vibration - thermography - oil analysis - laser alignment - in-situ balancing

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condition monitoring report

no. 171201 7053

customer
uk site

december 2016

Equipment

The following equipment was used to carry out the condition monitoring survey:

SKF Microlog CMXA 75. Serial No: 110724

Accelerometer: CMSS2200 Serial No: S50684
Accelerometer: MTN/1100 Serial No 234530

SKF @ptitude Analyst Vibration Analysis Software.
Dell Notebook Computer.

Analyst

Kevin Blockley

Introduction

This month's Condition Monitoring visit (December 2016) was requested by Mr ? of UK Customer Site on the equipment listed on page 3 of this report and is part three of your annual condition monitoring contract on the ?????? Plant.

Decembers Condition Monitoring Order Number = 6001451

Decembers Condition Monitoring visit includes the following:

- Collection and analysis of the vibration data plus production of report. The final report in a PDF format emailed to ?????????.

Condition Monitoring Report Overview

Reports

Reports are produced on units which are in alarm only, (exception reports) and include an overview of the plant condition which can be seen in the 'Traffic Light' system on the Summary Of Inspection page of the report.

This Summary of Inspection page highlights the following;

- Equipment
- Components monitored.
- Machine status. Month by Month
- Exception report page number

A detailed exception report outlining and illustrating machine defects, including recommended corrective actions, follows the Summary Of Inspection pages.

Exception reports are based on work that has been deemed necessary to prevent breakdowns after having either, exceeded guidelines within ISO Standard 10816, or the high frequency readings have exceeded predetermined levels.

The advice we have given in this report, if followed, is to help you avoid unnecessary breakdowns and to make your equipment more efficient and to run longer. It does not mean they will fail tomorrow, if our advice is not followed.

We would appreciate it if any work, however slight, that is carried out, is reported back to Vibrotech. This will assist us in future understanding and diagnosis of your plant equipment.

We were informed that the following work has been carried out on the equipment listed below since our last visit:

BO2 Fixed Gearbox output oil seal changed. We were also not allowed to check the No.3 Compressor.

B07 Bucket Elevator bottom was reported to have been cleaned.

If you have any questions, please don't hesitate to contact me.

Our report is as follows:

Vibrotech reliability services	**Condition Monitoring Report** **Customer** Uk Site	**Site Dates:** December 2016

Location & Equipment ID	Monitored	2016 Monthly Status												Page
		J	F	M	A	M	J	J	A	S	O	N	D	
Regrind Plant														
Compressors														
GA37 D0101 Compressor	Motor & Air End													
No. 2 Compressor	Motor & Air End													
GA37VSD D0103 Compressor	Motor & Air End													
Raw Feed Circuit														
A02 Raw Feed Conveyor	Motor & Gearbox													
A06 Slag Inlet Conveyor	Motor & Gearbox													
A10 Weigh Feed Conveyor	Motor & Gearbox													
A13 Rotary Valve	Motor, Gearbox & Valve													4
A15 Dilution Fan	Motor & Fan Shaft													
A15 Combustion Fan	Motor Only													
A17 Flash Drier Fan	Motor & Fan Shaft													
Polycom Circuit														
B02 Fixed Roll	Motor, Gearbox & Roll													
B02 Movable Roll	Motor, Gearbox & Roll													
B01 Polycom Feed Conveyor	Motor & Gearbox													
B06 Polycom Outlet Conveyor	Motor & Gearbox													
B30 Bucket Elevator	Motor, Gearbox & Elves													
B07 No. 1 Feed Pump	Motor Only													5
B11 Polycom Dust Fan	Motor & Fan Shaft													
B28 Grits Conveyor	Motor & Gearbox													
Sepol Separator Circuit														
B22 Sepol Fan	Motor & Fan Shaft													
B20 Sepol Separator (On-line)	Motor, Gearbox & Cage													6
B25 Aux Combustion Fan	Motor Only													
B24 Burner Fan	Motor & Fan Shaft													
B31 Grits Dust Fan	Motor & Fan Shaft													7
Ball Mill Circuit														
B13 Ball Mill (33)	Motor & Gearbox													8
B13 Ball Mill Cooling Fan (34)	Motor Only													
B13 NDE LP Pump E1M137	Motor Only													
B13 NDE HP Pump EIM136	Motor Only													
B13 DE LP Pump EIM138	Motor Only													
B13 DE HP Pump EIM139	Motor Only													
B13 DE Recirc Pump EIM140	Motor Only													
B18 Bucket Elevator	Motor, Gearbox & Elev													
B17 Mill Fan	Motor & Fan Shaft													
B19 Fluidor Fan E1M130 M01	Motor Only													
B19 Trap Fan E1M131 M01	Motor Only													
Final Product Circuit														
C6 Bucket Elevator	Motor, Gearbox & Elev													
C07 Silo Air Fan E1M193 M01	Motor Only													
C02 Air Fan E1M196 M01	Motor Only													
C02 Air Fan E1M197 M01	Motor Only													
C02 Air Fan E1M198 M01	Motor Only													

Key:-

Recommend Action
Fluctuating
Satisfactory
Not Running

Vibrotech reliability services	**Condition Monitoring Report** **Customer** Uk Site	**Site Dates:** December 2016

Report

Raw Feed Circuit

A13 Rotary Valve

Motor

The motor has increased vibration, mainly in the vertical direction, due to structural looseness. See Fig 1.

Gearbox

The gearbox input shaft is showing increases due to both input shaft speed vibration and looseness/movement vibration. See Fig 2.

The increased input shaft and looseness movement vibration is caused by either, or both looseness/movement of the gearbox input shaft, or structural looseness.

Trend/Spectrums

Fig.1
Motor-Drive End Vertical Vibration Trend 2 05

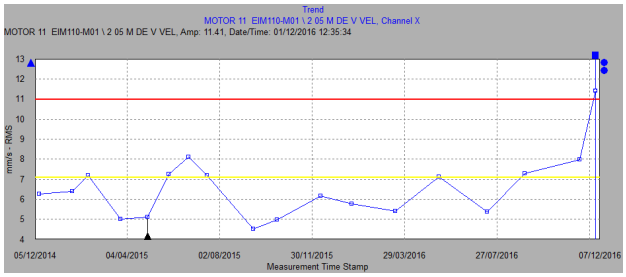
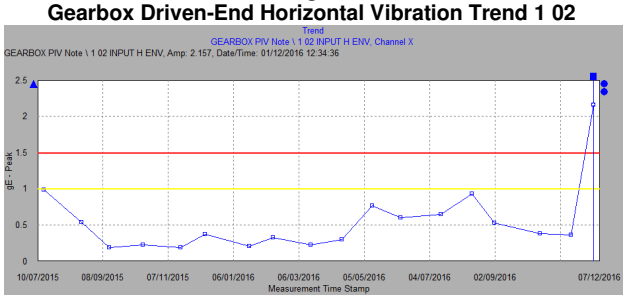


Fig.2
Gearbox Driven-End Horizontal Vibration Trend 1 02



Recommended Action:

Motor & Gearbox

Initially check the frame supporting pin for wear. Correct as required.

If no looseness wear is found, I would recommend the motor is removed and the gearbox input shaft checked for lift and movement, I would also check the condition of the coupling.

To assist future analysis please report your findings.

Inspection :

Repaired by: Date:

Comment:

Vibrotech reliability services	**Condition Monitoring Report** **Customer** Uk Site	**Site Dates:** December 2016

Report

Polycom Circuit

No. 1 Feed Pump

Motor

The motor vibration is continuing to steadily increasing. See Fig's 1 & 2.

This is due to an increase in structural weakness being excited by impeller/flow vibration.

Trend/Spectrums

Fig. 1.
Motor Non-drive End Vibration Trend 1 01

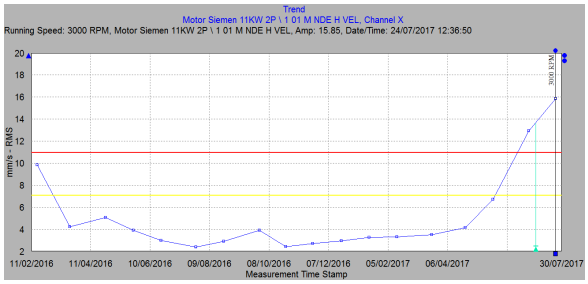
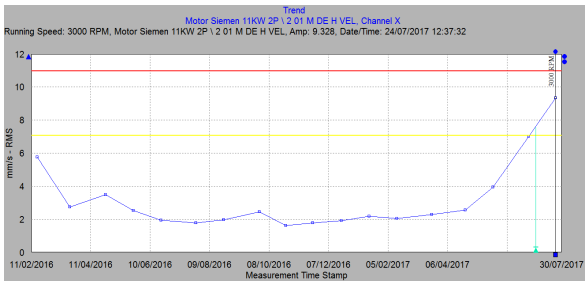


Fig. 2.
Motor Drive End Vibration Trend 2 01



Recommended Action:

Motor

I would recommend the pump is planned into be changed.

Inspection :

Repaired by: Date:

Comment:

Vibrotech reliability services	**Condition Monitoring Report** **Customer** Uk Site	**Site Dates:** December 2016

Report

Sepol Circuit B20 Sepol Separator

We were informed on arrival at site that the electrical work recommended in the September Thermographic report has been carried out.

Motor & Gearbox

The motor & gearbox are mechanically running at acceptable levels.

The previously reported motor electrical activity has reduced. See Fig's. 1 & 2. This will be due to the corrective work recommended in the September Thermographic report been carried out.

Cage

The cage top readings are at acceptable level.

We are unable to test the cage bottom due to the accelerometer not working.

Trend/Spectrums

Fig.1
Motor Drive End Electrical Activity Trend 2 02 ENV

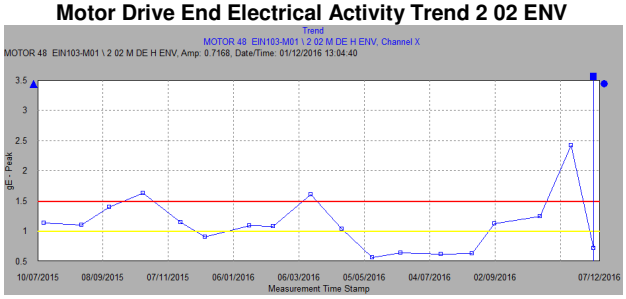
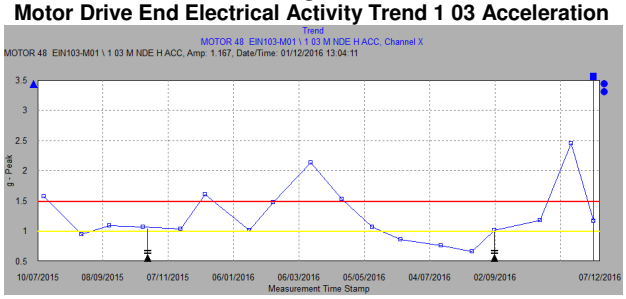


Fig. 2
Motor Drive End Electrical Activity Trend 1 03 Acceleration



Recommended Action:

Motor & Gearbox

None. Continue in service. We will accept these readings as it's new baseline levels.

Cage

Fit the replacement accelerometer and lead to the bottom bearing.

Report advisory.

Inspection :

Repaired by: Date:

Comment:

Vibrotech reliability services	**Condition Monitoring Report** **Customer** Uk Site	**Site Dates:** December 2016

Report

Sepol Circuit B31 Grits Dust Fan

Since our last visit the motor bearings have been greased.

Motor

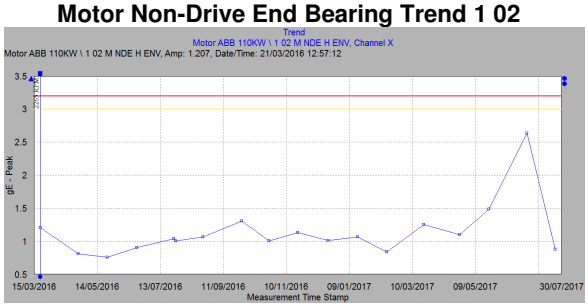
The motor bearing readings have reduced to acceptable levels since they have been greased. See Fig. 1.

Fan Shaft

The fan shaft is running satisfactorily.

Trend/Spectrums

Fig. 1.
Motor Non-Drive End Bearing Trend 1 02



Recommended Action:

Motor

None. Continue in service.

Fan Shaft

None.

Inspection :

Repaired by: Date:

Comment:

Vibrotech reliability services	**Condition Monitoring Report** **Customer** Uk Site	**Site Dates:** December 2016

Report

Ball Mill Circuit

B13 Ball Mill

Motor

The motor non-drive end high frequency readings have increased again, due to bearing wear. See Fig's. 1 & 2.

Gearbox

The gearbox is running at satisfactory levels.

Trend/Spectrums

Fig.1
Motor Non-drive End Bearing Trend 2H ENV

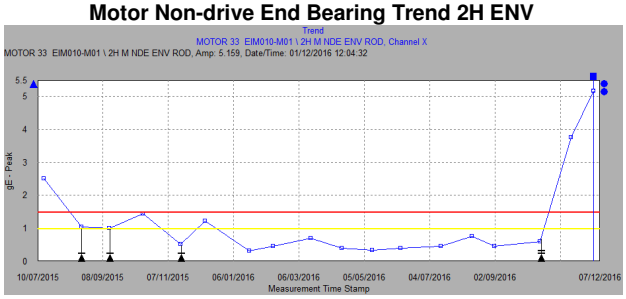
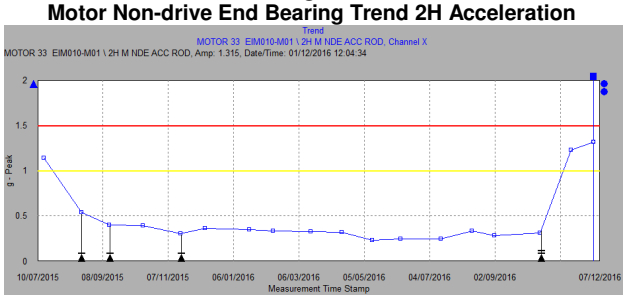


Fig. 2
Motor Non-drive End Bearing Trend 2H Acceleration



Recommended Action:

Motor

Change the motor, or the non-drive end bearing in-situ as discussed.

Gearbox

None.

Inspection :

Repaired by: Date:

Comment: