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THE ROLE OF THE SPECIALIST IN INDEPENDENT EXPERT REPORTS

Andrew Chuk

AMC Consultants (AMC) has participated as a Specialist in numerous Independent Expert Reports (IER's). In Australia, the definition applied to both the role of the Independent Expert and the Specialist is found within ASIC Regulatory Guides 111 and 112. In summary, the specific brief of the Specialist is to provide advice to the Expert in the form of an independent technical assessment of the company's assets to assist the Expert in preparing a valuation of those assets and related advice to investors. The Specialist is sought where the Expert identifies a lack of specialist expertise within its organisation. Given the technical nature of the mining industry, more often than not a Specialist is engaged by the Expert.

AMC follows a clear set of guidelines when approached to act as a Specialist. The capacity of the Specialist to demonstrate independence is a leading concern, not only for the Specialist involved but is an ASIC requirement for the Expert. Given AMC's experience in such transactions, independence (or lack of) can be established in a matter of hours. In general, independence is not compromised by AMC having provided technical advice to the subject company, but is compromised if AMC has provided strategic advice in the recent past.

AMC adheres to the principles of the VALMIN code when providing a Specialist Report. The VALMIN code is recognised by ASIC as a model of best practice. The fundamental principals that underpin the code are Materiality, Competence, Independence and Transparency. It is with these key principles in mind that the Specialist requires an undertaking by the Commissioning Entity to respect the Specialist's valuation methodology and

independence to act in accordance to the needs of the engagement. It is the strength of the communication of the corporate objectives of the Commissioning Entity, from head office to mine site management, that most impacts on the ability to achieve the required transparency. Engagements are often hindered and associated costs increased by lack of cooperation in obtaining operational information. To mitigate this risk AMC prepares a statement of required materials as part of the proposal process.

The AMC team needs to prepare a succinct but adequate picture of each operating asset as it currently stands. To do that they need to develop a good understanding, even if it is at an overview level, of the operation and to assess past performance in various areas to get a sufficient level of confidence in the databases and methodologies being used for forward estimates. They then need to become familiar with the forward estimates and the basis for them so as to be able to convey them to others and state confidence in them, while at the same time understanding the sensitivities that are involved and those issues which are material to achieving projected performance.

The AMC team needs to understand the orebody well enough to see that there is a reasonable basis for ongoing grade estimates for mining rates (of both ore and waste), mining methods, and for the projected metallurgical behaviour of the ore. They need to understand whether there are any plans for change of production rate or any constraints to the projected production rate and to assess the

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THE MARINE DIAMOND STORY, SOUTHWEST AFRICA

Randal Cullen

Diamonds eroded from kimberlites intruding the Kapvaal Craton in southern Africa have been transported to the Atlantic Ocean and re-deposited along 1000 km of the southwest African shoreline. Economically viable diamond deposits are found from the shore line to almost 200m water depth and are being mined at every scale from diver operated suction pipes to 165 tonne marinated crawlers. Annual production of marine diamonds exceeded 1 million carats for the first time in 2007 as shore based mining declined.

Marine Diamond Source Terrain and Transport Dynamics

Numerous diamondiferous kimberlite pipes are known on the Kaapvaal Craton, which extends through parts of South Africa, Botswana and Zimbabwe. The majority of these pipes were formed in the Cretaceous Period. During the intervening millennia it is estimated that the land surface of the Craton has been eroded away by wind and water to a depth of between 1 km and 1.5 km releasing millions and by some estimates, billions of carats of diamonds into the Orange River drainage basin which covers a large part of the craton. Alluvial transport has distributed these stones along the streams and rivers entering the Orange River and along the river banks of the Orange itself all the way to the Atlantic Ocean. Where the Orange River enters the ocean, diamonds are delivered to the marine transport system, (Figure 1).

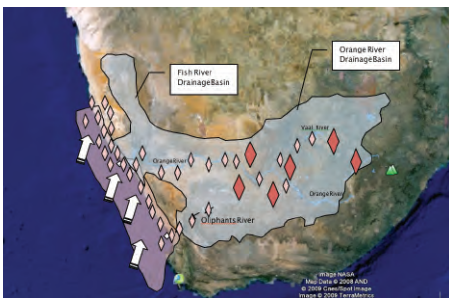


Figure 1. Large red diamonds = kimberlite fields; small pink diamonds = stones in transport; white arrows = wave direction, purple filled area = extent of marine diamond deposition.

Further complicating this picture is the channel capture history of the Orange River and sea level changes. Tectonic uplift has diverted the Orange outfall from the southern end of the west coast, currently

occupied by the Oliphants River, to its present outfall 500 km to the north, over 40 million years ago. In addition, beach strand deposits of diamonds can be found from 200m above to 500m below current sea level.

Northwest trending waves impinge the west coast of southern Africa creating a northward moving sediment stream. Sediment is constantly depositing and re-mobilizing as wave energy rises and falls, governed by the extreme weather patterns that swirl across the southern ocean.

Diamonds, being one of the heaviest particles in transport are concentrated into storm beach strand deposits, trapped in bedrock gullies, potholes and incised submerged river channels, distributed into log spiral embayments behind headlands and trapped in back reef quiescent areas.

The marine diamond deposit extends from 50 km inland to 300 km offshore and from the Oliphants River mouth in the south to somewhere north of Hottentot's Point in the north, a distance of almost 1000 km. Economic concentrations of diamonds are mined from 100m above to 170m below current sea level.

In addition to the purely marine deposits there are wind transported diamond deposits north of the Orange River along the seaward margin of the Namib Sand Sea. Gale force winds are generated where the hot air over the desert meets the cool air over the ocean in a corridor that extends from about 30 km inland to 30 km offshore. Wind speeds in excess of 50 knots are not uncommon. Diamonds are stripped from exposed storm beach deposits during peak wind conditions and re-deposited where headlands create energy shadows in the ocean where the shoreline is irregular and cuts across the wind transport channels, or where headlands deflect the winds seaward.

Diamond Size and Quality Distribution

The variable energies associated with this transport system and the sheer length of the transport path have served to sort the stones by size and quality. The milling created by fast moving rivers pushing diamonds along and banging them against each other and against channel bed

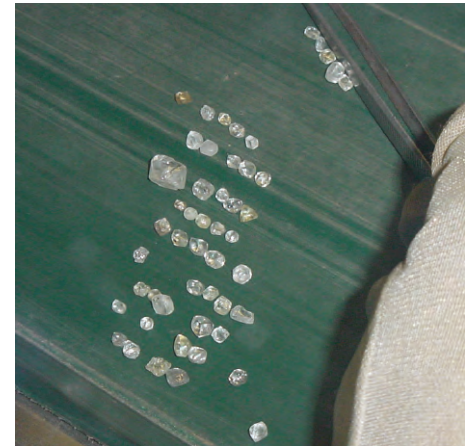


Figure 2 – Sort of marine diamonds following 6 hours of mining using a vessel similar to that in Figure 3. Smallest stone in the photo is 0.2 cts and largest is over 3 cts. Total value of depicted diamonds estimated as US\$6000.

boulders causes breakage of stones with internal flaws. This ensures that diamond quality increases with distance from source in the alluvial system. Add the rigors of marine transport and you have created deposits of diamonds on the sea bed that are in excess of 98% gem quality (Figure 2).

The opposite trend is seen in stone size. Near source, stones in the Orange River alluvial deposits are the largest, with single gem quality stones exceeding 150 carats. Stones valued at US\$3000 per carat are being recovered by companies like Rockwell Diamonds, employing conventional truck and shovel methods. Near the mouth of the Orange River, 500 km from source, large stones (100 carats) are recovered every few years but average stone size has declined to one carat per stone. The DeBeers marine operation working in 170m of water about 30 km north of the Orange River mouth recovers stones averaging 0.4 carats while ship-based operations 400 km further north

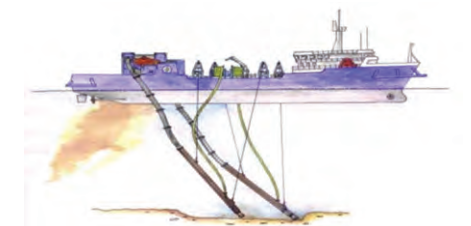


Figure 3. Inshore (30m – 100m) marine diamond mining vessel deploying two airlift pipes to excavate diamondiferous gravel and deliver it to an onboard diamond sorting plant. (Graphic by Charlie Heyes)

MESSAGE FROM THE MANAGING DIRECTOR



At the beginning of a new year we wish safety and prosperity for our friends and colleagues. Prosperity, or its alternative, will be driven by changes in markets that are entirely beyond our control. Safety we should be able to do something about. Is it time, in a new year, to revisit our approach to safety?

Research by Philip Tetley, a psychologist at the University of California, Berkeley, shows that people are not willing to consider trade-offs between "sacred" values such as a life and "secular" values such as money or efficiency. They consider such trade-offs to be morally outrageous. Although managers make them every day, the moral taboo prevents us from discussing them. Here is an example:

My new mine will allow outside visitors, without any induction or safety equipment, to crowd onto a viewing platform without any restriction on their numbers. The viewing platform will be above the height that regulation requires a safety barrier, but I will not provide one. From time to time one of the haulage units will pass at high speed very close to the viewing platform, and I rely entirely on the visitors to avoid being struck. I expect that accidents will happen from time to time and these will include fatalities. Do you think I am a responsible manager?

Of course, I have described a railway platform in any city. The staff of AMC, like millions of others, use these risky systems every day. Better designs, using glass barriers at the platform edge, have existed for several decades in some countries but have not been implemented in others due to cost. There are countless similar examples including public roads. The job description for a driver requires her to continuously operate several controls for hours at a time. The penalty for inattention to the directional control for two or three seconds is death. Someone has decided that the cost of roadside and centre safety barriers is too great and society has accepted this decision.

Until we are able to discuss the trade-offs that happen in our real world, we cannot begin to improve mine safety. Beyond a certain level safety costs money, but I may be pilloried for saying so because of the moral taboo. Years ago I predicted how many Lost Time Accidents would occur at a particular project based on industry statistics. The safety management team was outraged and assured me that their goal was zero accidents, yet the accidents occurred. It seems that no-one is willing to point out that the emperor is naked.

In times like the present, when many operations are struggling for financial survival,

we have to acknowledge that we can never provide a completely incident free working environment. The standards that we set in times of prosperity may slip at other times. Smaller operators with narrow margins are more likely to take risks. Until we are able to discuss what is reasonable in dollar terms, we are just looking the other way. The bottom line, at the risk of moral outrage, is that our society accepts traffic fatalities with a yawn but does not accept mining fatalities, and we don't even have a rational basis for the decisions that we take. I believe that many activities at many mines would fail a full-blown "case for safety" analysis. That is the real world. Perhaps in 2009 we can take our heads out of the sand and start the discussion.

Peter McCarthy
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recover an average stone size of 0.3 carats (Figure 3). Aeolian transported stones average 0.2 carats per stone by the time they reach the same point north of the Orange. These smaller stones are valued at US\$200 per carat.

Conclusions

The marine diamond deposits off southwest Africa continue to be enriched by transported diamonds to this day as erosion of the hinterlands continues unabated. The marine deposits easiest to exploit will become worked out, leaving the smaller (and richer) deposits trapped in reefs, boulder fields and deep sediment to challenge the ability of future marine miners.



Randal Cullen
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NEW EMPLOYEES



Steve Ely

Steve recently joined the Coal & Energy group in Brisbane as Principal Mining Engineer. He has spent the last 18 years working in various Technical Departments in South African coal mines and his primary expertise is in open cast planning. He has experience with several software simulation packages, with emphasis on dragline and drill & blast operations.



Marnie Pascoe

AMC is pleased to announce that Marnie Pascoe has joined the company as Principal Geotechnical Engineer based in the UK. She re-joins AMC following 3 years as Geotechnical Superintendent at Olympic Dam and 3 years with BHP Billiton Global Technology working on geotechnical and mining automation projects. Marnie's expertise is in rockmechanics, development and management of geotechnical systems, new technology identification and implementation, personnel mentoring and career development.



Lawrie Gillett, Director

Continued from Page 1

potential for upside to existing reserves. They need to physically see material aspects of the operation and its assets and to meet the managers to sign off on management status and practices.

Ideally the AMC team should have an opportunity prior to site visits to read the period reports for the previous three to six months, one of which should have the results for the previous operating year (e.g. the December report would presumably have the results for that year ended). For background, they should see summary figures going back further and be able to refer to cumulative life of mine production (ore, metal etc) to date. They would also obtain budgets and projections for the current 12 months and whatever else is available for the period after that, be it life of mine or a shorter period.

Depending on circumstances, the exercise of independence may require the Specialist to:

- Interview individual employees about their work.
- Talk to local businesses about their experiences in dealing with the company.
- Take independent samples and have them independently assayed.
- Speak to consultants to the company.
- Speak to local inspectors of mines about the company's performance.
- Hold frank discussions with individuals on the management team.
- Review any material reports and documents.
- Visit any part of the operation.

The Specialist will not necessarily believe or rely upon informal sources of information, but they provide invaluable guidance about what questions to ask

of the management, or where to look carefully at the operation.

The antithesis of independence is when the Specialist is denied access to individuals or groups, or is told that he may only interview members of the management team with the Operations Manager present, or is told that he may only rely on information provided by the company in formal presentations. The commissioning entity should take all reasonable steps to arrange productive site visits and unfettered information flow, recognising that both the operations staff and the Specialist have demands upon their time.

With the impact to the mining industry as a result of the current financial climate, it is expected that merger and acquisition activity will remain buoyant. In some cases merger remains the only defence against company assets being consumed by debt already secured. In this situation companies less debt laden have recognised the opportunity to acquire first class assets at levels unimaginable six months ago. For now at least cash sits comfortably on the throne of financial instruments, but with demand and commodity prices falling, cash is the precious commodity that is being carefully guarded. The cheque book will most likely remain under lock and key for now with scrip transactions remaining in favour. Although under certain circumstances a Directors' report may suffice, transactions requiring the consideration of the shareholders are best accompanied by an Independent Expert Report (IER).



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