

COLLABORATIVE
RISK APPLICATIONS

ARM

AFRICAN RAINBOW MINERALS CASE STUDY

Schalk Lubbe

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COLLABORATIVE RISK APPLICATIONS



Schalk Lubbe
MD: CRA



Chris Blakey-Milner
Leader:
Risk Management

- ◎ CRA assists organisations to
 - ◎ align their company risk management process to the principles of good corporate governance.
- ◎ CRA Risk Engineers are well experienced in assisting clients to
 - ◎ develop,
 - ◎ implement
 - ◎ and maintain effective risk management processes
- ◎ CRA developed the Risk Management Scorecards and Processes for African Rainbow Minerals (ARM).
- ◎ CRA provides the external audit services for ARM

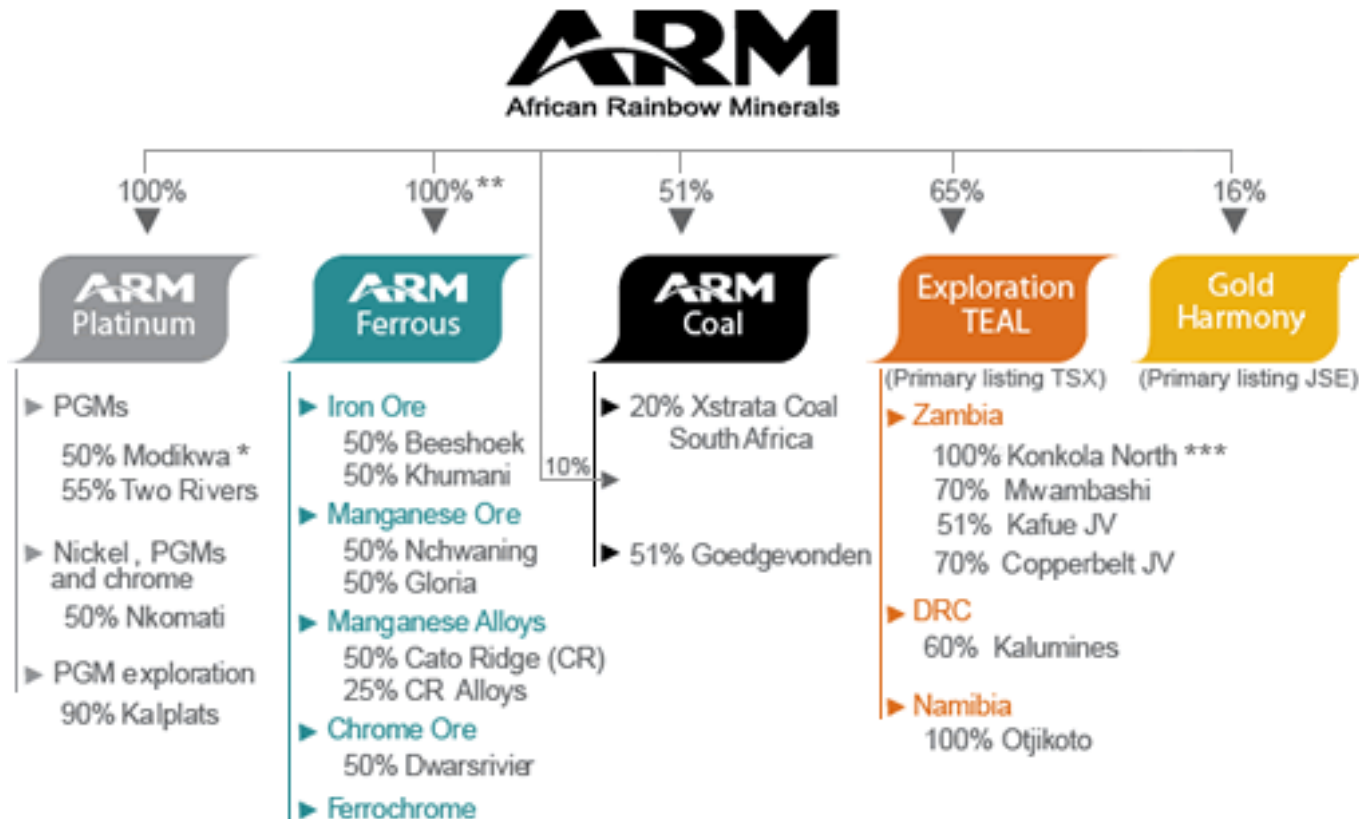
ARM OVERVIEW

- ◎ ARM is a globally competitive diversified mining company
 - ◎ Assets exceeds R18.144 Billion
 - ◎ Record headline earnings, up by 161% to R1.2 billion
 - ◎ First dividend declared of 150 cents per share.
 - ◎ Record sales of PGMs and iron, manganese and chrome ores



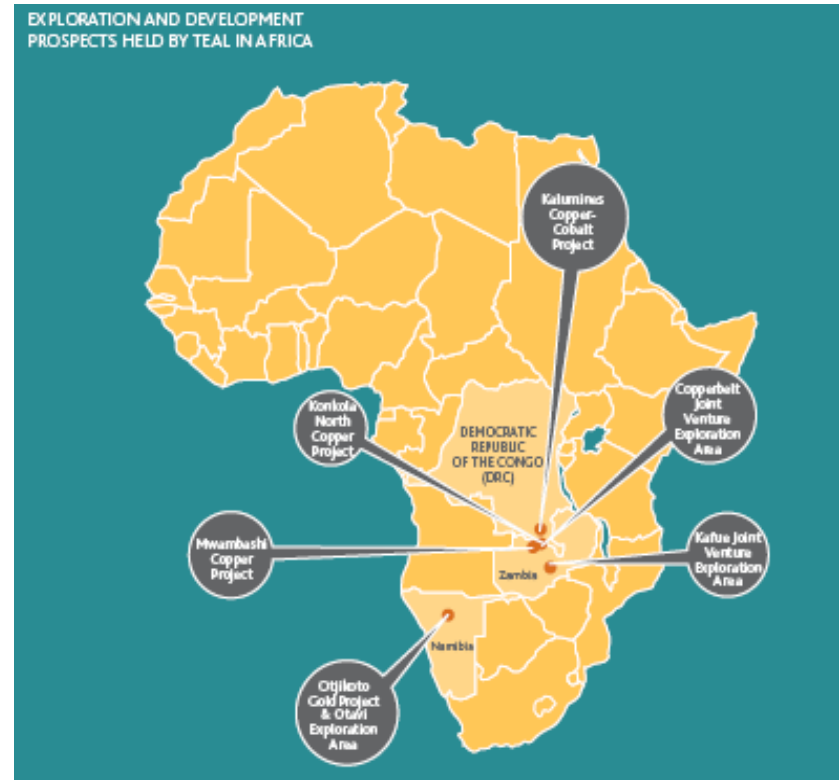
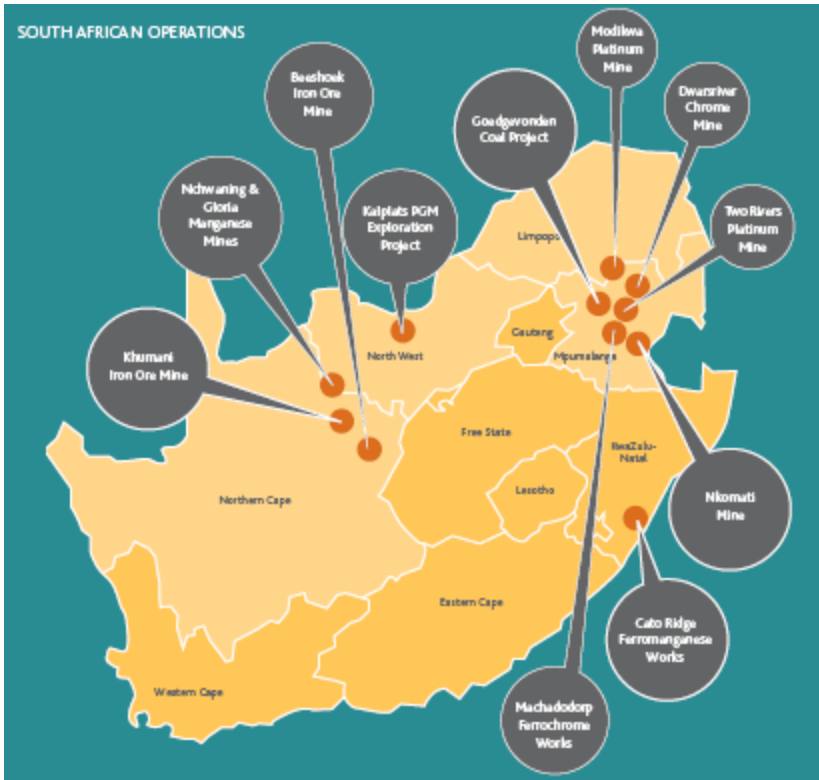
ARM OVERVIEW

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ARM OVERVIEW

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PROJECT OBJECTIVE

- ◎ It became increasingly more important for ARM to demonstrate Group performance in respect of the level of risk control, risk tracking and measurement to all stakeholders including national and international insurance markets.
- ◎ The goal of the project was to:
 - ◎ introduce a management tool that will enable the Group to
 - track and measure compliance to best practice in respect of the risk management, at strategic, business and operational risks within each of the operations.

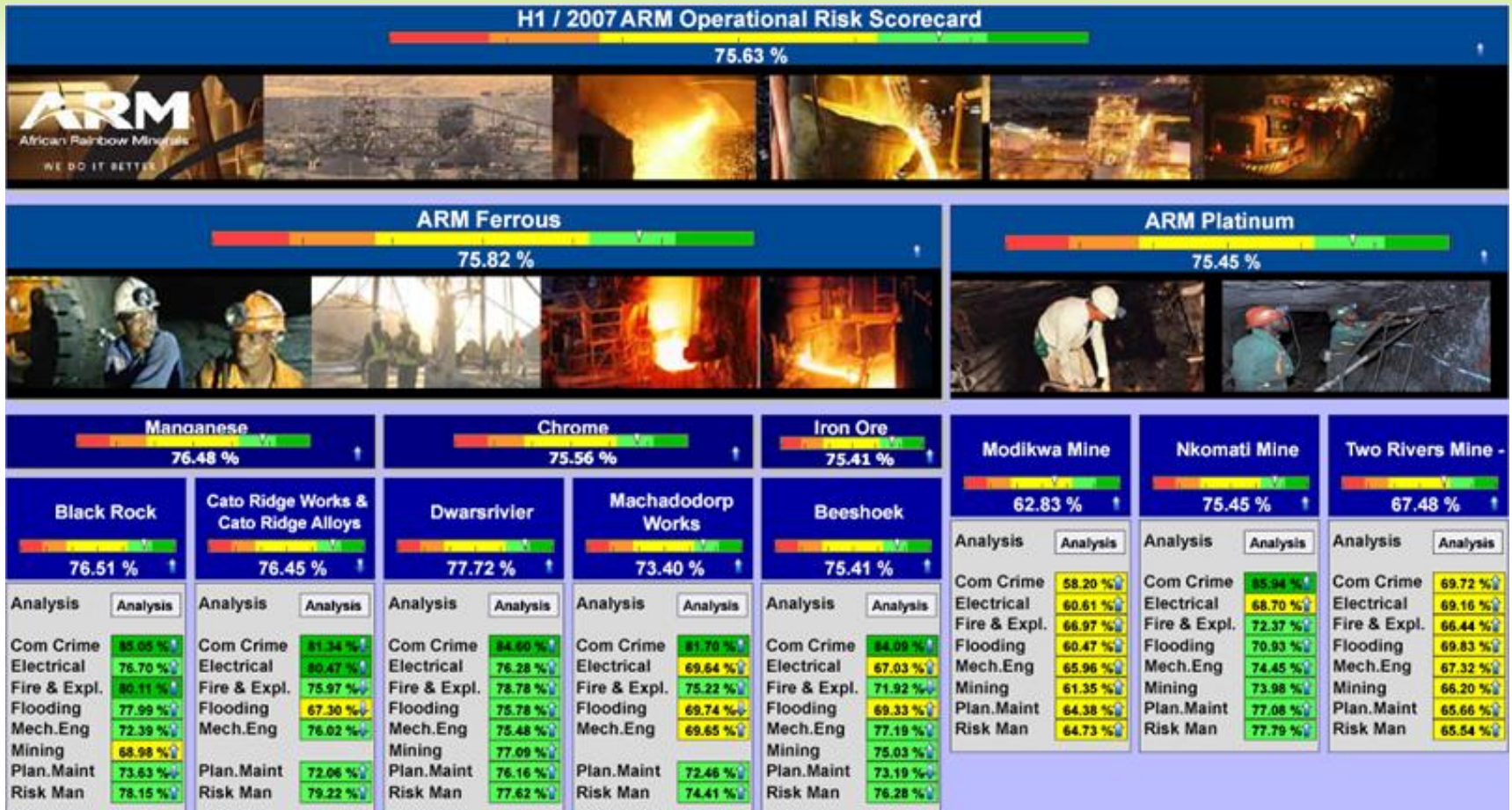
PROJECT SCOPE

- ◎ Project Scope:
 - ◎ Nine (9) operations and associated operating units located throughout South Africa.
 - ◎ The introduction of the measuring process required the approval of the ARM executive and involvement of the Management Risk Committee, Internal Audit function as well as all operational management teams.
 - ◎ The selection of a Collaborative Risk Management Tool
 - ◎ The initial design of the Risk model and the building of scorecards, compliance standards and procedures took twelve months.
 - ◎ A further twelve months were required to roll the programme out to operational level.

REASON FOR CHOOSING QPR

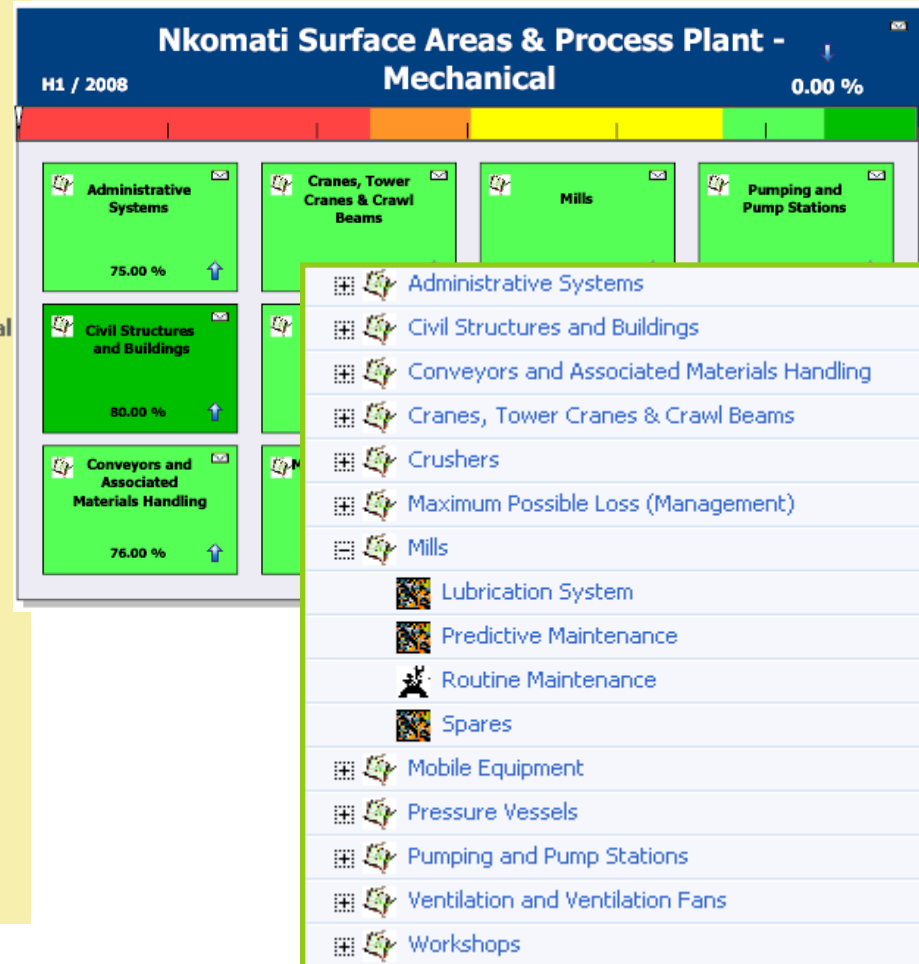
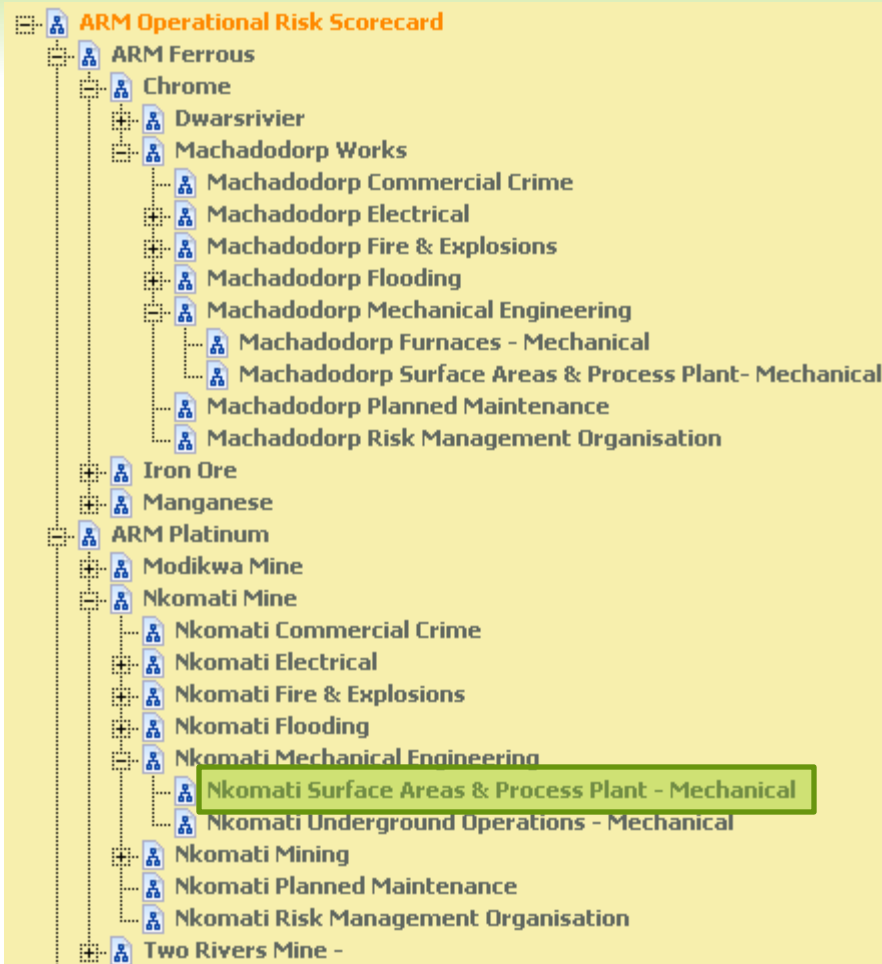
- ⦿ Executive Business Solutions demonstrated the capabilities of the QPR Scorecard and WEB Portal after which it was identified as the tool of choice that can enhance the organisations efforts with regard to the following:
 - ⦿ Facilitate appropriate risk/reward decisions at all levels of management.
 - ⦿ Identification and evaluation of significant risks at each level of the enterprise.
 - ⦿ Document and manage the response to that risk
 - ⦿ Communicate the risks and management's response based on predefined escalation levels; and
 - ⦿ Demonstrate the effectiveness of the process.
 - ⦿ The adaptability of the software enabled its application as management tool in a diversified business such as ARM and a diversified subject such as Risk Management.

SCREENSHOTS RISK OVERVIEW



SCREENSHOTS HIERARCHY

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SCREENSHOTS

MEASURE INFORMATION

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Predictive Maintenance (Nkomati Surface Areas & Process Plant - Mechanical)

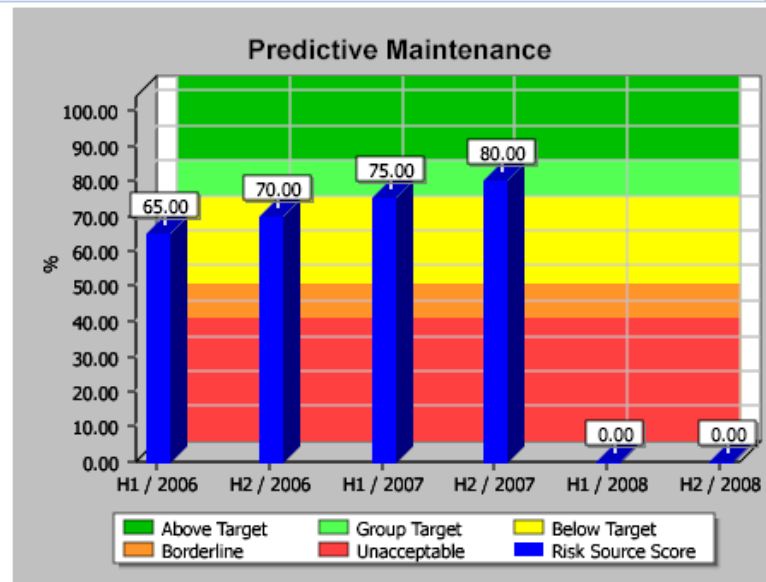
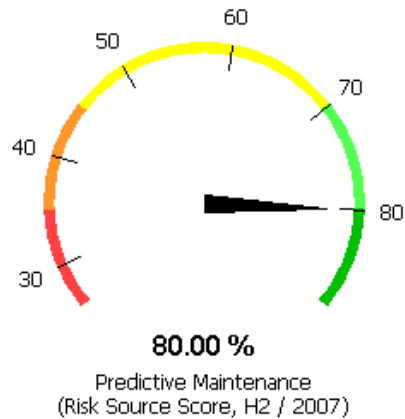
H2 / 2007: 80.00 %

This section evaluates the predictive maintenance that is done on the mill. Online, realtime recordings with capability of information being downloaded when required, should be done covering the following aspects that should include:

1. Vibration monitoring
3. Gearbox oil pressure and temperature
4. Bearing temperatures
5. Trunion pressure
6. Mill motor condition (windings)
7. Pinion condition

Graph

[Graph Layout] [Graph Settings]



SCREENSHOTS

RISK ACTION

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Risk : Predictive Maintenance - Collaborative Risk Applications (Collabrisk)

Description

There is a risk of major material damage and business interuprion as a result of white metal bearing failure on the mill. The control room attendant is unable recognise any deviation from the 'normal' parameter of white metal bearing temperatures on the scada system. This is due to a faulty screen preventing clear display of temperature readings. The situation is made worse due to the fact that the attendant normally wears an ear piece and was not wearing it and could therefore not hear the audible alarm.

Maximum Possible Loss:

R85 000 000

Mitigation Cost :

Approx. R5 000

Rating:

30%

Existing Controls:

1. The temperatures of all critical components are displayed on the scada system. 2. There is a procedure whereby control room attendants have to log any faulty conditions at the beginning of shift and notify technicians immediately this was not done. 3. An additional safety device is in place whereby the mill will trip when bearing temperatures exceed the predetermined safety parameters

Mitigation Recommendations:

1. The control room attendant should be briefed again on his responsibility when on shift 2. Procedures should include that the control room attendant must report any malfunctioning of systems at commencement of his shift telphonically to his supervisor 3.The scada system must be repaired without delay.

Notes:

1. Damage may have been caused by the time the mill trips when overheating conditions are reached.

SCREENSHOTS TYPICAL REPORT

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Commercial Crime					
<i>ActionID</i>	<i>Header</i>	<i>Description</i>	<i>Existing Controls</i>	<i>Mitigation</i>	<i>Notes</i>
Consumable/Bulk Stores Receipts, Stock and Issues					
Independent/Secondary Checks (Goods Received)					
1123648086	Independent/Secondary Checks (Goods Received)	This is not done and is not considered necessary on a routine basis.		<ol style="list-style-type: none"> 1. This should be done on a spot check or random basis particularly in respect of high risk or very costly items. 2. Ideally a caged area should be provided for goods received and re-checked by a second person. 	
Secure Dedicated Receiving Area					
1112830791	Secure Dedicated Receiving Area		A secure receiving area is not considered necessary.	A secure dedicated receiving cage should be provided.	
Stock Control System					
152937698	Stock Control System	<ol style="list-style-type: none"> 1. A removal permit has to be made out in respect of parts or equipment sent off the mine for repairs or reworking. 	<ol style="list-style-type: none"> 1. All items sent for repairs or reworking are tracked to ensure that they are returned/collected. 2. A waybill is used to track the items. 	A introduction of a strip and quote section would ensure work quoted has been done.	
Financial Procedures					
Fixed Assets (Identification)					
578239599	Fixed Assets (Identification)	Some assets have been marked with a felt tip pen but not all.		A more suitable method of marking the assets should be investigated. The service of an external consultant may have to be used to assist in this respect.	
Human Resources (General)					
Background References					
205945403	Background References	Background reference checks must be carried out on all new employees.	A formal appointment procedure and a background reference check policy to be introduced.	<ol style="list-style-type: none"> 1. Criminal Bureau and Credit Bureau checks are being done, and qualifications are verified insofar as this is possible. 2. Ernest and Young verify qualifications, AFRS verify criminal and IT. 	

RESULTS

- ◎ Improved financial planning for mitigation of risks
- ◎ Financial benefits of expenditure on risk mitigation easily identified and calculated.
- ◎ Risk Premiums compared to similar businesses worldwide is 30% less expensive
- ◎ Marketing of risk control efforts within the Group to stakeholders enhanced
- ◎ Operational Risk Scorecard using QPR will help us to evaluate and monitor risk issues in our business and enable us to manage the threats in our organization more timeously and in a cost effective manner

RESULTS

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◎ Benefits

- ◎ The process of risk identification, evaluation and monitoring has improved beyond expectations.
- ◎ Risk communication is now 'real time'.
- ◎ Action to mitigate risk is taken at a very early stage in the process as a direct result of the implementation of the QPR programme preventing losses potentially worth millions.
- ◎ Commitment from operational management teams with regard to achieving set targets has substantially improved.
- ◎ The introduction of QPR software into ARM has streamlined the entire risk management process within the organisation.
- ◎ It placed ARM in a position of strength with International Insurance Underwriter markets.
- ◎ The detail and quality of risk reporting and monitoring using QPR provided ARM the edge ahead of its competitors for some time to now.

GOING FORWARD

- ③ ARM adopted an enterprise-wide approach to risk management, in terms of which every key risk in each part of ARM, including key risks associated with major changes and significant actions within ARM and within the industry will be managed within the same framework.
- ③ The current programme using QPR has now been rolled-out to the Harmony Gold mining Group.
- ③ The Health & Safety and Environmental programmes of are now all managed monitored and graded using QPR.
- ③ The goal is to integrate the Groups entire Enterprise Risk Programme using QPR within the next 18 months.

CONTACTS



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