

Owner versus contract miner: a South African update

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Over the past decade in South Africa, there has been a significant increase in the number of mining operations, both open pit and underground, that use independent contractors to carry out mining activities. Frequently, mine owners will choose the contractor option without fully understanding the consequences of this decision. Traditionally, contract mining has come at a cost premium of about 15% to 20% compared to owner mining. However, due to the large number of junior mining companies entering the mining arena in South Africa, contract mining rates have increased, with cost premiums as high as 50% being reported.

This paper looks at the merits of owner mining *versus* contract mining and describes under what conditions each option may be favourable. In addition, the methodology of entering into contract negotiations with the objective of establishing a fair and sustainable relationship is discussed.

Keywords: Contract mining, owner mining, contract mining negotiations.

Introduction

Over the past decade in South Africa, there has been a significant increase in the number of mining operations, both open pit and underground, that use independent contractors to carry out mining activities. Surface mining, for example, may use contractors to conduct drilling and blasting or load and haul operations. Underground mining may contract out work such as shaft sinking, mining, support, construction work, cover drilling, sweeping, and vappings. Common surface operations such as mineral beneficiation, waste disposal, security, and product transport may also be outsourced to contractors.

Many companies have a business model that utilizes contractors for the entire mining cycle, maintaining a small head office to provide direction and control. The difficulty with this option is that mining companies will often choose the contractor option without fully understanding the implications.

This paper reviews some of the better-known arguments about contract *versus* owner mining, as well as offering advice about establishing and managing the relationship between owners and contractors.

The role of contract mining

Many junior companies have gone the route of contract mining and processing, with the mining company directing the business but allowing contractors to conduct the day-to-day operation of mining and/or processing. One of the fundamental differences between junior mining companies and large corporate mining houses is the availability of expertise. This plays an important role in deciding when to use a contractor or to conduct owner mining. If a mining company does not have the necessary expertise, then contract mining is a prudent choice. For example, most platinum producers will make use of contract mining for open pit operations, as surface mining skills are generally not available in-house.

The following project areas have been identified by Dunlop (2004) as those that should be reviewed when considering the use of contract mining.

- Drilling – may require a specialist contractor if not a straightforward process
- Blasting – usually is not a core activity, with low equipment utilization and specialised skills
- Loading – can influence productivity, operating costs, flexibility, and grade control
- Hauling – a major cost area. Fluctuating fleet size (from year to year) may be a factor
- Day works – if a project has a large day-works component, then owner mining will be preferable
- Ground conditions – uncertainty would make contracting out a more risky proposition
- Water inflows – contracting out may have a higher.

In the underground mining environment, contract mining often offers a significant advantage in being able to achieve high advance rates, generally higher than owner-operated. Current owner-operated mining rates in South Africa are of the order of 60 m to 100 m per month. Australian contracting crews operating a jumbo drill rig underground have reported advance rates between 200 m and 300 m per month. Development rates of this order justify contract mining.

Many new projects in southern Africa are investigating decline development in preference to shaft development. High-speed decline development, similar to shaft sinking, is an area that mining companies generally lack the in-house skills to pursue. Contractor mining becomes a suitable option by possessing the necessary skills to conduct specialized work.

The following highlights the areas where owners may elect to make use of contractors:

- Projects in which owners do not have the necessary skills or experience to carry out the work
- Projects that require specialized skills, such as shaft sinking, decline development, and major construction work
- Operations with variable production or stripping rates, where equipment requirements change on a regular basis
- Short-term projects where the services of employees would be required only for the limited duration of the project
- Projects where contractors offer superior service compared with the owner's team
- Projects where the contractor can offer specialized equipment or techniques
- Areas where full-time employment is not required, for example office cleaning
- Non-core business activities.

Benefits of contract mining

Contractors can provide a number of advantages to mine owners. They offer economies of scale and scope through access to capital equipment and human resources both in mining and in technical areas such as mine management, plant operations, mine planning, and materials handling. This can result in optimized mining, plant and, equipment utilization rates and labour productivity. Contract mining may also minimize the owner's capital exposure, which allows the company to better utilize limited cash (capital). In some cases the use of a mining contractor can also serve to equip or re-equip mines with restricted capital budgets.

Contract mining is fundamentally about managing risk. Contractors manage risks around workforce availability, occupational health and safety, and environmental incidents. Contractors are able to benchmark their operations across a range of mines to maximize efficiencies. Contract mining also provides a great deal of flexibility in that they can adapt more readily to fluctuating market cycles. As demand picks up, contractors are able to quickly add manpower and equipment resources as production requirements increase. In times of a slowdown it may be possible for the contracting company to move resources to other operations, thereby reducing the risk of retrenchments or equipment remaining idle.

Hiring of contractors offers the benefit of lower administration costs and other costs to company charges such as sick time and training. Contractors can save the time and expense of sourcing and recruiting workers; recruitment can be undertaken within days rather than weeks if sourcing personnel internally. The day-to-day management of the workforce also lies mainly with the contractor.

Concerns around contract mining

Two of the biggest concerns with the use of contractors are the increase in costs and the loss of intellectual property. Costs are discussed in more detail later. The loss of intellectual property can affect operations in that continuity of knowledge or decision-making can be lost when there are changes in contractors. For example, geological knowledge and mine planning are critical to mining operations, yet this information/ knowledge can often be held with the contractor(s), leading to inefficiencies, as work is often redone when previous knowledge and learning outcomes are lost with changes in contract personnel.

Recent South African experiences

The following sections discuss recent experiences in South Africa around contract- and owner-operated mining projects.

Example 1 - Aquarius Platinum vs. Moolman's Mining – Marikana Pit

An example of a contract *versus* owner disputes is the 2005 Aquarius Platinum dispute with Moolman's Mining. The two companies disputed a R100 million foreign exchange component of the rise and fall component of the contract. In December 2005, Aquarius Platinum opted to rescind the open pit contract with Moolman's after realizing a R117 million loss for the year ending in June 2005. The dispute continued until 2010, and when it was finally resolved

Aquarius Platinum paid R86.8 million plus interest and legal fees to Moolman's for work that had been done but not paid for due to the dispute. Although the dispute was finally resolved, a great deal of resources were diverted from operational issues to address the legal issues of the dispute.

Example 2 - Coal mining disputes

In the past two years, a junior mining company listed on the Johannesburg Stock Exchange (JSE) replaced its mining contractor twice on its opencast coal mine. Mining commenced in May 2010 based on a contract mining scenario. However, in June 2012 a new contractor was appointed. A year later, the company entered into litigation with the second mining contractor, and cancelled the contract. The mining contractor is claiming unpaid contract fees.

These examples illustrate some of the potential consequences when the risk of contract mining is poorly understood. The selection process is important, and both parties must fully understand the importance of the mining company's requirements, mine planning, the production schedule, marketing requirements and the time it takes to reach steady-state production.

In March 2011, Wescoal, a JSE-listed company, entered into a dispute with its contractor mining company with the mining contractor claiming that Wescoal fraudulently overstated its coal reserves. Wescoal denied this, describing the contract mining company as a disgruntled contractor that was claiming R15.2 million without justification. Ultimately, this claim was resolved in favour of Wescoal; however, Wescoal's share price dropped 50% during the dispute period, costing the company both money and critical management time (Wescoal, 2012).

Example 3 - drill and blast contract

A third example of poor understanding of the contract *versus* owner mining is where another JSE-listed company decided to terminate the opencast drilling and blasting contract with the intention of improving drilling and blasting productivity and reducing operating costs. In hindsight, the company underestimated the technical requirements of drilling and blasting and suffered from a number of technical issues. Pit floor and sidewall conditions deteriorated due to by poor drilling and blasting practices. Further difficulties included poor fragmentation, an increase in fly rock, and higher operating costs associated with the drilling and blasting activities.

Contract vs. owner-operated mining

Recent negotiations with mining contractors that have been involved with project development at the onset of the project, *i.e.* scoping studies, prefeasibility studies, have proved that as a project advances toward implementation there is an upwards creep in the actual contract rate. The author has observed contractor's rates increase as much as 65% between a prefeasibility study quotation and actual contract price. In such instances, project owners are often forced to pursue the contractor scenario at unfavourable rates as the owner is not set up to conduct owner mining nor has sufficient lead time or finances to purchase capital equipment.

It is evident that there is no clear method for choosing whether or not to use mining contractors. Clearly, like any business arrangement, both parties need to enter into a contract with their eyes wide open. The following sections investigate situations where contract and owner mining scenarios are appropriate.

Some of the main issues that should be considered when considering whether to use contractors or to conduct owner mining are:

- Safety
- Corporate
- Project specific
- Operational
- Cost
- Risks assessment.
- (after Kirk, 2000).

Safety

Perhaps in the past contractors were seen to be elitist, aiming at achieving the bottom line and paying little attention to safety. This perception has changed with contracting companies taking safety every bit as seriously as the mine owners. In at least one instance, a contract mining company was selected due to its impressive safety record and the safety and health administrative system it had to offer. Owner mining, however, enables the owner's team to have a more direct role in establishing and controlling health and safety issues.

Corporate

The decision whether to implement contract mining or owner-operated mining is a corporate decision. The corporate structure of the mining company has an influence on the choice of contractor or owner-operated mining. Large experienced companies whose core business is mining often prefer their operations to be controlled and managed by the owner's team. For junior mining companies the option of contract mining is quite common, as juniors often lack sufficient experience to carry out mining operations on their own. In other situations, like joint ventures, it may be useful to use contractors to make the agreement more amenable to both parties.

Project-specific

Project-specific issues regarding contractor or owner mining are life of mine; mining rate and variability of the mining rate; availability and experience of personnel; project management issues; and financial limitations.

Contractors provide an advantage when a project has a short life, as equipment is not fully utilized. A contractor is better able to supply equipment as required from its internal equipment fleet, whereas an owner-operated scenario would require the purchasing of equipment for the full term of the project life, regardless of the equipment's utilization over the life of the project.

Starting a new mine in a remote area presents challenges to mining companies as often the local labour pool lacks the skills required to operate large specialized equipment. Contractors offer the ability to quickly deploy and supply skilled, trained, and experienced personnel from their internal human resource pool to remote locations and to support the transfer of mining skills to local personnel.

In other cases, contract mining may offer expertise that is not always available within the owner's team. This may be due to a change in the owner's mine design or mining method *i.e.* surface *versus* underground or a change in the style of mineralisation.

When a project has labour issues, either a shortage of skills or labour strife, a contractor can assist by bring in existing crews from the contractor's labour pool. The size of this human resource pool also allows contractors to respond to changes in the projects requirements.

The downside to the use of contractors is that the owner does not have direct control over mining activities or health and safety issues. However, if mining activities represent the critical path for project implementation it may be valuable to utilize contract mining to expedite progress – for example, to conduct pre-stripping activities and establish of box cuts – albeit usually at increased costs. .

Operational

Operational issues such as industrial relations, equipment selection and flexibility, grade control, mine planning, and production scheduling all play a role in the decision-making process. Again, human resources and the availability of technical skills play an important role in mining operations, and labour relations are probably one of the most critical issues to be considered. Although contractors are responsible for managing their own labour, owners must be aware that they are not immune to industrial action, regardless of whether the labour force is employed by the contractor or the mining company.

Grade control is also an area where owner mining tends to be more diligent. Payment terms often will dictate how a contractor will behave and although tonnage drives mining operations, quality is equally important. Mine planning is a vital aspect to consider, as mining companies need to ensure that mining planning and production scheduling address the requirements of the life-of-mine plan and not just short-term objectives, which may influence bonus payments or other short-term operational issues such as overburden stripping, stripping ratios, and the establishment of boxcuts.

As previously discussed, a variable mining rate may require a swing of equipment requirements, which may make mining contractors best equipped to resolve this situation.

Costs

A shortage of capital can also justify contract mining, as the contractor's operating cost/rate is inclusive of the capital cost of the contract, thus owners are paying for the use of the contractor's capital equipment in a 'pay as you go' manner. An added advantage is that as contracting companies purchase equipment on a regular basis, they are usually able to secure better commercial terms for equipment. Contractors should also be able to deliver greater efficiencies with effective work performance, thereby providing greater value for the owner.

Costs should not be the only driving factor in the decision to use a mining contractor. 'Cost plus' contracts may seem ideal as the owner views the contractor's costs and pays a premium on the operating costs incurred. However, inefficiencies may be hidden and owners should look beyond just costs and ensure that other operational issues are also addressed. For example, is the mining equipment being fully utilized and is the mine plan optimized? Or, is the contractor using what is readily available in the contractor's yard? Utilizing incorrectly sized equipment can lead to

unnecessary increases in the number of mining units, personnel, and operating costs. Selection on a cost basis only may lead to inexperienced or undercapitalized contractors coming on board.

Once in operation, reversing a poor decision can lead to major delays and issues. The opposite can also be true – the author has experienced a mining contractor being squeezed so hard by the owner's team that in the end the contractor became insolvent, leaving the owner with a three-month period where no mining took place, which severely disrupted the owner's sales commitments and cash flow.

Relationship between owner and contractor

To be successful the mine owner and the contractor must understand each other's business and trust each other. Both parties exist to make profit, and if either party fails the contract will fail. Contractors need to understand the mine owner's expectations, requirements, and quality constraints in order to deliver the optimum outcome. Likewise, the owner needs to understand the realities of mining, production and stripping considerations, and other operational issues. Owners and contractors should establish and manage the relationship between both parties with the aim to remove barriers, encourage maximum contribution, and allow both parties to achieve success and optimize the project outcomes.

Many mine owners have expressed the view that if there is to be a progression towards improving relationships, contractors need to address a number of shortcomings. For example, the contractor's project staff must be required to be fully responsible for all aspects of the project and, in particular, for the performance of subcontractors. The contracting company needs to accept responsibility for the selection, training, and performance monitoring of its staff.

Contract considerations

Mine owners need to remember that contractor's rates often include a provision for perceived risk. Therefore, it is important that the contractor's risk is limited to performance and availability specifications. For example, the contractor cannot be held responsible for shortcomings in the geological model, but would be expected to mine to a defined mining width suitable to the equipment selection. The following should be considered when appointing a contractor.

Invitation to tender

Mine owners must consider the qualification of the potential tenderers, for example, the size of the company and its ability to fund the project. The experience of the company and local knowledge are also important when selecting potential contractors.

Site visit

It is important that the potential contractor be offered an opportunity to visit the project so that site conditions that could influence the contract price can be observed. For example, the geotechnical and geohydrological aspects should be investigated prior to mining operations.

Scope of work

It is important that the scope of work is clearly and accurately defined in the tender document so that the contractor can accurately price the job and to prevent confusion and possible conflict. The tender should, where possible, indicate variable conditions such as rock hardness and haulage distances. A detailed mine plan should be developed in order to achieve the best and most accurate schedule of rates. A continually changing of the mine plan and production schedule will make it nearly impossible for a contractor to firmly commit to a long-term schedule of mining rates.

The following should be considered by both contractors and mine owners:

- Clarity of definition and understanding of the project scope of work
- A clear understanding of the risks in the project and an appropriate allocation of the responsibility for managing those risks
- A risk/reward sharing arrangement that rewards a superior project outcome and attaches a financial penalty to sub-optimal performance
- The issues of risk allocation and risk management are constant topics between mine owners and contractors

Contract duration

The contract duration will influence the price of the contract. A contract of three to five years is preferred as this will allow the mining company to replace the contractor for poor performance, or alternatively to change to owner-operated mining.

Contract adjudication

In addition to financial adjudication, it is important that a technical adjudication is also undertaken. Areas such as mining experience (proposed mining method, drilling and blasting expertise, and grade control), quality of work and cooperation, range of equipment, experience and labour relations, safety and standards, and planning capability and record keeping should be considered when evaluating tender documentation.

Payment and penalties

Contract rates are generally quoted in terms of bank cubic metres (BCMs) mined and payment made according to survey measurements. Extra day rates are charged on an hourly basis and if not properly managed can lead to payment disputes. Thus, it is important that the mine owner and contractor both clearly define and understand the method of measurement and payment.

Penalties are normally applied for poor work performance by the mining contractor. Production shortfalls can normally be made up in the following weeks or months; therefore it is important that the contract is structured in such a way that encourages the contractor to make up any production shortfall as soon as possible.

Escalation

The escalation formula is normally based on nationally published indices for fuel price, labour, spares *etc.* It is important that a fair method is established to calculate escalation in the contract.

Contract management

A successful working relationship between a contractor and mine owner often depends on the individual personalities of the parties concerned. Continual conflict between the working parties, *e.g.* site/contract manager and mine manager/owner representative, will usually lead to poor operational efficiencies.

Many existing contractual relationships, particularly traditional types, lead to adversarial behaviour between the parties, which have a negative effect on project outcomes. The use of modern-day alliance models and their benefits to the owner and contractor should be investigated. The goal between mine owner and contractor should be to foster a strong work relationship, and establish a win-win situation for both parties.

Contracts should be flexible enough to accommodate small changes or variations in scope, sequence or volume without the need of variation orders or without the threat of contractual claims. The quality of the contract document is important as it can cost or save the company lots of money. The use of a professional to assist with contract documentation should be seriously considered.

Most mine owners are prepared to consider forms of risk sharing and gain / pain sharing if it can be demonstrated that such a system will benefit the project outcomes. However, in some instances, there is a degree of suspicion that needs to be overcome before an open relationship can be formed between owner and contractor.

Finally, common sense must prevail. Mines are unique in nature and therefore implementation strategies will differ from mine to mine. In commencing tender documentation as much information as possible should be provided. The more informed the contractor – the less the risk, which should be reflected in the overall price of the contract.

Conflict resolution

Mining owners and contractors often neglect the dispute resolution clause in the contract as no-one wants to contemplate a dispute between owners and contractors, especially at the beginning of a contract. However, it is important to define conflict resolution in contracts, as there are far too many examples of litigation lasting over a number of years. It is not in the interest of either parties to divert resources and money to resolving conflict issues and in the long run no single entity can claim victory, as contract disputes can be costly and time-consuming. Both parties should be prepared for conflict, and creating a properly and well-defined resolution structure could help to resolve issues without seriously affecting the working relationship.

Contract mining in a changing business environment

The South African working environment is constantly changing, a fact that has become more apparent with the 2014 platinum strike. The contractor model may be under threat with the new demands of labour. Mining companies need to ensure that contractors address worker and industrial relations, particularly in specialized high-risk work areas. Contract mining may be viewed by unions as labour brokering and this could lead to labour disputes. The decision to use of contract mining should be a transparent process, with labour understanding the circumstances when specialized skills are required

Conclusions

Contract mining can offer distinct advantages when properly implemented and managed. However, owners must fully understand when to use contract mining and when to pursue owner mining. Regardless of the decision, it is important that owners fully appreciate the technical and economic merits of the operation. Mining companies must understand the mining method, the production rate, equipment requirements, and operating costs in an owner-operated scenario, *i.e.* a base case from which to make an informed decision. In the future, South Africa may need to become more sensitive to mine labour when proposing contract mining and use contract mining only where skill gaps exist.

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