

**THIS REPORT HAS BEEN SPECIALLY PREPARED FOR:**

**XYZ Corp.**

**Anywhere, USA**

**December 7, 2015**

This report contains results of vibration analysis performed on selected equipment in the following areas:

**Full Plant Survey**

**Data was collected on November 23, 2015.**

THIS REPORT IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY AND IS INTENDED TO AID IN PLANNING AND SCHEDULING MAINTENANCE REPAIRS. WHILE EVERY EFFORT IS MADE TO PROVIDE ACCURATE DIAGNOSIS OF MACHINE OPERATING CONDITION, MACHINE DIAGNOSTICS INC. DOES NOT GUARANTEE THAT FAILURES WILL NOT OCCUR IN TESTED MACHINES. MACHINE DIAGNOSTICS INC., ITS EMPLOYEES AND AGENTS ASSUME NO LIABILITY (EXPRESSED OR IMPLIED) FOR MACHINE FAILURE, PRODUCTION STOPPAGES OR PERSONAL INJURY CAUSED BY OR ALLEGED TO BE CAUSED BY ANY WORK GENERATED THROUGH THE CONTENTS OF THIS REPORT.

# **TABLE OF CONTENTS**

SECTION 1 - LIST OF PRIORITY CODES

SECTION 2 – FULL PLANT SURVEY

WRITTEN REPORTS

LAST MEASUREMENT REPORT

ATTACHMENTS

## **EXPLANATION OF PRIORITY CODES FOR IDENTIFIED EQUIPMENT**

**HIGH** TO AVOID FURTHER DAMAGE OR FAILURE OF OPERATION, ACTION SHOULD BE TAKEN AT NEXT AVAILABLE OPPORTUNITY.

**MED-HIGH** ACTION SHOULD BE TAKEN WITHIN A SPECIFIED TIME, USUALLY 30-60 DAY TIME FRAME, TO AVOID A RUNNING FAILURE.

**MEDIUM** EQUIPMENT TO BE MONITORED OR ACTIONS THAT WILL ENHANCE EQUIPMENT RELIABILITY.

**LOW** EQUIPMENT PROBLEMS DETECTED AT THE EARLIEST STAGES; THESE ITEMS WILL BE MONITORED AND THEIR PRIORITIES CHANGED AS EQUIPMENT PERFORMANCE DICTATES

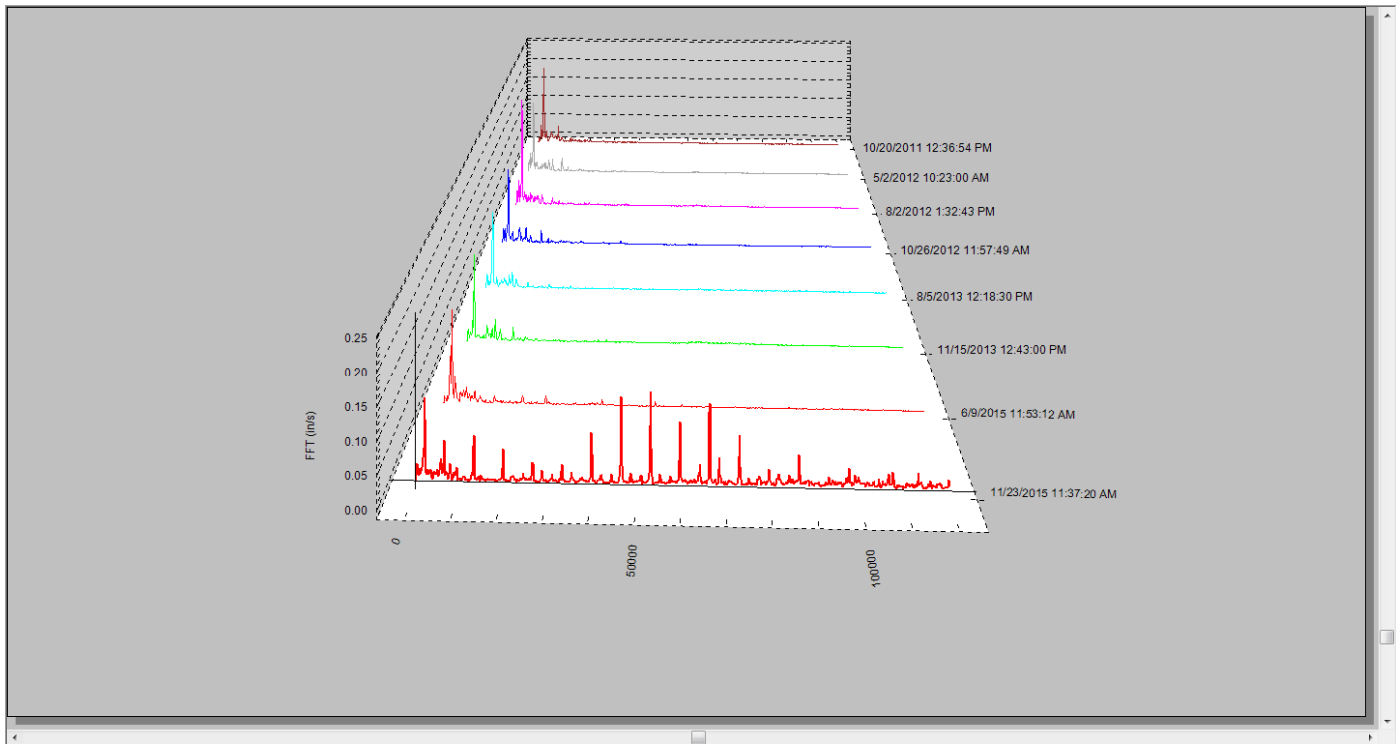
### Machinery Vibration Analysis Report

EQUIPMENT NAME	PROBLEM DESCRIPTION	PRIORITY
----------------	---------------------	----------

#1 Baghouse Fan	<p><b>6-9-15</b> Slight change in characteristic noted in the acceleration enveloping data of the drive end fan bearing; possible early stage wear appears to be developing.</p> <p><b>8-12-15</b> Unit not running at time of survey.</p> <p><b>11-23-15</b> Sharp increase in HFD level as well as acceleration overall level in drive end fan bearing. Possible bearing wear is noted in spectral data at high amplitudes. Suspect this bearing is severely worn. This was reported prior to leaving plant.</p>	<b>High</b>
-----------------	--	-------------

RECOMMENDED ACTION: Replace fan bearings promptly.

*Problem Found / Action Taken*



Machinery Vibration Analysis Report, Cont'd

EQUIPMENT NAME PROBLEM DESCRIPTION PRIORITY

Pump House A #1 Process Water Pump 8-12-15 Motor running speed vibration remains elevated this survey at .72 ips / velocity. 11-23-15 Vibration at 1x running speed is much lower this survey but is still moderate in amplitude. Medium

RECOMMENDED ACTION: MDI continues to track all unit trends and will advise if levels increase.

Problem Found / Action Taken

#4 Baghouse Fan 2-27-15 Characteristic change noted in spectral data of fan bearings; possible early stage looseness / wear appears to be developing. 6-9-15 No data was collected on unit this survey as it was not running. 8-12-15 Spectral data and amplitudes continue to trend stable this survey. 11-23-15 No data was collected on unit this survey. Medium

RECOMMENDED ACTION: MDI continues to closely track all unit trends and will advise of any further change / increase in levels.

Problem Found / Action Taken

#3 Mill Front Roll Pump 8-12-15 Previously reported low amplitude bearing wear remains in spectral data of the pump. Amplitude of defects and HFD levels are trending stable this survey. 11-23-15 Possible bearing wear remains in spectral data of pump. All trends appear presently stable. Medium

RECOMMENDED ACTION: MDI continues to monitor progression of suspected wear in pump and will advise as necessary of change.

Problem Found / Action Taken

## Machinery Vibration Analysis Report, Cont'd

EQUIPMENT NAME	PROBLEM DESCRIPTION	PRIORITY
----------------	---------------------	----------

<b>#3 Baghouse Fan</b>	HFD levels have increased in motor; no change is noted in spectral data.	<b>Medium</b>
------------------------	--	---------------

RECOMMENDED ACTION: Ensure motor bearings have sufficient lubrication.

<i>Problem Found / Action Taken</i>	
-------------------------------------	--

<b>Pollution Control Process Blower</b>	HFD levels are trending upward in fan bearings; no change is noted in spectral data. Low amplitude noise is noted in motor spectra that may be related to developing bearing wear.	<b>Medium</b>
---	--	---------------

RECOMMENDED ACTION: Ensure fan bearings are properly lubricated. MDI continues to track all unit trends and will advise of any further change.

<i>Problem Found / Action Taken</i>	
-------------------------------------	--

<b>#2 Air Compressor</b>	Elevated HFD level is noted in the drive end bearing of the driven shaft; no significant change is noted in spectral data.	<b>Medium</b>
--------------------------	--	---------------

RECOMMENDED ACTION: Ensure compressor is getting proper lubrication. MDI continues to track all unit trends and will advise of any further change.

<i>Problem Found / Action Taken</i>	
-------------------------------------	--

<b>Mixer TCU Door Pump</b>	Indication of looseness remains in motor and pump spectra. This has been present for a lengthy time and has shown no significant change or progression.	<b>Medium</b>
----------------------------	---	---------------

RECOMMENDED ACTION: Inspect coupling for potential issues. If coupling checks O.K. check for loose play in motor bearings using dial indicator and pinch bar.

<i>Problem Found / Action Taken</i>	
-------------------------------------	--

Machinery Vibration Analysis Report, Cont'd

EQUIPMENT NAME PROBLEM DESCRIPTION PRIORITY

Mixer TCU Sides Pump HFD level and overall acceleration enveloping level are trending upward in drive end motor bearing. No change is noted in spectral data. Medium

RECOMMENDED ACTION: Ensure drive end motor bearing is properly lubricated. MDI continues to monitor.

Problem Found / Action Taken

#2 Mill 8-12-15 Previously reported low amplitude gear mesh frequency remains in spectral data of the gearbox input. Amplitude has trended stable the past few surveys. 11-23-15 Low amplitude gearmeshing vibration is again noted in unit. This may be characteristic for this gearbox as it has been present from its installation and has shown no significant change or progression. This will be removed from future reports if trends remain stable after next inspection. Low

RECOMMENDED ACTION: If there is any information available on this unit please provide that to MDI; no other action is necessary at this time.

Problem Found / Action Taken

Drop Mill Back Roll Pump 8-12-15 Low amplitude (.006 ips / velocity) harmonics of 5,550 cpm noted in spectral data of the drive end pump bearing. HFD level remains higher than "normal" but stable this survey. 11-23-15 Possible early stage wear remains in spectral data of pump; all amplitudes are very low at present. Low

RECOMMENDED ACTION: No action necessary at this time. MDI continues to track all unit trends and will advise of any change or wear progression.

Problem Found / Action Taken

Machinery Vibration Analysis Report, Cont'd

EQUIPMENT NAME PROBLEM DESCRIPTION PRIORITY

Banbury Mixer North Rotor HFD level is slightly elevated in the water side bearing of the north rotor. No change is noted in spectral data. Low

RECOMMENDED ACTION: No action necessary at this time. MDI continues to track all unit trends and will advise of any change or wear progression.

Problem Found / Action Taken

#1 Mill 8-12-15 Input running speed (900 cpm) vibration has trended up slightly throughout the entire unit. Low 11-23-15 Levels have decreased this survey and are now trending normal. This will be removed from future reports if no further change is noted.

RECOMMENDED ACTION: No action necessary at this time. MDI will closely track all unit trends and will advise if any further change is noted.

Problem Found / Action Taken

#3 Mill Slight increase is noted in motor at suspected gearmeshing frequency of the output gearset. This may be related to loading or other factors at time of data collection. Low

RECOMMENDED ACTION: No action necessary at this time. MDI will closely track all unit trends.

Problem Found / Action Taken

#4 Mill Several HFD and acceleration enveloping overall levels are slightly elevated in gearbox; no change or wear patterns are noted in spectral data. Low

RECOMMENDED ACTION: No action necessary at this time. MDI will closely track all unit trends and will advise if any further change is noted.

Problem Found / Action Taken



**MDI** *Machine Diagnostics, Inc.*

XYZ Corp.  
Anywhere, USA

Inspection Date  
November 23, 2015

***“Your Partners in Pro-Active Maintenance”***