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:
# Condition Monitoring Report

**Customer:** Uk Site

**Site Dates:** December 2016

<table>
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<th>Location &amp; Equipment ID</th>
<th>Monitored</th>
<th>2016 Monthly Status</th>
<th>Page</th>
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<td>B28 Grits Conveyor Motor &amp; Gearbox</td>
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<td>B13 NDE LP Pump E1M137 Motor Only</td>
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<td>B13 DE LP Pump E1M138 Motor Only</td>
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<td>B13 DE Recirc Pump E1M140 Motor Only</td>
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<td>B17 Mill Fan Motor &amp; Fan Shaft</td>
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<td>B19 Trap Fan E1M131 M01 Motor Only</td>
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<td><strong>Final Product Circuit</strong></td>
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<td>C6 Bucket Elevator Motor, Gearbox &amp; Elev</td>
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<td>C07 Silo Air Fan E1M193 M01 Motor Only</td>
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<td>C02 Air Fan E1M196 M01 Motor Only</td>
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<tr>
<td>C02 Air Fan E1M198 M01 Motor Only</td>
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</table>

**Key:**

- **Recommend Action**
- **Fluctuating**
- **Satisfactory**
- **Not Running**
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.

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:

Repairs by: Date:

Comment:
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:
**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

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**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:
**Condition Monitoring Report**

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Uk Site

**Site Dates:**

December 2016

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**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.

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**Recommended Action:**

**Motor**

None. Continue in service.

**Fan Shaft**

None.

---

**Trend/Spectrums**

**Fig. 1.**

Motor Non-Drive End Bearing Trend 1 02

---

**Inspection:**

Repaired by:           Date:

Comment:
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: