Fire threat on the rise at mine sites

April 10, 2019Features Mike Beaumont

Reports of fires have increased at Australian mines.

FM Global group manager, account engineering Mike Beaumont tells Australian Mining *about how companies can manage risks caused by fires at mine sites.*

Mining is under fire. Quite literally. And I'm not talking about politics. A recent report from the New South Wales Resources Regulator reveals that mobile plant fires in the state have risen in the past decade.

More than 200 fires were reported between September 2014 and May 2017. That's about six per month. This is double the incidents that occurred between 2001 and 2008, according to the regulator.

As the insurer for over 300 mining sites worldwide, we've analysed our loss history across the industry and noticed a broader trend. Our global data, including over 50 mining sites in Australia, shows that the challenge of rising fire losses is not limited to NSW or mobile plant.

In fact, our data shows that fire on mobile plant has remained high yet relatively stable worldwide. It is on fixed plant – rubber belt conveyors, vibratory screens, hydrocyclones, piping and rubber lined equipment – where we have seen a significant rise in fire incidents, both in frequency and severity.

During the past five years, fire has accounted for 27 per cent of all losses on mine sites. If the use of autonomous vehicles continues to rise as widely expected, the risk of fire could increase further unless managed appropriately. But as with most other risks, fire losses may be preventable if mine operators take a few simple steps.

A combustible combination

First, it's worth placing this alarming trend in context. Fire was already a major threat on mining sites even before the latest spike. In a sample of 600 losses among FM Global clients over a 20-year period, it was the cause of one in five incidents.

Electrical arcing or shorting is the largest cause of fire on mine sites. Hot work and hot surfaces have caused over 50 per cent of fire losses.

It's also worth remembering that the number of fires is likely much higher than gets recorded in our data. Some losses are below the deductible threshold while others occur on sites that companies self-insure or the data isn't publicly available.

So, what's behind the worrying upward trend? A rise in the use of plastic equipment is undoubtedly a contributing factor. The issue isn't with the choice of material, it's that combustibility awareness hasn't risen at the same rate. Two recent fires on client sites in Australia and Canada involved plastic filtering screens – employees were doing hot work above the screens and they caught alight.

A change of approach

What's practical from a production outcome perspective requires more consideration of risk management. There are two issues that we encounter frequently – inadequate levels of fire protection and fire protection equipment that isn't installed properly.

FM Global is in the process of updating how our standards address protection for plastic equipment. This standard should be available to the public later in 2019.

The good news is that there is no need to wait to act. There are some quick fixes that risk management partners can help with. We recommend that mine operators consider the following:

• Do a proper hazard analysis prior to doing hot work – Consider things like flanging off pipes so that fires in one vessel will not spread so easily. Smart decisions around when to do hot work will go a long way in reducing fire risk.

• Limit the concentration of flammable materials – In many cases, if combustible equipment was laid out slightly differently, the risk of fire spreading would fall significantly.

• Consider the human element – When updating equipment, operators need to ensure consideration is given to updating safety-related processes and ensuring employees are aware of the changes. This is a change management issue. Having well-trained firefighting staff and equipment on hand is critical.

• Equipment maintenance is key – Many fires are caused by equipment failures, like seized-up bearings. Ensure equipment isn't running for long periods without being assessed for faults, as the result is often much more expensive than equipment downtime. There's a lot of new predictive analytic technology coming onto the market that's able to identify potential failures before they occur. FM Global is assessing this in order to make informed recommendations.

The evidence is in and fire prevention and mitigation must be prioritised on mining sites. Modern equipment has not been accompanied by a renewed approach to fire protection and the costs are growing.

As one of the largest contributors to the Australian economy, we can ill afford for this worrying trend of fire losses to continue.

This article also appears in the April edition of Australian Mining.