



LUDECA



**JETTECH
MECHANICAL LLC**
Rotating Equipment Specialist

Mean Green Electric Generation

1000 N. Little Carbon Rd.

Hadacall Corner, TX 77777

**Vibration Acceptance Report for
Cooling Water Pump #1**

Submitted to

*Mr. Jim Smith
Plant Manager
Mean Green Electric Generation
Jim.Smith@meangreen.com*

*Mrs. Jill Jones
Maintenance Manager
Mean Green Electric Generation
Jill.Jones@meangreen.com*

*Submitted on
March 1st 2014*

By:

JETTECH MECHANICAL LLC
14475 W Roanoke Ave
Goodyear, AZ 85395
Phone: 623-536-8374
Fax: 623-536-8369
www.JetTechMechanical.com

*Brian Franks
BFranks@JetTechMechanical.com*

Ludeca, Inc.
1425 N.W. 88th Avenue
Doral, FL 33172
Phone: 305-591-8935
Fax: 305-591-1537
www.ludeca.com

*Mike Fitch
Certified by the Vibration Institute
Category III Vibration Analyst
mike.fitch@ludeca.com*



Mr. Smith,

We have analyzed the data collected on Cooling Water Pump #1 and found the vibration to be generally low in amplitude. The overall levels are certainly within acceptable levels as per the 1994 Hydraulic Standard which Ludeca likes to use because it is a bit more stringent than the current standard. This standard is also shown in the pump manual itself.

Overalls however cannot be trusted alone to protect the user from rapid, unprepared for failure, as several of the common types of failure like roller bearing defects, begin showing up at low amplitudes in the higher frequencies, and can be on the brink of failure before the overall may alarm.

For this reason, the report tallies a defect (looseness) that is in very early stages. There are times that misalignment can mimic looseness in a frequency spectrum, which is why we are asking Mr. Franks to collect some phase data on his next routine data collection stop, to rule out misalignment. Either way, the amplitude is presently low enough not to cause alarm or extra expenditure. Some defects will never progress into failure, and so don't warrant expenditure to alleviate. If the defect is not expected to progress on to failure, or cannot be shown to be in that trajectory, Ludeca normally recommends no action because our goal is to help improve your bottom line.

At the point that the data shows a progressing defect, Ludeca will recommend action to prevent or mitigate a costly failure.

There are only recommended actions for the next round of routine data collection.

The overall level recorded at the top bearing of the motor was below 0.02. The acceptable level is almost 10 times that level.

Hydraulic Institute Standards of 1994

HI Vertical Pump Operation — 1994

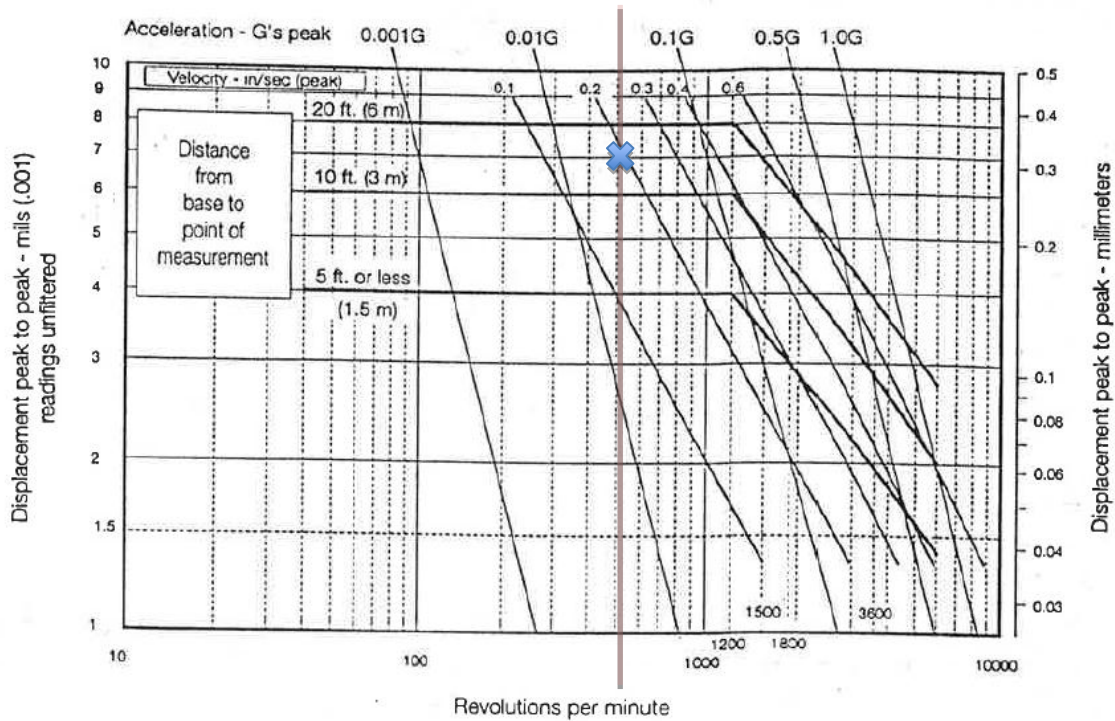


Figure 2.41 — Acceptable field vibration limits for vertical turbine pumps, mixed flow and axial flow pumps at best efficiency, at top motor bearing housing

Finding Detail Report

Reporter: guest
 Creation Date: 3/5/2014 10:32:08 AM
 Workspace: c:\users\mike.fitch\documents\my databases\omt 290\report master

Looseness in the top bearing

Date: 3/3/2014
Time: 4:54:56 PM

Asset: JetTech Mechanical LLC\Mean Green Electric\Mean Green Electric Cooling Water Pumps\Area 3\Cooling Water Pump #1
 Author: guest
 Status: **Open**
 Severity: Low

Diagnosis		
Code	Brief Description	Status
DB	Several harmonics of turning speed most likely indicating slight mechanical looseness	Open

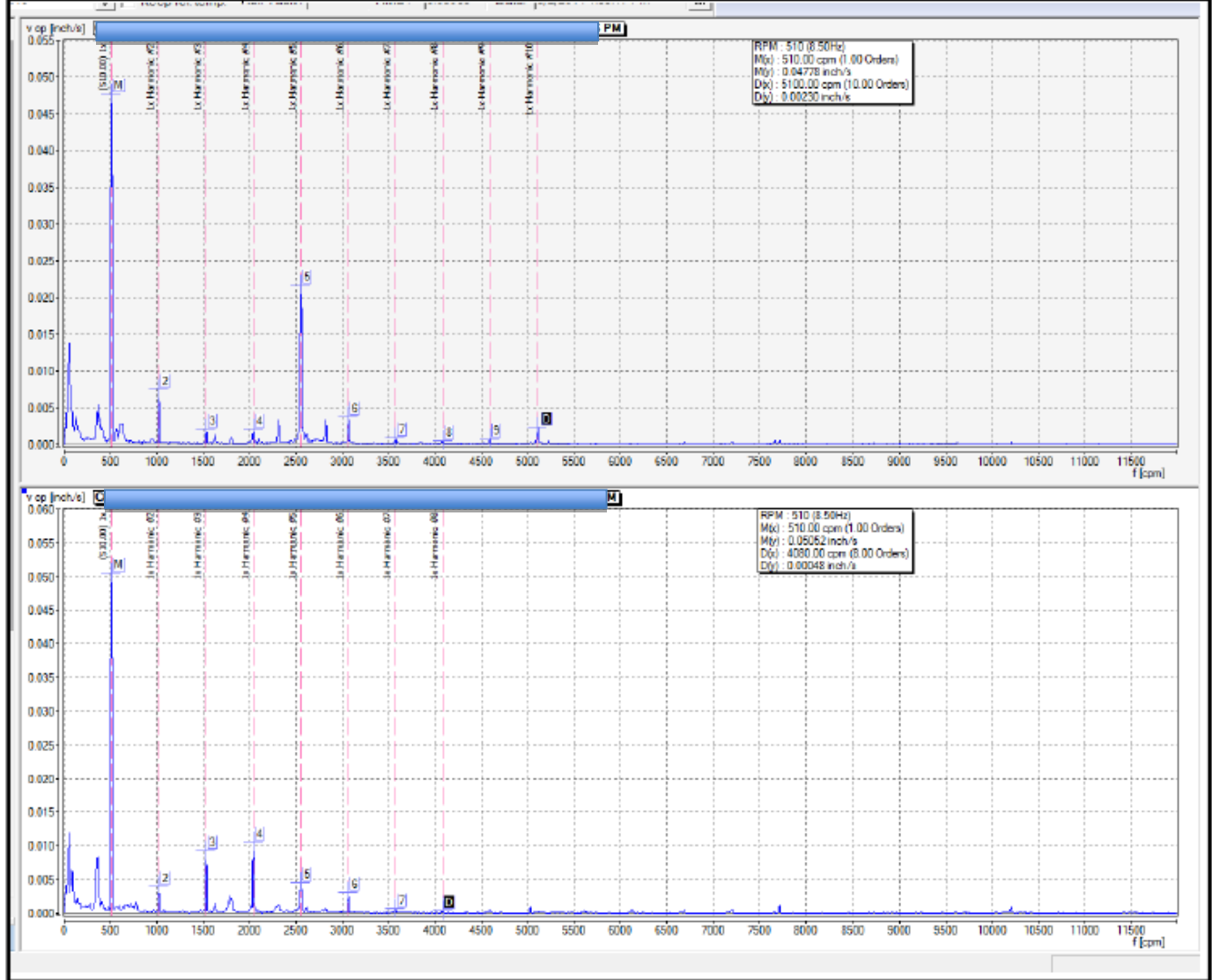
Correction Recommendation		
Code	Brief Description	Status
D	Trend	Open

Description
The top bearing is showing some looseness. It does not appear to be dangerously severe at this time, but should be trended closely to alert to deteriorating condition of the Kingsbury upper thrust and guide bearing.



Symptoms

Name	Description
Cooling Water Pump #1 looseness in top brg	The Kingsbury upper thrust and guide bearing is showing aparent signs of looseness. The could be due to slightly excessive clearance or low viscosity of the lubricant. This should be trended closely to alert to deterioration of condition.





Finding Detail Report

Reporter: guest
Creation Date: 3/4/2014 5:20:04 PM
Workspace: c:\users\mike.fitch\documents\my databases\omt 290\report master

Looseness showing in bottom brg

Date: 3/4/2014
Time: 10:27:39 AM

Asset: JetTech Mechanical LLC\Mean Green Electric\Mean Green Electric Cooling Water Pumps\Area 3\Cooling Water Pump #1
Author: guest
Status: **Open**
Severity: Low

Diagnosis		
Code	Brief Description	Status
DB	Probable mechanical Looseness. Phase data should be collected in the future to help determine whether misalignment is contributing to this.	Open

Correction Recommendation		
Code	Brief Description	Status
CD	Phase data should be collected in the future to help determine whether misalignment is contributing to this.	Open
CC	Phase data should be collected in the future to help determine whether misalignment is contributing to this.	Open

Description
Looseness showing in bottom brg - low amplitude. Trend and at next round of data collection, collect phase data to determine if misalignment is contributing.



Symptoms

Name	Description
Pump #1 looseness showing in bottom brg	Many multiples of turning speed indicate probable looseness. Trend



Recommendations for Circulating Water Pump #3 Pump & Motor:

1. Collect cross channel phase data on next routine gathering of data.
2. Check lube & lube system. (Mobil DTE Oil Heavy Medium or equivalent for Kingsbury?)