Maintenance to Match

By Keith Russell*

With so many maintenance systems available it can be hard to choose the correct one for your site. A key element of choosing the right system is knowing your site's level of 'Maintenance Maturity'.

WITH FALLING commodity prices and an uncertain global outlook mine managers are facing increased pressure to reduce costs. Mine maintenance is one area which offers the potential to reduce costs, increase production output and improve site safety when properly implemented.

But before you expend valuable resources and capital on implementing a new maintenance system consider precisely what you want the system to do. That will depend on your site's level of maintenance maturity.

The Maintenance Maturity Curve

The maintenance situation on a mine site can be described in terms of five stages – a 'Maintenance Maturity Curve'. This curve identifies typical maintenances practices – the maintenance culture, the nature and level of repair practices and the root causes of maintenance behaviours – associated with each stage of an evolving maintenance program.

- The lowest point on the curve, 'regressive', is where the equipment is decaying, and there is little focus on maintenance. An example may be a site that is about to be mothballed.
- Next is reactive. This is where equipment is operated to breakdown, then repaired. It is associated with frequent stoppages. Often an action hero culture can develop which recognises those who repeatedly bring the operation back online.
- The planned maintenance position is where equipment is maintained to prevent breakdown. This includes basic equipment care and operation within specifications.
- Proactive maintenance is where equipment is not only fixed, it is improved to prevent further breakdowns.
- At the top of the curve is stability where the operations and maintenance function are optimised to maximise total value including maintenance costs. The site operates with an ownership mentality with a high level of departmental integration.

A site may exhibit aspects of all of these stages, but typically a particular level will be more prominent.

Using the Maintenance Maturity Curve

Which stage your site is at impacts which approach to maintenance will work best to improve your maintenance outcomes.

Consider the following example. A complex reliability centred maintenance program is undertaken across a site. This will consume tremendous resources and effort and in the right circumstances could deliver large improvements. However, if preventative maintenance compliance is poor (because the site is in the reactive position), site performance can decline at the same time. In the "reactive" stage advanced maintenance practices such as Overall Equipment Effectiveness will often fail as attention is distracted by the latest crisis.

Instead, it's better in the reactive stage to focus on simple and easily understood KPIs which match the basic maintenance problems you face. Make sure the KPIs are tangible enough for people to link their own actions to variations in the KPIs. Then integrate the KPIs into weekly reviews from manager to supervisor to shopfloor level. This creates a weekly closed loop analysing results, deciding actions for improvement and reviewing completion of those actions. By changing the focus to priority areas and allowing individuals to see how their actions affect the KPIs you can change behaviour and improve performance.

Once you have started to move along the Maturity Curve it is important to continually review the KPIs and gradually augment these with other measures which better suit the growing maturity of your maintenance program.

At least 50 per cent of companies that implement a new maintenance program report that that the program did not deliver the promised benefits. A shiny new maintenance program frequently fails to be the "silver bullet" that solves your maintenance problems.

Matching your maintenance approach to your site's current maintenance maturity is fundamental to gaining traction. You might find you can deliver results for little cost and as soon as your next team meeting. □

* Keith Russell is a Principal at results delivery firm Partners in Performance

◁ FROM PAGE 47 – 'KEYHOLE' MINING ...

The first SORDMiner head has been built and engineered by RCR Tomlinson. While close to the full size of a production model, the prototype has a production capability of 100 tonnes per hour, about one third of the planned capability of a production model.

The prototype has been developed to operate in a mineral sands environment, thus inducing materials sub 1" and filtering all greater size materials over the head.

Expected ore extraction rates with the projected slurry pump installations should be in the region of 1800-2000 tph for a SORDMiner. Mining rates will however depend on the size of the slurry pumps installed but can be tailored to individual deposit requirements by varying the slurry pump size and/or by using multiple machines.

"We believe it's possible to build and operate SORDMiners with a rating of 10,000 tph for oil sand mining," said Graham.

"As the material will be slurried from tool head to surface and no blasting, mucking and trucking is involved large tonnages are expected to be achievable. Transporting material as slurry is one of the most efficient transport mechanisms available."

SORD Co expects to commence with mineral sands first. "The wet resources that we access next will depend on ease of extraction and potential joint venture partners," said Graham.

"It is expected the tool will vary depending on the sand and gravel size that needs to be extracted."

The SORDMiner has just completed above ground trials at its Jandakot test site in Western Australia. Underground trials are planned to commence in the near-future.

SORD Co was incorporated in 2000, has 160 shareholders and to date has been funded by private equity. □

For more information contact tel: +61 8 9455 6911, or visit: www.sordresources.com