be in good condition. No action is recommended. **Guard needs to modified in order to access blower bearings.**

E-205 Blower

This unit appears to be in good condition. No action is recommended. **Guard needs to modified in order to access blower bearings.**

S-313 Scrubber Fan

Motor data indicates defects are present in motor bearings. Motor will likely need to be replaced in the next few months. Rated as a **CLASS II** defect. **Guard needs to modified in order to access fan bearings.**

Abbreviated Last Measurement Summary

Database: TETRA TECHNOLOGIES.rbm
Area: TETRA NEW

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
305 - PUMP 305	(14-May-25)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.066 In/Sec	1.567 G-s
MOV	.064 In/Sec	.583 G-s
MIH	.080 In/Sec	1.631 G-s
MIV	.072 In/Sec	.769 G-s
MIA	.050 In/Sec	.446 G-s
EIA	.131 In/Sec	.054 G-s
EIH	.164 In/Sec	.222 G-s
EIV	.175 In/Sec	.081 G-s
EOH	.165 In/Sec	.462 G-s
EOV	.156 In/Sec	.069 G-s
307 - PUMP 307	(14-May-25)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.032 In/Sec	.302 G-s
MOV	.037 In/Sec	.054 G-s
MIH	.039 In/Sec	.198 G-s
MIV	.029 In/Sec	.071 G-s
MIA	.033 In/Sec	.052 G-s
EIA	.042 In/Sec	.065 G-s
EIH	.092 In/Sec	.205 G-s
EIV	.062 In/Sec	.084 G-s
EOH	.059 In/Sec	.157 G-s
EOV	.063 In/Sec	.087 G-s
308 - PUMP 308	(14-May-25)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.040 In/Sec	.239 G-s
MOV	.061 In/Sec	.056 G-s
MIH	.030 In/Sec	.291 G-s
MIV	.051 In/Sec	.072 G-s
MIA	.032 In/Sec	.086 G-s
EIA	.157 In/Sec	.032 G-s
EIH	.405 In/Sec	.057 G-s
EIV	.102 In/Sec	.034 G-s
EOH	.158 In/Sec	.210 G-s
EOV	.075 In/Sec	.029 G-s

309 - PUMP 309 (14-May-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.047 In/Sec	.189 G-s
MOV	.047 In/Sec	.096 G-s
MIH	.058 In/Sec	.286 G-s
MIV	.070 In/Sec	.059 G-s
MIA	.067 In/Sec	.060 G-s
EIA	.417 In/Sec	.033 G-s
EIH	.059 In/Sec	.142 G-s
EIV	.534 In/Sec	.025 G-s
EOH	.042 In/Sec	.079 G-s
EOV	.272 In/Sec	.031 G-s

312 - PUMP 312 (14-May-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.021 In/Sec	.048 G-s
MOV	.030 In/Sec	.017 G-s
MIH	.025 In/Sec	.094 G-s
MIV	.032 In/Sec	.022 G-s
MIA	.042 In/Sec	.019 G-s
EIA	.048 In/Sec	.063 G-s
EIH	.023 In/Sec	.095 G-s
EIV	.056 In/Sec	.070 G-s

314 - PUMP 314 (14-May-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.013 In/Sec	.199 G-s
MOV	.016 In/Sec	.057 G-s
MIH	.013 In/Sec	.363 G-s
MIV	.017 In/Sec	.025 G-s
MIA	.012 In/Sec	.050 G-s
EIA	.014 In/Sec	.014 G-s
EIH	.018 In/Sec	.102 G-s
EIV	.019 In/Sec	.019 G-s
EOH	.019 In/Sec	.030 G-s
EOV	.023 In/Sec	.013 G-s

315 - PUMP 315 (14-May-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.087 In/Sec	.199 G-s
MOV	.132 In/Sec	.094 G-s
MIH	.156 In/Sec	1.101 G-s
MIV	.291 In/Sec	.288 G-s
MIA	.193 In/Sec	.300 G-s
EIA	.043 In/Sec	.040 G-s
EIH	.042 In/Sec	.167 G-s
EIV	.053 In/Sec	.067 G-s
EOH	.035 In/Sec	.106 G-s
EOV	.044 In/Sec	.037 G-s

402 - PUMP 402 (14-May-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.032 In/Sec	.769 G-s
MOV	.041 In/Sec	.196 G-s
MIH	.030 In/Sec	.280 G-s
MIV	.036 In/Sec	.107 G-s
MIA	.027 In/Sec	.194 G-s
EIA	.047 In/Sec	.047 G-s
EIH	.047 In/Sec	.189 G-s
EIV	.041 In/Sec	.049 G-s
EOH	.044 In/Sec	.209 G-s
EOV	.028 In/Sec	.074 G-s

415 - PUMP 415 (14-May-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.150 In/Sec	1.063 G-s
MOV	.279 In/Sec	.381 G-s
MIH	.137 In/Sec	1.436 G-s
MIV	.281 In/Sec	.479 G-s

	MIA	.106 In/Sec	.375 G-s
	EIA	.052 In/Sec	.127 G-s
	EIH	.068 In/Sec	.484 G-s
	EIV	.054 In/Sec	.262 G-s
	EOH	.046 In/Sec	.538 G-s
	EOV	.038 In/Sec	.282 G-s

416 - PUMP 416 (14-May-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.040 In/Sec	.532 G-s
MOV	.059 In/Sec	.088 G-s
MIH	.038 In/Sec	.381 G-s
MIV	.082 In/Sec	.091 G-s
MIA	.062 In/Sec	.148 G-s
EIA	.145 In/Sec	.050 G-s
EIH	.102 In/Sec	.190 G-s
EIV	.160 In/Sec	.072 G-s
EOH	.084 In/Sec	.111 G-s
EOV	.128 In/Sec	.051 G-s

421 - PUMP 421 (14-May-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.039 In/Sec	.934 G-s
MOV	.048 In/Sec	.192 G-s
MIH	.048 In/Sec	.820 G-s
MIV	.056 In/Sec	.306 G-s
MIA	.046 In/Sec	.357 G-s
EIA	.064 In/Sec	.095 G-s
EIH	.065 In/Sec	.387 G-s
EIV	.066 In/Sec	.085 G-s
EOH	.040 In/Sec	.221 G-s
EOV	.055 In/Sec	.091 G-s

424 - PUMP 424 (14-May-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.033 In/Sec	.378 G-s
MOV	.029 In/Sec	.158 G-s
MIH	.025 In/Sec	.567 G-s
MIV	.026 In/Sec	.201 G-s
MIA	.016 In/Sec	.237 G-s
EIA	.033 In/Sec	.025 G-s
EIH	.030 In/Sec	.065 G-s
EIV	.018 In/Sec	.027 G-s
EOH	.025 In/Sec	.050 G-s
EOV	.022 In/Sec	.020 G-s

604 - Pump 604 (14-May-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.090 In/Sec	1.939 G-s
MOV	.073 In/Sec	.340 G-s
MIH	.188 In/Sec	.531 G-s
MIV	.519 In/Sec	.219 G-s
MIA	.296 In/Sec	.328 G-s
EIA	.251 In/Sec	.081 G-s
EIH	.108 In/Sec	.399 G-s
EIV	.304 In/Sec	.079 G-s
EOH	.059 In/Sec	.208 G-s
EOV	.155 In/Sec	.093 G-s

CTP-701 - CTP-701 (14-May-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.039 In/Sec	.785 G-s
MOV	.053 In/Sec	.304 G-s
MIH	.034 In/Sec	.636 G-s
MIV	.043 In/Sec	.150 G-s
MIA	.023 In/Sec	.276 G-s
EIA	.059 In/Sec	.080 G-s
EIH	.058 In/Sec	.207 G-s
EIV	.046 In/Sec	.094 G-s
EOH	.041 In/Sec	.252 G-s

	EOV	.045 In/Sec	.076 G-s

CTP-300	- CTP-300	(14-May-25)	
		OVERALL LEVEL	1 - 20 KHz
	MOH	.097 In/Sec	.502 G-s
	MOV	.099 In/Sec	.265 G-s
	MIH	.099 In/Sec	.961 G-s
	MIV	.127 In/Sec	.174 G-s
	MIA	.074 In/Sec	.201 G-s
	EIA	.092 In/Sec	.282 G-s
	EIH	.186 In/Sec	1.200 G-s
	EIV	.121 In/Sec	.191 G-s
	EOH	.119 In/Sec	1.121 G-s
	EOV	.097 In/Sec	.361 G-s

E-201	- E-201 BLOWER	(14-May-25)	
		OVERALL LEVEL	1K-20KHz
	MOH	.250 In/Sec	.168 G-s
	MOV	.663 In/Sec	.044 G-s
	MIH	.169 In/Sec	.139 G-s
	MIV	.599 In/Sec	.021 G-s
	MIA	.407 In/Sec	.034 G-s

E-302	- E-302 BLOWER	(14-May-25)	
		OVERALL LEVEL	1K-20KHz
	MOH	.129 In/Sec	.581 G-s
	MOV	.238 In/Sec	.218 G-s
	MIH	.103 In/Sec	.850 G-s
	MIV	.219 In/Sec	.197 G-s
	MIA	.367 In/Sec	.359 G-s
	POH	.113 In/Sec	.417 G-s
	POV	.115 In/Sec	.074 G-s
	POA	.214 In/Sec	.089 G-s

E-203	- E-203 BLOWER	(14-May-25)	
		OVERALL LEVEL	1K-20KHz
	MOH	.076 In/Sec	.209 G-s
	MOV	.147 In/Sec	.067 G-s
	MIH	.107 In/Sec	.382 G-s
	MIV	.184 In/Sec	.045 G-s
	MIA	.215 In/Sec	.058 G-s

E-205	- E-205 BLOWER	(14-May-25)	
		OVERALL LEVEL	1K-20KHz
	MOH	.136 In/Sec	.095 G-s
	MOV	.111 In/Sec	.020 G-s
	MIH	.227 In/Sec	.079 G-s
	MIV	.151 In/Sec	.046 G-s
	MIA	.224 In/Sec	.045 G-s

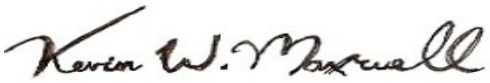
S-313 SF	- S-313 SCRUBBER FAN	(14-May-25)	
		OVERALL LEVEL	1K-20KHz
	MOH	.230 In/Sec	.629 G-s
	MOV	.184 In/Sec	.241 G-s
	MIH	.232 In/Sec	2.163 G-s
	MIV	.150 In/Sec	.288 G-s
	MIA	.108 In/Sec	.456 G-s

Clarification Of Vibration Units:

Acc	--> G-s	RMS
Vel	--> In/Sec	PK

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

Sincerely,



ISO Certified Vibration Analyst, Category III

HI-SPEED INDUSTRIAL SERVICE

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