

## **Thiess Mine Maintenance Engineering Safety Catalogue**

### **Thiess**

#### **The Problem or Initiative**

The mining industry has witnessed major advances in plant and equipment in recent years particularly with respect to technology and size. These changes have resulted in new challenges for our maintenance personnel who need to continue to develop innovative ways to access and carryout maintenance activities safely.

Some of the core challenges to overcome are:

- Protection from heights as a result of the significant increase in the physical size of our plant
- The ability to manage the increase in componentry and tooling weight, again a result of the increasing size of equipment
- Providing ergonomically sound solutions to carryout work, reducing the risk of sprains and strains or hand injuries
- The removal of slipping and tripping hazards while carrying out maintenance activities

Many of our maintenance personnel have great ideas about how to overcome safety challenges while completing maintenance tasks. After all, these are the people who are doing the job day in and day out and who will experience the dangers firsthand if the proper measures aren't implemented.

The problem in the past has been:

- The absence of a consistent and dedicated process and resources to bring our people's ideas to fruition, and
- Providing a sustainable method to communicate and promote the use of our ideas across our sites

Thiess places great importance on ensuring our projects are interlinked, particularly with regard to safety and innovation. When pockets of excellence at individual projects were being discussed at weekly company-wide meetings, it became obvious that we needed a process and resource to enable the development and sharing of our solutions across the business. As a result, the concept of developing a Thiess internal catalogue of access systems, working platforms, fit for purpose barricades and safety devices access was born.

## The Solution

As previously mentioned, many of our maintenance employees have great ideas as to how we can overcome safety challenges while completing maintenance tasks, however the issue lies in providing them with a process to bring their ideas to fruition. The solution needed to overcome silo, resource and communication hurdles.

The process developed involved ideas being submitted and discussed with site management and the Archerfield workshop. The Archerfield workshop then works with the concept to produce technical drawings to further develop the concept. At this point, a decision is made as to whether or not manufacturing a prototype is a viable option. Any prototype is thoroughly tested and improved before moving into a trial period. Following a trial period, and any modifications or improvements that may be required, the product is then ready to be incorporated into the maintenance catalogue.

Most site based maintenance teams are focused on maintaining site equipment and are not adequately resourced to design and manufacture the various products and solutions put forward by our teams to overcome maintenance safe work challenges. Our Archerfield team were ideally placed to take on the responsibility of not only developing and manufacturing the various safety concepts put forward but also to take ownership of the development and maintenance of the catalogue.

Communication - Like many operating sites, Thiess relied upon internal and external safety alerts along with other standard organisational methods, such as emails and meetings, for the transfer of information. The problem with having various methods of distributing and transferring important information is that critical information can be missed or at times great ideas from the past can be forgotten after a period of time. By collating all our innovative ideas into a catalogue which can be continuously updated and made available to site, opportunities for improvements are not lost. The catalogue also reduces the likelihood of 're-inventing the wheel', a timely and costly exercise.

The resulting catalogue is structured by the equipment type and then the engineering solution. Detail of the tool's purpose and safety application is included in the catalogue.

Examples of initiatives outlined in the Archerfield Product Catalogue include:

- Off Highway Truck (OHT) Access Systems and Emergency Egress such as the Bumper to Ground (BTG) for ease of operator access, Diagonal Access Systems, Emergency Egress and Rear of Cab Access.
- Dozer systems - Front Access Platform and Step, Handrails and Diesel Tank Extensions.
- Maintenance platforms and access systems – multi-purpose systems for dozers, painters work platforms, diff/final drive platform, OHT chassis access platforms ("Stairway to Heaven") and strut lifting tools.

Thiess' Archerfield Workshop provides engineering and maintenance services to support Thiess' mining plant and equipment in the field. Our Archerfield workshop

also has the capability to engineer and manufacture some of the innovative and highly practical solutions that our operations devise to help maintenance crews undertake procedures more effectively and safely. With the exception of sourcing external certification for our safety innovations, Thiess have been able to develop the maintenance catalogue and the innovations included with our in house engineers and trade personnel.

With respect to trialling and testing, all designs meet the relevant Australian Standards and have been completed in collaboration with Archerfield and site personnel. The equipment is then tested and trialled in our Archerfield workshop. Where required (as was the case for loadbearing or lifting equipment) 3<sup>rd</sup> party certification is acquired.

The catalogue was developed and rolled out to all relevant Thiess personnel. Individual catalogue items are implemented by a transfer of products and information from Archerfield to the relevant site. More complex products such as hydraulically activated access systems are delivered to site with operating and maintenance manuals plus a separate installation guide. Site personnel are then trained on the use of these systems under the site Safety & Health Management System.

The catalogue itself is simply an administrative control to ensure that the ideas are well communicated and available for use by site. The individual catalogue products vary in the level of control, however where possible, elimination of the hazard has been sought. For example, one of the catalogue products, the “Ripper Frame Infill Maintenance Plate”, completely covers an existing hole during maintenance activities thereby eliminating the hazard of falling from heights. In other cases, barricades are used to provide a separation or engineering control to a hazard.

### **Benefits/ Effects**

There are many benefits to the catalogue which include;

- The provision of a process to bring great ideas to fruition
- The sharing of ideas across our sites
- A central depository for our ideas
- Easy access to developed products
- The avoidance of duplication and ‘re-inventing the wheel’
- The promotion of safe work environments
- A visual aid for people to assess the viability of a product for their site
- The catalogue provides a mechanism to cross fertilise ideas and enable others to think about different ways to approach maintenance tasks on their site.

The success of the catalogue is measured by the uptake by our sites. Not only have all our sites contributed to the development of the catalogue products and all sites have various catalogue products currently in use.

The catalogue has been rolled out across all sites and is in use across all sites.

## **Transferability**

The product catalogue has been a collective effort of all parties within the Archerfield Workshop team over the last two years. It not only supports Archerfield's activities but also other Thiess workshops with a selection of different access systems to suit numerous items of mobile plant. It is extremely transferable and is in fact in use across all our sites.

## **Innovation**

While the concept of a catalogue is not new for a sales organisation promoting their products externally, the approach has been a new way to promote safety within our business and we believe it takes internal promotion of safety to another level. Using the catalogue format is something our team haven't come across during their time in the mining industry however we cannot be certain that the idea has not been previously used.

## **Approximate Cost**

The cost to produce, update and distribute the catalogue is low. The responsibility for the catalogue is shared between existing Archerfield staff and written into safety management procedures so that the costs are incorporated in to the Thiess Health and Safety Culture.