PRE-ORE RESERVE REPORTING

By

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Abstract

Arising from prospecting success, the underlying worth of the shares of a publicly listed mining exploration company can increase many-fold. Prompt and accurate reporting during the exploration stage is therefore essential.

While there is scope for varying degrees of optimism or caution in statements about the future economic prospectivity of a mineral deposit which has been discovered, the directors of a mining exploration company have both a legal and ethical obligation to keep their shareholders and the general public fully informed as to the state of progress of, and significant factual results arising from its exploration efforts.

Suggestions are made as to the desirable form and content of exploration reports up to and including the time when the orebody has been delineated in terms of assured tonnage and grade.

The benefits which will flow from this greater disclosure are discussed.

Introduction

The Australian stock market is comprised of about 960 industrial and 225 mining equity securities, each differing from the others in terms of the various risk/reward parameters that investors are prepared to accept.

Although many non-mining shares are inherently more risky than their mining counterparts, it is generally recognised that as a group, the mining exploration companies have the greatest potential for substantial reward. As a natural corollary, exploration company shares run the greatest risk of loss of market value for the shareholders.

Most investors in exploration companies recognise the greater attendant element of risk, and generally they are hesitant to criticise the management of their companies provided they “get a run for their money”.

However in many cases the loyal shareholders have not been kept well informed by the company’s management of new developments and prospects and have consequently sold their shares when some price improvement has occurred, only to find that the share price has continued to multiply many-fold above the price at which they sold. It is not surprising therefore that many shareholders are reluctant to commit new funds to exploration companies.

The mining and the securities industries suffered much criticism during and following the aftermath of the 1960’s mining boom, and if similar criticism is to be avoided in the future, the reporting standards of exploration companies must be of a higher professional standard than they have been in the past.

It can only be to the advantage of genuine mining promoters and entrepreneurs if the incidence of fraud and deception through incomplete and misleading reporting is minimised.

With greater disclosure, it can be expected that share prices will be less volatile, and while this may be a cause for regret amongst some investors/speculators, it must surely mean that the management of exploration companies can go more conscientiously about their business of finding and developing mineral deposits, without the burden of having to spend an inordinate part of their time monitoring the fluctuations of the company’s share price.

While recognising the major advances which have been made over the last ten years in exploration company reporting, with the continued well-being of both the mining and securities industries, and the public shareholder in mind, this paper advocates higher professional and industry standards in reporting by mining companies. The need for greater and more accurate disclosure applies especially but not exclusively to reporting at the pre-ore reserve stage.
Definition of Exploration Activity

The activities of mining exploration companies can cover a broad spectrum from initial exploration, through to determination of commercial feasibility of a mineral deposit, thence to construction, production and possibly in due course further downstream diversification or integration, for example smelting of concentrates.

As ore reserves are a wasting asset and since successful exploration is the lifeblood of further growth (or of survival), it is uncommon for mining companies not to engage in exploration activity, be they junior companies or developed integrated groups.

As pointed out by The Institute of Chartered Accountants in Australia and the Australian Society of Accountants in their Exposure Draft on Accounting for the Extractive Industries (1973):

"The different phases of mining operations often overlap and it is frequently difficult to distinguish when one phase ends and the next phase begins. All five phases, exploration, evaluation, development, construction and production, may occur in one company at the same time, but at different areas of interest."

For the purpose of this paper only two definitions need to be stated. Those used by the two aforementioned organisations are suitable.

"Exploration" means the search for a mineral deposit or natural gas field which appears capable of commercial exploitation by an extractive operation. It includes topographical, geological, geochemical and geophysical studies and exploratory drilling.

"Evaluation" means the determination of the technical feasibility and commercial viability of a particular prospect. It includes determination of the volume and grade of the deposit or field, examination and testing of extraction methods and metallurgical or treatment processes, surveys of transportation and infrastructure requirements, and market and finance studies.

This paper therefore confines itself to an examination of reporting standards for all of the first phase (exploration) and a substantial part of the second phase (evaluation).

Stock Exchange Listing Requirements

The Listing Requirements of the Australian Associated Stock Exchanges (A.A.S.E.) which were revised at 1 July 1979, are additional and complementary to companies’ statutory obligations and impose strict requirements on companies, which if not complied with, render them liable to removal from the Official List and the securities to lose Official Quotation. As such the Listing Requirements are the strongest elements in the regulation of listed companies in Australia and have received judicial and legislative recognition.

In this respect, the Securities Industry Act 1975 under Section 31 gives power to the Court to order observance or enforcement of business rules of or listing rules of the Stock Exchange.

The A.A.S.E. defines a "mining company" as a company which is principally engaged in the exploration for, or the extraction of, any mineral, oil or natural gas. Note that there are many companies which are engaged in mining to a considerable degree, but which are not regarded, for the purposes of the Listing Requirements as "mining companies" since their principal activity is not mining. However the Exchange has absolute discretion in administering the Listing Requirements and in doing so looks to companies to comply with the spirit as well as the letter of those Listing Requirements. It may at any time and from time to time waive the necessity of compliance.

Prospectus

In addition to the requirements which must be complied with by all companies, a prospectus issued by a mining company shall set out the following additional information as specified in the A.A.S.E. Listing Manual:—

Section 2B (6) — In the case of mining ventures, a map of and a report on the mining tenement by a qualified geologist or mining engineer. The map shall indicate the boundaries of the areas concerned so as to leave no doubt as to their extent and location and must be prepared either for the purpose of the prospectus or by a government authority.

Section 2B (7) — In the case of an oil venture, in addition to the information required under Section 2B (6), a geological map of the mining tenement and a report by a person who is a qualified geologist.
Pre-Ore Reserve Reporting

Section 2B (10) (a)(b)(c) & (d) — All mining tenements in which the company has an interest shall clearly be described in a schedule which shall, in relation to each mining tenement state, inter alia:—

(a) The geographical area where the mining tenement is situated.

(b) The nature of the title to the mining tenement.

(c) Whether the title has been formally confirmed or approved and if not whether an application for confirmation or approval is pending and whether the application is subject to challenge.

(d) The person or corporation in whose name the title to the mining tenement presently is.

Section 2B (11) (a) to (f) inclusive — Where the company has acquired an interest in a mining tenement from another person there shall be in addition to information about the vendors’ interests (a), (b) and (d), a detailed statement showing inter alia:—

(c) The work done by or on behalf of the vendor on prospecting or developing the mining tenement.

(e) A detailed analysis of the purchase price paid by the company for the interest in the mining tenement showing how it was arrived at, and whether or not the company had recourse to expert reports on the mining tenement before the purchase and if so a summary of each of those reports should be set out.

(f) A statement by the directors as to whether to their knowledge the mining tenement has previously been prospected or developed. If so, a summary of the results of that prospecting and/or development shall be set out together with the name of the persons by whom it was conducted.

Continuing Listing Requirements
Under Section 3 of the A.A.S.E. Listing Requirements, a listed company is required to provide any explanations requested by the Home Exchange. All companies are required to notify the Home Exchange immediately of:—

Section 3A (1) — Any information concerning the company or any of its subsidiaries necessary to avoid the establishment of a false market in the company’s securities or which would be likely to materially affect the price of those securities.

Section 3A (17) —
(a) Any option or other agreement entered into to acquire an interest in a mining tenement.

(b) With respect to such an option or other agreement the notice shall state:—

(i) The identity of the vendor;

(ii) The consideration paid and/or payable in respect of the agreement;

(iii) Any other relevant conditions attaching to the agreement, including the date of exercise and amount payable on exercise; and

(iv) A summary of previous exploration activity and expenditure incurred thereon.

Periodic Reports
Section 3B (5) — A mining company shall give to the Home Exchange within one month after the end of each quarter a report providing full details of production, development and exploration activities and expenditure incurred thereon.

Section 3B (8) — Where a report relates to the pre-ore reserve stage (i.e. from the earliest exploratory investigations to the stage immediately preceding that at which an actual ore reserve can be estimated with reasonable assurance) the words “ore” and “reserves” shall not be used and in lieu of such words such a report shall refer to “mineralisation” or some similar term having no economic connotation.

Reports and statements in the field of mineral exploration and assessment which may be made by a company during the pre-ore reserve stage shall include relevant basic data such as the type and method of sampling and the distribution, dimensions, assay results and relative location of all relevant samples. If true dimensions, particularly width of mineralisation, are not stated, the report shall be qualified accordingly.
References to geophysical or geochemical results shall refer only to “anomalies” and not to “mineralisation”, “ore”, “reserves” and similar terms.

Section 3B (9) — Where a report relates to results of exploratory investigations which have reached the stage where an ore reserve can be estimated with reasonable assurance, reports which refer to ore reserves shall use the expressions for categories of ore reserves as defined in the Listing Requirements. The categories as specified are those recommended by the Aust. I.M.M. and the Australian Mining Industry Council Joint Committee on Ore Reserves, 1972.

“Proved ore reserves” are those in which the ore has been blocked out in three dimensions by excavation or drilling, but include in addition minor extensions beyond actual openings and drill holes, where the geological factors that limit the ore body are definitely known and where the chance of failure of the ore to reach these limits is so remote as not to be a factor in the practical planning of mine operations.

“Probable ore reserves” cover extensions near at hand to proved ore where the conditions are such that ore will probably be found but where the extent and limiting conditions cannot be so precisely defined as for proved ore. Probable ore reserves may also include ore that has been cut by drill holes too widely spaced to assure continuity.

“Possible ore” is that for which the relations of the land to adjacent ore bodies and the geologic structures warrant some presumption that ore will be found, but where inadequate exploration and development data precludes its being classed as probable. The “possible” category of ore should not be included as reserves. Where the category is used publicly, it should never stand alone, but should be used only when “proved” or “probable” reserves have also been reported. If a company considers that it cannot sensibly classify its reserves in the manner set out above, the company may report its reserves as “ore reserves” or “reserves” with the proviso that the estimate involves no greater uncertainty than the “probable” category. Where a company so describes its ore reserves it should clearly define the basis on which the estimate has been made.

Where a company has used for a period of several years a method of reporting on ore reserves which is peculiar to its operation and which does not comply with the definition, it may continue to so report provided that it clearly states in any reports the basis upon which its ore reserves are calculated and the reasons why such ore reserves are not treated as set out in the definition.

However in relation to coal mining reserves the standard terminology set out in the Listing Manual differs from that recommended by the Standing Committee on Coalfield Geology of New South Wales in the Code for Calculating and Reporting Coal Reserves (as amended and ratified June 1977). The Sydney Stock Exchange at least, specifies that when reporting coal reserves to the Exchange the Standing Committee’s Code should be followed, rather than the Aus. I.M.M./A.M.I.C. terminology.

Section 3M (4) — Where an unlisted company or entity is or becomes the operator with a listed company to investigate or explore a tenement the listed company shall have incorporated in the contract between the parties a provision whereby the operator must disclose immediately to the listed company any significant discovery of mineralisation or hydrocarbons and if so required give to the listed company a full report on such discovery, and the information necessary to avoid the establishment of a false market in the listed company’s securities. In addition the listed company shall secure the right to make all or part of such report available to the Home Exchange.

Suggested Detailed Exploration Information Requirements
The A.A.S.E. Listing Requirements covering as they do securities with a wide range of minerals and depositional circumstances are understandably somewhat general in outline. However without being unduly restrictive or onerous it is possible to specify in greater detail what an exploration report should cover.

As explained by Cole, Comanos and Miskelly (1972):
Pre-Ore Reserve Reporting

“The importance of detailed information on any single mineral exploration tenement depends on:—

(1) the relative importance of exploration in the scope of all the company’s activities;

(2) the stage of exploration whether “grass-roots” or further advanced; and

(3) the extent of other and perhaps more noteworthy exploration prospects held.”

In regard to the detailed information which should be contained in a mineral exploration report the best guide is that published by the Association of Professional Engineers of the Province of Ontario. The Association of Professional Engineers, Geologists and Geophysicists of Alberta has similar professional reporting standards.

The essential detailed information which should be included in a listed company’s exploration report are listed hereunder. Some of the requirements need to be stated only once, usually at the beginning of the exploration programme, or upon acquisition of an interest in a lease or tenement.

Location

Tenement or Lease Permit
State the official number(s) of the block or lease, the ownership status, and whether or not the titles have been ascertained. Describe whether the tenement is under option, joint venture, and state the percentage interest held and the consideration paid. In the case of oil or gas state whether the interest is in the form of a licence, permit, lease or royalty.

Area Map(s)
Must be drawn to scale showing the scale, latitude, longitude, datum true north, local landmarks or geographical features, boundaries of the mineral property, adjacent blocks, location of the mine deposit (if any), mine workings and ore-bearing structures that may be present. If a map is a copy or a compilation of other maps or data, make appropriate reference to the original source.

Property Description

Geologic
At the early stage of exploration, a general description of regional and local geology may be adequate, but mineralogical relationships to rock types, stratigraphy, historic geology and geologic structure must be stated clearly, preferably in a form that is comprehensible to non-technical readers.

History
Include a summary of previous work that has been carried out. The past operating history should be summarised, including details if available of the production and earnings performance. State why operations were suspended.

Exploration Programme
Describe what geological, geophysical or geochemical programme has been carried out. On sampling, state whether grid or random, soil or gossan, from costeaneing or from drilling.

On drilling the type of drilling whether auger, percussion, or diamond used should be recorded as should the number of holes and rigs employed, and the footage drilled. The number of holes with footage completed, underway with target depth, and planned including likely depth should be stated.

Outline the future exploration programme including any non-geological work, for example bulk ore metallurgical testing.

Accessibility, Local Resources
Indicate transport routes by water, rail, air or road, and describe the availability of electrical power, water, and other local resources. For oil and gas projects indicate the location of the nearest pipeline.

Results
Include a map of the area showing location of outcrops, costeaneans, drill holes, with broad regional interpretation if possible. For drill holes, show the hole number, grid reference, declination, azimuth horizon and date completed.

Detail assay results including diagnostic minor elements of interest between nominated intervals. Indicate type of assay method used, for example, chemical, fire, radiometric, or atomic absorption where applicable.

Include cut-off grade(s) if these have been considered.

Interpretation of Results
Distinction should be made, where necessary between factual data and subjective
opinion. On inferred zones of interest, give lengths, widths and possible depths inferred as understood at various stages, for example:

(1) from surface indications;
(2) from costeasting; and
(3) as drilling progresses.

Ore Reserves
Show separately as proved (measured), probable (indicated) and possible (inferred) at specific assay grades indicating cut-off grades used. Overburden limits for open cut deposits should be stated.

Mineralisation which is not regarded as economic should not be designed as being "ore" but should be termed "geological resource".

For metal deposits, reserve statements should use standard metric units specifying tonnes or cubic meters, and grades in per cent or parts per million.

Gross monetary values should not be used. Tonnage statements should be left as x tonnes at y grades rather than being reported as z tonnes of contained metal.

State if the reserves as calculated are in situ, or extractable.

Show dilution factors used if any, and explain the reasons for the use of such factors.

Indicate the method of treatment of erratic assay values.

Disclosure Problems
The ultimate responsibility for ensuring that shareholders and potential shareholders are fully informed as to the state of progress of the company rests firmly on the shoulders of the directors.

Under Section 124(1) of the Companies Act, (N.S.W.):—

"A director shall at all times act honestly and use reasonable diligence in the discharge of the duties of his office."

As noted earlier, the Listing Requirements have legal standing in order to enforce their application, and one of the strongest requirements is to provide, under Section 3A (1), any information concerning the company or its subsidiaries necessary to avoid the establishment of a false market in the company’s securities or which would be likely to materially affect the price of those securities.

Note that the expression “to materially affect the price” has relevance to both an upside and downside share price movement.

It is conceivable that circumstances could arise in which the act of not disclosing information could be construed as assisting in the establishment of a false market!

It is apparent that from time to time some conflict can and does arise between the need to keep shareholders and the public fully informed as to the state of the exploration programme, and the need for some degree of confidentiality and secrecy in order not to jeopardise the strategic and tactical thrust of the company's exploration and development objectives.

On the one hand directors have an obligation to ensure shareholders have sufficient information to ensure as much as possible that they do not unwisely and prematurely dispose of some or all of their shareholding, perhaps to others who are more aware through various means, of the enhanced investment standing of the company arising from a valuable property acquisition or mineral discovery. Prompt and accurate disclosure will usually result in a growing body of loyal shareholders a situation which can impact favourably to the benefit of the shareholders, the company and directors alike.

On the other hand, if a promising mineral discovery is made or is in prospect, it could well be to the eventual benefit of the company and existing shareholders if such information pertaining to the discovery was not divulged immediately, so that, for example the company could acquire additional contiguous leases which could contain an extension of the mineralisation which has been indicated on the leases already held. Perhaps the greatest danger in this situation (that is, in delaying to inform shareholders) is that despite strongest precautions, persons or entities not directly associated with the company may come into possession of a significant part of the exploration intelligence and take steps to acquire management and/or ownership control of the discovery company, to the detriment of current shareholders.

In view of the apparent conflict which may from time to time occur between professional responsibilities and commercial considerations, hard and fast rules cannot be laid down as to exactly when directors
should advise shareholders of an encouraging actual or potential discovery.

Directors hands may however be forced by a Stock Exchange query under Listing Requirement 3A (1).

However evidence of the stock market price and volume action of many exploration company shares in the past suggests that maintaining secrecy about a mineral discovery for very long is the exception rather than the rule.

Nevertheless, when disclosure is made and it should be made "promptly", it should be made to the fullest extent commensurate with commercial considerations, and in line with the suggested form and context set out earlier in this paper.

This is not to deny directors' right to express optimism about a prospect. However, as stated above, fact should be clearly segregated from opinion and a pre-requisite of the opinion expression should be a placing on record of the relevant facts.

Benefits of Greater Disclosure
There are disadvantages attendant upon greater disclosure, of which the most significant is that the additional information could make the company vulnerable to acquisition or take-over by another group. This may not necessarily be a bad thing. On the other hand it can be claimed that if the information is favourable and it is provided to shareholders, the consequent take-over price will be higher than it would have been had shareholders not been kept fully informed.

The advantages of greater and more professional disclosure include:

1. The exploration sector of the mining industry will be subject to less unfounded criticism, and will earn a higher standing and reputation in the community.

2. The shareholder who is not associated with the mining industry will be on a footing somewhat closer to those who monitor industry activity more thoroughly.

3. As a consequence, share prices of exploration companies will tend to be more stable, rational and subject to less volatile movements due to buying or selling pressure from one quarter.

4. There should be increased attraction of savings into exploration and mining companies, and the more efficient, well managed and responsible companies would attract more capital than the less efficient.

5. If higher professional reporting standards are stimulated from within the industry, there will be less chance of perhaps onerous standards being imposed by bureaucratic or governmental edict.

Further Recommendations
Although the title of this paper covers pre-ore reserve reporting, because "the different phases of mining operations overlap and it is frequently difficult to distinguish when one phase ends and the next phase begins" (op. cit.), no apologies are made for putting forward some further recommendations in regard to reporting after the pre-ore reporting stage:

1. Ore reserves should be stated (and restated) on an annual basis and the date of calculation of reserves should be mentioned.

2. As most metaliferous companies use the Proved/Probable/ Possible designation, the alternative Measured/Indicated/Inferred should be deleted as an option available to them. This step would facilitate separate recognition of the practice of the N.S.W. Code for Reporting Coal Reserves (if that Code is explicitly recognised) which does not use Proved/ Probable/ Possible but employs Measured/Indicated/Inferred.

3. "Traditional" forms of reporting should be deleted as an option and Proved/ Probable/ Possible (metaliferous) or Measured/Indicated/Inferred (coal) used instead.

4. In recognition of the inherent variability of any reserve estimate, and that the Proved/Probable/ Possible designation refers to the degree of physical uncertainty (the qualifying word "ore" should be indicative of whether the reserves are economic or not), reserve statements should state the estimated level of probability defining the confidence levels used or assumed and that they have been calculated by acceptable and recognised methods.
5. While the Stock Exchanges enforce reporting requirements for the smaller exploration companies, many major mining companies in their reporting standards fall well short of the spirit of the Listing Requirements. More informative disclosure by the major mining companies would be seen as an appropriate example to be followed by all listed mining and exploration companies, including those "industrial" companies which have substantial mining interests.

Conclusion
The conclusion drawn by Cole, Comanos and Miskelly (1972) is just as relevant today:—
"The proper control of better standards is essential to the maintenance of efficient capital markets in Australia.

The securities (and mining²) industries would command a more stable and well respected reputation in the community if higher general standards can be devised and implemented."

One major question remains to be answered. Who is to draw up and enforce such standards?

References
Institute of Chartered Accountants in Australia and Australian Society of Accountants Accounting for the Extractive Industries. Exposure Draft (February 1973), and Statement of Accounting Standards DS 12308 (December 1977).

² Author’s 1979 addition.

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