

TECHNICAL SOLUTIONS



SAFETY

SHE Newsletter

Issue 1 - February 2013

“Together we are people making a difference in a company making a difference.”

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SAFETY MESSAGE

from Kai-Uwe Molzahn, General Manager: Field Services



How can you contribute to ZERO HARM?

As we start 2013 with renewed energy, passion and dedication we need to remind ourselves of our number one priority and most important value: SAFETY.

As “safety professionals” the Field Services inspectors' attention to safety is part of their everyday working routine; the majority of the inspections they perform are aimed at reducing safety risks in the working environment. But attention to safety cannot be left to the professionals alone. It is part of the job for each and every Anglo American employee. We all have to ask ourselves – how can I contribute to ZERO HARM?

This issue of the Technical Solutions Safety newsletter focuses on one of Field Services' primary risk mitigation inspections, namely Rope Condition Assessments (RCA), a service that ensures the safe transport of thousands of Anglo American employees, as well as equipment and ore, in and out of our mines on a daily basis.

While the information is second nature to our inspectors, I trust it will be of interest to the rest of the Technical Solutions team. Enjoy the first 2013 SHE newsletter - and a happy, SAFE new year to you all.

SAFETY FACT

Field Services has spent approximately **R10 million** in CAPEX on rope condition assessment equipment over the last three years, to provide our clients with inspections of the highest standard.



IMPORTANT INSPECTIONS ON LIFTING EQUIPMENT

Cranes and hoists are indispensable during the maintenance and production processes. These massive pieces of equipment do all the hard work facilitating maintenance and production in our workshops, plants and concentrators; used for both operational and maintenance requirements. Due to their size and height, incidents involving crane safety failures are usually large-scale and severe, resulting in serious damage, injury and even fatalities.

Unfortunately crane accidents continue to happen globally. According to the Occupational Safety and Health Administration (OSHA), in the United States alone, crane accidents such as being struck by cranes and crane parts is the second major cause of fatalities on construction sites. One of the recent crane accidents in South Africa was at a mine workshop where a crane motor came loose, fell and fatally injured one of the employees.

To prevent the above mentioned accidents from occurring, some basic steps include:

- scheduled inspections to ensure all employees are safe whenever cranes are in operation;
- records of inspections must be available, providing proof of inspections and evidence that the cranes comply with all codes and standards.

With reference to a recent Field Services inspection conducted at a site, approximately 96 cranes and hoists were tested and found



LOAD TESTING

should be done every six months on lifting equipment, and once a year on overhead cranes.

not to conform to requirements, because of several reasons; the main reason being that there was no available evidence of 'load testing' having been carried out.

Load testing is performed to determine a crane and/or lifting equipment's behaviour under both normal and anticipated peak load conditions. These tests can highlight deficiencies and provide assurance that the crane is safe at its stated capacity. These tests should be done every six months on lifting equipment, and once a year on overhead cranes.

To prevent any more crane/lifting equipment injuries or fatalities in our workplace, it is strongly recommended that such equipment is regularly inspected and tested.

INNOVATION IN SAFETY AND PRODUCTION

Recent value-adding innovations and improvements in Field Services' rope testing equipment and techniques will benefit safety and production.

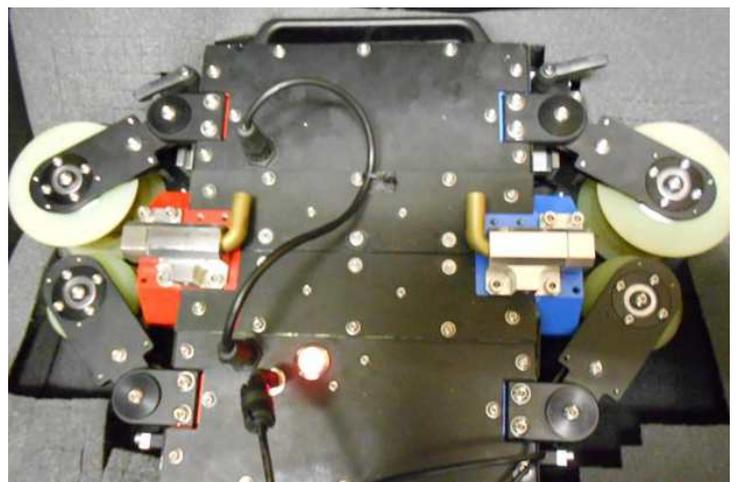
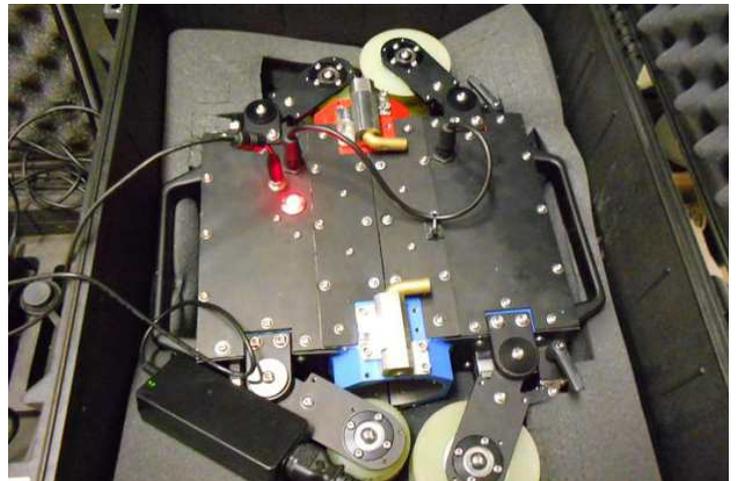
MAGNETIC ROPE TEST INSTRUMENT

In 2008, Field Services decided to partner with a local electronic and development company to develop a new magnetic rope test (MRT) instrument (pictured right). The decision was taken after careful consideration of the effectiveness of available equipment. The international market was also investigated for a replacement MRT instrument but nothing was available that met Field Services' specifications and needs. "It was clear however, that we needed to move out of the analogue into the digital domain," says Paul Musgrove: Rope Condition Assessment Manager. "Both the recording medium and the electronics, in the processing units and test-head, had become obsolete."

It was then decided, as an interim solution, to replace only the recorder with a digital display on a laptop, and to redesign and build a digital processing unit. The test-head was to remain in service until a completely new design could be developed and built.

2013 sees the near completion of this process. "We are now at a stage where the newly designed MRT instrument, consisting of a test-head and recording medium, is being evaluated for final sign off and implementation," explains Paul. "The instrument is now fully digitised, with Wi-Fi capability and the latest technology sensors and permanent magnets."

At this point Field Services has taken delivery of eight new units, which are currently being field-tested. Following a gradual phase-out of old instruments, the new MRT instruments will be used for full rope condition assessments to detect any anomalies on all kinds of different winding rope and hoisting rope constructions throughout the industry. Mine winder ropes are a safety critical component of any winding plant. With regular Rope Condition Assessments and the use of these cutting-edge MRT instruments, safe winding of people and ore in shafts can be ensured.



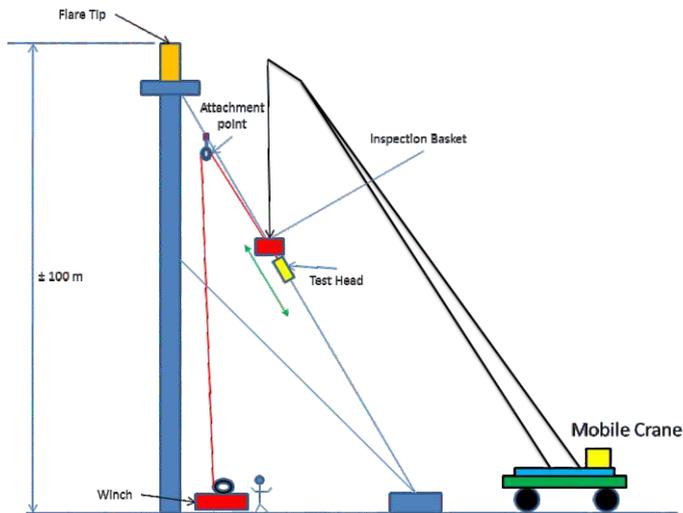
MOBILE ATTACHMENT POINT

When it comes to testing, stay ropes, used to anchor refinery stacks and chimneys, present unique challenges; challenges that have resulted in the development of an innovative test method, named the “Mobile Attachment Point”. Most ropes are tested by moving the rope through the testing instrument (known as the test-head). But because stay ropes are stationary the test-head has to be moved along the length the stationary rope.

Current method of testing stay ropes

Inspectors, in an inspection basket, are raised by means of a mobile crane, to attach an anchoring point at the top of the rope. Another rope is attached to the anchoring point, leading down to a winch on the ground. The test-head, which has been placed around the stay rope, is then winched up and down the stay rope.

The picture below illustrates this process.



Safety and production hazards of the current method of testing stay ropes

- Tests can only be carried out on an ad-hoc basis, during “shut down” periods; the plant has to be off-line for safety precautions.
- Toxic gasses can be released into the atmosphere, or excess fuel that is burnt off can spill over the Flare Tip (the top end of a refinery stack or chimney), making the immediate environment around the Flare hazardous for people.
- The weather also plays a huge rule on the day: stay rope tests cannot be performed in an unacceptably strong wind or heavy rain as it is unsafe to work at height in such conditions; the vertical height of Flares can be up to 100m.
- The people in the basket at the top of the Flare need to communicate with two different ground teams at any given time, namely the crane operator and the winch operator.
- Two-way hand held radios are used for communication between the people in the basket and the two ground teams. There is usually a time delay with radio communication, creating another safety risk for the people in the basket.

Innovation: The Mobile Attachment Point – new method of testing stay ropes

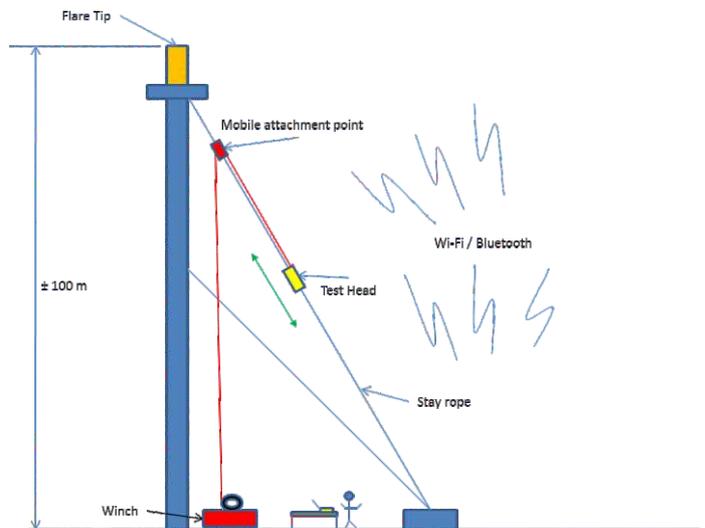
Field Services, in partnership with an external company, recently developed a new method, the Mobile Attachment Point. Kai-Uwe Molzahn: Manager, Field Services, explains: “A lot of thought and discussion was put into formulating a workable cost effective solution. We had to find a solution to enable the test-head to propel itself up along the rope. We knew that if we could replace the use of the mobile crane we would eliminate the hazards of working at heights.”



Mobile attachment point on a stay rope

The Mobile Attachment Point is remotely propelled to the correct position at the top of the stay rope, with the ‘winch rope’ already attached, enabling the test-head to be winched up along the stay-rope. The entire test is controlled from the ground, via Bluetooth/WiFi from a laptop.

The picture below illustrates the mobile attachment point.



Benefits and value-add of the Mobile Attachment Point versus the mobile crane method

- If there is any kind of malfunction with the attachment point, such as the propulsion system or communication etc, the test-head can be recovered by winching it down to ground level.
- The mobile attachment point can be recovered by different means at a later stage.

Safety benefits

- The elimination of safety hazards due to not working at height.
- In some cases it will even be possible to test stay ropes while the Flare is on-line. Rope bottom anchoring points can be as far as 60/70 meters away from the base of the Flare, meaning the inspectors controlling laptop and winch are safe.

Value add

- The mobile attachment point offers the client financial savings, including the elimination of a mobile crane; reduced shut down and off-line time; only two inspectors are required to do the MRT instead of four.

WORKSHOP INCIDENTS AND OHS ACT

Workshops where machinery is in use are one of the high risk areas for incidents and/or injuries and complacency is a major contributing factor to such incidents. Operators are trained, qualified or experienced with machinery, but complacency can lead to taking short cuts, resulting in safety incidents.

The Occupational Health & Safety Act 85 of 1993 provides for this. Important sections in this regard are:

Section 8 (2)(d): "Without derogating from the generality of an employer's duties under subsection (1), the matters to which those duties refer include in particular - (d) establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in his business, and he shall, as far as is reasonably practicable, further establish what precautionary measures should be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures."

Section 8 (2)(e): "Providing such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of his employees".

From these sections the following four procedures/documents must be in place to show that all reasonable care was taken to prevent any risk to an employee while performing a task on machinery in a workshop.

1. The first is that HIRA (Hazard Identification and Risk Assessment) must be done in detail (issue-based) on the particular task taking into consideration the task, the operator, the machine and the environment in which the task is performed.
2. Then from this HIRA, a SOP (Safe Operating Procedure)/WSWP (Written Safe Work Procedure) must be developed. The instructions in the SOP/WSWP must steer the operator clear from the risks identified in the HIRA.
3. Thirdly the operator must be trained on the SOP and informed of the risks identified in the HIRA. This right to information is also included in Section 13 of the OHS Act – duty to inform.
4. The last important procedure/process in this regard is Job Observations/Planned Task Observations. In this, the supervisor must observe the operator performing the task to ensure that the operator abides by the steps set out in the SOP/WSWP ensuring the task is performed in a safe manner.



To have these procedures in place in itself is not sufficient if it can't be proven that the one was developed from the other. In other words, there must be a clear relationship and compatibility between all the related documentation.



THE EMPLOYERS DUTIES INCLUDE:

to establish what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in his business, and he shall, as far as is reasonably practicable, further establish what precautionary measures should be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons.

Health and Safety supervision

We also have to look at the requirement of supervision, not only under Section 8 (2)(e) of the Occupational Health and Safety Act, but also in terms of the General Machinery Regulations.

Section 2(1) of this regulation is applicable. This section requires that:

"Supervision of machinery – (1) In order to ensure that the provisions of the Act and these regulations in relation to machinery are complied with, an employer or user of machinery shall, subject to this regulation, in writing designate a person in a full-time capacity in respect of every premise on or in which machinery is being used".

It is important to note that such a supervisor cannot be appointed over more than one workshop where machinery is used unless it is with the permission of an inspector in terms of sub regulation (8). This being said, in terms of subsection (7)(a): "An employer or user of machinery may designate one or more competent persons to assist a person designated in terms of sub regulation (1)".

SUPERVISION

The purpose of such supervision is to stop an operator performing a task in an unsafe manner and to instruct on the correct and safe way to perform the task. To be able to do this, the supervisor must obviously be able to perform the particular task himself in a safe manner with the necessary competence.

Do you as a company have your procedures in place, and do you have supervisors appointed that are competent to ensure operation of machinery is done in a manner that does not cause a risk to the safety of any operator?

<http://sheqafrica.com/health-safety-incidents/>

MINE WORKERS PUT SAFETY AT RISK USING SOCIAL MEDIA ON THE JOB



A recent report in Australia highlights the dangerous use of mobile gadgets, such as cellphones, while driving heavy machinery and/or vehicles.

The State Government's Mines Inspectorate is investigating reports of mine workers using social media while driving heavy machinery, putting lives at risk, the Queensland Government's Mine Inspectorate revealed recently.

The inspectorate - the group directly in charge of mine safety - is investigating several serious or high-potential incidents attributed to a worker using mobile gadgets.

High potential incidents occur when someone is put at risk or narrowly avoids serious injury.

An industry-wide safety bulletin for mining was released alongside a similar warning for road users, highlighting the risk of being distracted behind the wheel.

The inspectorate reported it was "aware of mine workers using mobile devices while operating vehicles or other mobile plant equipment?".

Workers potentially are checking Facebook while controlling bulldozers, graders, dump trucks and excavators which can weigh more than 100 tonnes.

Chief Inspector of Coal Mines Gavin Taylor, said these were not one-off acts of stupidity. **"The inspectorate believes the use of mobile devices such as iPhones and iPads - and interaction on social media - is widespread at open-cut coal mines. This is a significant safety concern, given the size and gross weights of equipment moving around on site."**

So far, being distracted had not caused any actual injuries but workers "engaging in social media" were now being investigated after the near-misses.

Construction Forestry Mining and Energy Union Queensland district secretary Tim Whyte said the union had not heard too many reports of risky behaviour with mobile technology.

Source: The Northern Star, Australia 16 Jan 2013

What are you doing as an individual or department to keep yourself from harm in the workplace concerning the use of social media?

COMMENTS, QUERIES OR INFORMATION?

Is it useful, is it interesting, is it relevant, what do you want to see?

Please send us any comments, queries or information on the newsletter or SHE related topics. E-mail tom.burns@angloamerican.com