

CRUNCH TIME

IRVINE ENGINEERING (WA) PTY LTD

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CRUSHING & SCREENING CONTRACTOR NEWS UPDATE

Autumn 2007



Greg North

A year of zero lost time injuries

We are extremely proud to have achieved zero lost time injuries (LTIs) on all our sites and in our Maddington workshop for the last 12 months.

Taking into account the amount of loader movement and the proximity of other equipment it was particularly satisfying to record zero LTIs at our crushing facility at BHP Billiton's Nickel West Kambalda concentrator site.

The achievement of zero LTIs during this period reflects the diligence of our site managers and workshop staff and the continuing co-operation from our clients on site. It is also clear proof of the fact that our safety plans are being implemented.

Commenting on the achievement, Greg North, our OH&S Manager, says it is a most satisfying result. "However, there will be no let up in constantly evolving and improving our OH&S plan. Our ongoing goal is to ensure that all staff members show a total commitment to the welfare of their fellow workers.

"This means providing them with the know-how so essential to the effective implementation of any plan. That is why continuous training is my top priority. We regularly train our people in-house in the safe operation of mobile equipment with the co-operation of our registered training organisation. In addition, our people are sent to specialised external OHS Representative training courses.

"Currently Steven Cowan from our workshop and Justin Harris from our Kambalda site are attending this particular course."

According to Greg, Rapid Crushing is also in the process of introducing key performance indicators (KPIs) for all employees and structures in order to track, record and remedy incidents.

Minimal environmental impact at Cape Lambert

Minimising the impact on the environment was one of the major factors which had to be addressed when Rapid Crushing recently embarked on a project to produce the road base aggregate required for a new construction camp at Cape Lambert in the Pilbara.

The camp, when completed, will house 400 people due to work on the \$1 billion expansion of Cape Lambert port.

Having considered the required output for 2,000 t/day of -22mm aggregate, Rapid decided to use a three stage modular crushing plant, three front end loaders and three generator sets to provide the required electric power.

Rapid concluded that an electric powered modular plant would be the most efficient and reliable solution for this particular application.

With environmental concerns paramount, run off water was used for

dust suppression. Additionally, instead of quarrying new stone, use was made of a nearby stockpile containing the by-product of a previous project in the area.

According to Rapid's North-west Area Manager, Frazer Hayes, the project was completed without any significant problems, except for three minor delays caused by cyclones.

"Rapid concluded that an electric powered modular plant would be the most efficient and reliable solution for this particular application"

Rapid maintained zero LTIs for more than 5,000 hours throughout the course of this contract. In fact the company's operations have been accident free for the last three years on North-west/Pilbara projects - a total of 37,098 man hours.

Rio Tinto's expansion of the Cape Lambert port will allow a further 25 million tonnes of iron ore to be exported through the harbour per year taking the total export amount to 80 million tonnes. Work on the expansion should be completed by the end of next year.



Black Swan Mine spreads its wings

When the Black Swan Nickel Mine moved to expand production it had to decide what action to take to ensure that it had the crushing capacity to produce the volume of material needed by its new high capacity milling circuit.

One of the options was to install a new crushing plant to augment its existing crushing facility. However, taking into account the future life of the mine, this was not considered to be the best course of action at this time.

Uninterrupted production

As a result a decision was taken to contract Rapid Crushing to provide additional crushed material for the mill. Initially Rapid was contracted to operate one shift a day.

However, it became apparent that, in order to ensure uninterrupted operation of the new high capacity mill, it would be desirable to significantly increase its buffer stockpile.

This would then allow both Black Swan and Rapid Crushing to plan ahead for programmed maintenance shutdown periods with the comfort of having at least one plant operating to maintain feed to the milling circuit.

Rapid Crushing was then requested to switch to two shifts until an adequate buffer was created. Having achieved this Rapid now helps maintain the stockpile by working two shifts and taking breaks when the stockpile reaches the required level. The end result is a well managed continuous flow through the plant.

The double toggle primary crusher and radial stacker/conveyor used on the site by Rapid Crushing is capable of producing 2,500t of material per shift. It is a fully self contained, electrically powered plant, with its own generators.

Black Swan's operations, located 53 km northeast of Kalgoorlie, commenced production in 2004 with a current mine life in the region of five years.

The upgrade project, "Black Swan Disseminated 2" (BSD2), was announced by LionOre in 2005. BSD2 was implemented to increase production and mineral reserves and reduce cash operating costs at the Black Swan operation.

It involved two components: an expansion of the existing open pit mine and an upgrade of the processing plant capacity to 2.15Mt a year from 0.6Mt.

As a direct result of the upgrade, the open pit has become the primary ore source for Black Swan, accounting for approximately two thirds of payable nickel at full production.

Congratulations

In today's climate of strong economic growth and a 2.7% unemployment rate, WA's employees have many more choices when it comes to getting a job. This has led to staff shortages in some areas.

Fortunately, we at Rapid have not been affected to any major degree by these shortages. We are grateful to the many loyal staff members who ensure that we can continue to provide levels of service to our customers that they are entitled to.

In this issue we congratulate the following newer members of our team who have just notched up one year of service. They are: Rick Temme - plant operator, Terence Hunter - apprentice boilermaker, Greg North - OH&S Manager and Alex Lawrence - plant operator.

Have you ever lost out taking the cheapest price?

Have you ever got lost taking a short cut? Well, when it comes to crushing, taking a short cut can have a much more damaging effect. It could leave you saddled with a significant financial loss.

Obviously, time and money are always important considerations. This is why mine operators are sometimes tempted to take the cheapest price. However, always make sure to talk to experts who can give you the right advice about exactly what you need in your crushing application.

Remember that while the cheapest price may be acceptable in some applications it can be disastrous in others. Failure by your contractor to have back-up plant capacity in a remote location could prove extremely costly - eg failure to meet shipping deadlines.

We price our quotes to give you the equipment you will need to do the job properly and safely. In your interests and our own we do not compromise on quality or the safety of our equipment and personnel.

Keep in mind

Mobilising of crushing equipment can be time consuming both logistically and technically.

So help us to help you by giving early notice of your requirements. This will enable us to reconfigure equipment to your requirements and get your plant operating when you need it.

Remember to have in place the cranes and other support gear, which we will need to assist us in the unloading and erection of our plant.

When you approach us for a quote on a tonnage basis, please have available the various ore specification indexes.

We need information on three components in order to come up with a tonnage rate. They are the work index WI (crushability of the product), the abrasion index (AI) and the MPa index (compressive strength).

Please also clearly indicate IN and OUT costs. For example, specify who is to provide services such as power, fuel and accommodation, dust suppression and water supply.

Doing it right can make all the difference



MODULAR PLANT

A typical electrically powered modular plant mounted on wheels and bases.

With many conflicting claims around it is sometimes difficult for mine operators to decide on the crushing option best suited to their needs.

For a mine with a high output and a projected long life there is no problem in making a choice. Such a mine will normally opt for a large fixed crushing plant, particularly where it is clear that the plant will not have to be moved in future.

However, the difficulty arises when it is necessary to make a choice between modular crushers on wheels and/or bases, and mobile crushers mounted on tracks.

At the outset it is important to point to the differences between these two options. Most mobile crushers on tracks are imported. They use diesel power and sometimes have to be adapted in our workshops to make them suitable for the harsh mining conditions encountered in Australia. Because they are self propelled they can be moved around site easily.

Modular crushers on wheels or bases are less mobile. Cranes and/or prime

movers are required to relocate them. They are electrically powered by their own generating sets and are generally more reliable than the track mounted counterparts. However, because they are manufactured in our own workshops, these modular crushers are constructed to withstand Australia's harsh mining conditions. Modular plant usually takes more time to set up / pack up on site. But this extra cost can be more than offset over time by the quantity of tonnes crushed at a lower operating cost per tonne.

In summary, modular plants are more reliable and robust and generally more cost effective. Against this is the fact that they take longer to set up and relocate.

In our experience modular plants are usually the better solution for outputs above 50,000 tonnes. They are also often the best choice where relatively frequent relocation is not required.

Conversely, track mounted crushers would generally be the best option for outputs below 50,000 tonnes particularly where frequent relocation of the crushing plant is necessary.



TRACK PLANT

The various units in this crushing plant are track mounted.

Mining 2006 paints optimistic picture



The recent Mining 2006 Conference in Brisbane gave us a good opportunity to exchange ideas on crushing and screening processes with some of the 700 delegates from throughout Australia who participated in the event.

It was a welcome opportunity to renew contacts with many West Australians who represented a sizeable percentage of the 700 delegates.

Also, it allowed us to gauge opportunities in Queensland with a view to possibly establishing a presence in this rapidly growing state.

At the conference there were presentations by explorers, producers and governmental development bodies on the future of mining in Australia.

These sessions and the personal contact with delegates were invaluable in ensuring that we are kept up to date with your priorities when it comes to crushing.

They also gave us greater awareness of the bigger Australian mining picture.

We were pleased to interact with exploration companies in order to get a better understanding of the needs of those involved in the early stages of the mine development process.

Thanks to all who found the time to talk with us at our display booth.

Neil takes to the track

Some of the success Neil Irvine has achieved as the founder and MD of Rapid Crushing seems to have rubbed off on his newfound hobby as a racehorse owner.

One of Neil's horses, Maximus Dignitas, has achieved an impressive record, winning four races, coming in second four times and running third on three occasions. Three of the horse's four second places were photo finishes.

Neil says the sport has proved invaluable in relieving some of the stress that comes with running a business of the size of Rapid Crushing.

"If I wake up at 4am I no longer lie in bed thinking about business. Instead I get up, go down to the track, watch the horses work, chat to the trainer and staff over a relaxing cup of coffee and then head off to the office with a clear head."

Not surprisingly Neil's first racehorse was called Crushing. However, because of hoof problems it had to be retired.

Maximus Dignitas

Since then he has acquired a number of racehorses of which Maximus Dignitas has been the star performer.

Because of its impressive record in WA, consideration is now being given to possibly trying the colt out on the more lucrative Melbourne racing scene.

So keep an eye out for the name Maximus Dignitas. Neil also hopes that two of his other acquisitions, Proart and Rock My Pago will soon also see their names up in lights. So look out for them too.

And next time you ask Neil for a tip be sure to specify whether you are talking crushing or horses.



The success achieved by Neil's horses is clearly displayed on a wall in his office.

Keeping it straight and simple

For the past few years, Rapid Crushing's Electrical Supervisor, Paul (Budgie) Harris has been working hard at ensuring that the electrical systems used to power the company's crushing installations are as simple as possible.

Whenever one of the company's crushers is upgraded in its workshop, Budgie is there to ensure that the electrics are modified with simplicity in mind.

This, he says, not only ensures greater reliability but makes it easy for on site electricians to quickly correct any problems that may occur in the field.

Budgie says it is generally appreciated that electrically powered crushing systems are more reliable than their diesel powered counterparts.

This makes them the first choice for higher output applications, particularly where relatively frequent plant relocation is not required.

Getting it right

What is often not fully appreciated is what goes into ensuring that the right amount of electrical power is delivered to the plant safely, quickly, reliably and cheaply.

"This is not always simple as one is often faced with electrical modules produced by different manufacturers. No two plants are exactly the same and modifications are often necessary.

"Also, it is essential to ensure that electrical installations meet Australian standards and varying site requirements.



"In the end it takes some experience to make the right choices when setting up the plant on site."

Ever since qualifying as an electrician in the Riverina, Budgie has enjoyed the wide open spaces and being his own man.

At the age of 20 he set off to travel around Australia, picking up work as he went along.

Five years later he ended up in Geraldton, where he worked as a contractor.

It was during this period that he got to know Rapid Crushing while serving as a contractor at the company's quarry in the area.

When he moved to Perth, Neil Irvine was only too pleased to get Budgie onto the company's permanent staff.

Budgie is a real outdoor man. "I couldn't work full time in a workshop," he says. This is reflected in his leisure pursuits.

The father of two girls, he enjoys fishing and riding his motorcycles.

Equipment you can rely on

Our purchase of two new Komatsu Series WA 500-6 loaders will help provide us with the loader capacity we will need to meet the requirements of future projects until the year 2010.

The delivery of the loaders to our Kambalda operation comes after the purchase last year of Komatsu WA 600-6 and 600-3 machines as part of an upgrading program to provide new loaders to operate reliably on a 24h/day basis.

Komatsu machines now form the overwhelming majority of our handling fleet.

We find their reliability and the good support offered by Komatsu critical to the success of our crushing operations.



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