

**SOUTH AFRICAN CODE FOR
REPORTING OF MINERAL RESOURCES
AND MINERAL RESERVES
(THE SAMREC CODE)**

PREPARED BY THE SOUTH AFRICAN MINERAL
RESOURCE COMMITTEE (SAMREC) UNDER THE
AUSPICES OF THE SOUTH AFRICAN INSTITUTE OF
MINING AND METALLURGY

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NOTE: Code is in normal typeface, guidelines are indented italics

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1 FOREWORD

- 1.1 The *South African Code for Reporting of Mineral Resources and Mineral Reserves* (the 'SAMREC Code' or 'the Code') sets out minimum standards, recommendations and guidelines for Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves in South Africa. It has been drawn up by the South African Mineral Resource Committee ('SAMREC') under the auspices of the South African Institute of Mining and Metallurgy ('SAIMM'). The SAMREC Committee consists of representatives of the SAIMM, the South African Council for Natural Scientific Professions ('SACNASP'), the Geological Society of South Africa ('GSSA'), the Geostatistical Association of South Africa ('GASA'), the South African Council for Professional Land Surveyors and Technical Surveyors (PLATO), the Association of Law Societies of South Africa, the General Council of the BAR of South Africa, the Department of Minerals and Energy, the Johannesburg Stock Exchange (JSE), the Council for Geoscience, the South African Council of Banks and the Chamber of Mines of South Africa ('CoM'). SAMREC was established in 1998 and modeled its Code on the *Australasian Code for Reporting of Mineral Resources and Ore Reserves* ('JORC Code').
- 1.2 In 1992 a committee was formed by GSSA, including GASA, in response to the Council of Mining and Metallurgical Institutions ('CMMI') to compile the first South African Code for reporting Mineral Resource and Mineral Reserves. The final draft ('Draft 6') was presented in conjunction with the SAIMM for discussion at the 1994 CMMI Conference at Sun City and to the JSE Listing Committee. In 1994, the CMMI formed an ad-hoc International Definitions Group to create a set of international definitions for reporting Mineral Resources and Mineral Reserves with representatives from mining and metallurgical institutions from the United States ('SME'), Australia ('AusIMM'), Canada ('CIM'), the United Kingdom ('IMM') and South Africa (SAIMM). A major breakthrough came in October 1997 when the CMMI International Definitions Group met in Denver, Colorado and reached a provisional agreement (the Denver Accord) on definitions of Mineral Resources and Mineral Reserves. Concurrently, and since 1992, the United Nations Economic Commission for Europe (UN-ECE) has been developing an international framework classification for Mineral Resources and Mineral Reserves. A joint meeting was held in Geneva on October 4, 1998 between the CMMI International Definitions Group and the UN-ECE Task Force. Agreement was reached to incorporate the CMMI standard reporting definitions for Mineral Resources and Mineral Reserves into the UN Framework Classification, thus giving truly international status to the CMMI definitions. The definitions in the SAMREC Code are consistent with those agreed at the Denver Accord by the CMMI participants.

2 INTRODUCTION

- 2.1 In this first edition of the SAMREC Code, the guidelines have been placed after the respective Code clauses to provide assistance and guidance to readers in interpreting the Code. These guidelines are indented and are in italics. The same indented italics typeface formatting has been applied to the appendices to this Code.
- 2.2 The Code has been adopted by SAIMM and SAMREC member organisations and is incorporated in the JSE rules regarding Listing Requirements and Continuing Obligations.
- 2.3 The main principles governing the operation and application of the SAMREC Code are transparency, materiality and competence. Transparency requires that the reader of a Public Report is provided with sufficient, clear and unambiguous information to understand the report and is not misled. Materiality requires that a Public Report contains all the information which investors and their professional advisers would reasonably require, and reasonably expect to find in the report, for the purpose of making a reasoned and balanced judgement regarding the mineralisation being reported. Competence requires that the Public Report be based on the work of a suitably qualified, responsible and experienced person who is subject to an enforceable professional code of ethics.
- 2.4 The Code is applicable to all minerals, as defined in the Minerals Act No 50 of 1991, for which Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves is required by the JSE. Minerals are defined in this Act as: **any substance whether in solid, liquid or gaseous form, occurring naturally in or on the earth, in or under water or in tailings or dumps, and having been formed by or subjected to a geological process, excluding water but including sand, stone, rock, gravel and clay, as well as soil other than topsoil.**
- 2.5 SAMREC recognises that further review of the Code will be required from time to time.
- 2.6 Commodity specific reporting requirements of the Code, which may be required for any specific mineral, are dealt with from Part 6 onwards.

3 SCOPE

- 3.1 The Code sets a required minimum standard for Public Reporting. **Reference in the Code to a Public Report or Public Reporting is to a report or reporting on Exploration Results, Mineral Resources or Mineral Reserves, prepared for the purpose of (a) informing investors or potential investors and their advisers or (b) satisfying regulatory requirements.** Companies are encouraged to provide information which is as comprehensive as possible in their Public Reports.

Public Reports include, but are not limited to: company annual reports, quarterly reports and other reports to the JSE or required by law. It is recommended that the Code also should apply to the following: information memoranda; expert reports and technical papers in respect of reporting on Exploration Results, Mineral Resources or Mineral Reserves.

While every effort has been made within the Code and Guidelines to cover most situations likely to be encountered in the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves, there will be occasions when doubt exists as to the appropriate procedure to follow. In such cases, users of the Code and those compiling reports under the Code should be guided by its intent, which is to provide a minimum standard for Public Reporting; also to ensure that such reporting contains all information that investors and their professional advisers would require, and expect to find in the report, for the purpose of making a reasoned and balanced judgement regarding the mineralisation being reported.

- 3.2 Public Reports must provide all relevant and material information, necessary for a reasonable and balanced judgement of the Exploration Results, Mineral Resource or Mineral Reserve to be made.

Appendix I included at the end of the Code, supplies an outline of items that should be considered when evaluating a project. The importance of each item will vary with the specific project and it is recognised that, for some projects, other items may be relevant which are not on the list. Appendix I should be considered a guide to facilitate a reasoned and balanced approach to evaluation. However, the need remains for exploration and mining professionals to make difficult decisions, such as the classification of material as a Mineral Resource or a Mineral Reserve. Decisions remain a matter of professional judgment based on knowledge, experience and industry practices.

Public disclosure is required of those items in Appendix I most likely to affect the accuracy of estimates made in the report. The authors of reports should both identify and evaluate these important factors within their reports.

It is recognised that estimates of Exploration Results, Mineral Resources, and Mineral Reserves, being predictions of what will occur in the future, based on imperfect knowledge of the present, are inherently subject to some level of confidence and inaccuracy. Levels of confidence are covered in the Code in Subclause 5.4.6 and 5.5.4.

4 COMPETENCE AND RESPONSIBILITY

- 4.1 Documentation detailing Exploration Results, Mineral Resources and Mineral Reserves estimates from which a Public Report on Exploration Results, Mineral Resources and Mineral Reserves is prepared, must be prepared by or under the direction of, and signed by, a Competent Person.
- 4.2 A Public Report concerning a company's Exploration Results, Mineral Resources and/or Mineral Reserves is the responsibility of the company acting through its Board of Directors. Any such report must be based on, and fairly reflect, a Mineral Resource and/or Mineral Reserve report and supporting documentation prepared by a Competent Person. A Public Report shall disclose the name of the Competent Person, his qualifications, professional affiliations and relevant experience. The Competent Person's written approval is required for the parts of his work included in the report.

Where any specific report is referred to in a Public Report, the written approval of the reporter must be obtained to the form and content in which that report is to be included in the Public Report.

- 4.3 **A 'Competent Person' is a person who is a member of the South African Council for Natural Scientific Professions (SACNASP), or the Engineering Council of South Africa (ECSA), or the South African Council for Professional Land Surveyors and Technical Surveyors (PLATO) or any other statutory South African or international body that is recognised by SAMREC. A Competent Person should have a minimum of five years experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which that person is undertaking. If the Competent Person is estimating, or supervising the estimation of Mineral Resources, the relevant experience must be in the estimation, assessment and evaluation of Mineral Resources. If the Competent Person is estimating, or supervising the estimation of Mineral Reserves, the relevant experience must be in the estimation, assessment, evaluation and economic extraction of Mineral Reserves**

The key qualifier in the definition of a Competent Person is the word 'relevant'. Determination of what constitutes relevant experience can be difficult and common sense should be exercised. For example, in estimating vein gold mineralisation, experience in a high-nugget, vein-type mineralisation such as tin, uranium etc. will probably be relevant, whereas experience in massive-type deposits may not be. As a second example, a person, to be considered competent in evaluating and reporting on alluvial gold deposits, should have considerable experience in this type of mineralisation, because of the characteristics of gold in alluvial systems, the particle sizing of the host sediment, and the low grades being quantified. Experience with placer deposits containing minerals other than gold may not necessarily provide relevant experience.

The key word 'relevant' also means that it is not always necessary for a person to have five years experience in each and every type of deposit in order to act as a Competent Person if that person has relevant experience in other deposit types. For example, a person with twenty years experience in Mineral Resource estimation in a variety of metalliferous hard-rock deposit types may not require five years specific experience in porphyry copper deposits in order to act as a Competent Person. Relevant experience in the other deposit types would count towards the required experience in relation to porphyry copper deposits.

In addition to experience in the style of mineralisation, a Competent Person reporting Mineral Resources must have sufficient knowledge of sampling and assaying

techniques relevant to the deposit under consideration to be aware of problems which could affect the reliability of the data. Some appreciation of extraction and processing techniques applicable to that deposit type would also be important.

As a general guide, persons being called upon to sign as a Competent Person should be clearly satisfied in their own minds that they could face their peers and demonstrate competence in the commodity, type of deposit and situation under consideration.

Estimation of Mineral Resources may be a team effort (for example, involving one person or team collecting the data and another person or team preparing the Mineral Resource estimate). Estimation of Mineral Reserves is commonly a team effort involving a number of technical disciplines. The Competent Person who signs the report is responsible and accountable for the whole of the report under the Code. However, it is recommended that, where there is a clear division of responsibilities within a team, each person must accept responsibility for, his or her particular contribution. For example, one person could accept responsibility for the collection of Resource data, another for the Resource estimation process, another for the mineability study, and the project leader could accept responsibility for the overall report. It is important that the Competent Person accepting overall responsibility for a Mineral Resource or Mineral Reserve report which has been prepared in whole or in part by others is satisfied that the work of the other contributors is acceptable and that the constituent parts of the report have been signed off by such contributors.

The Competent Person undertaking Mineral Resource or Mineral Reserve reporting must accept full responsibility for the report and must not treat the procedure merely as a 'rubber-stamp' exercise. If a complaint is made in respect of the professional work of a Competent Person, the complaint will be referred to the SAMREC recognised body with which the Competent Person is registered.

5 REPORTING TERMINOLOGY

5.1 Definitions

- 5.1.1 Public Reports dealing with Mineral Resources and/or Mineral Reserves must only use the terms set out in Figure 5.1.

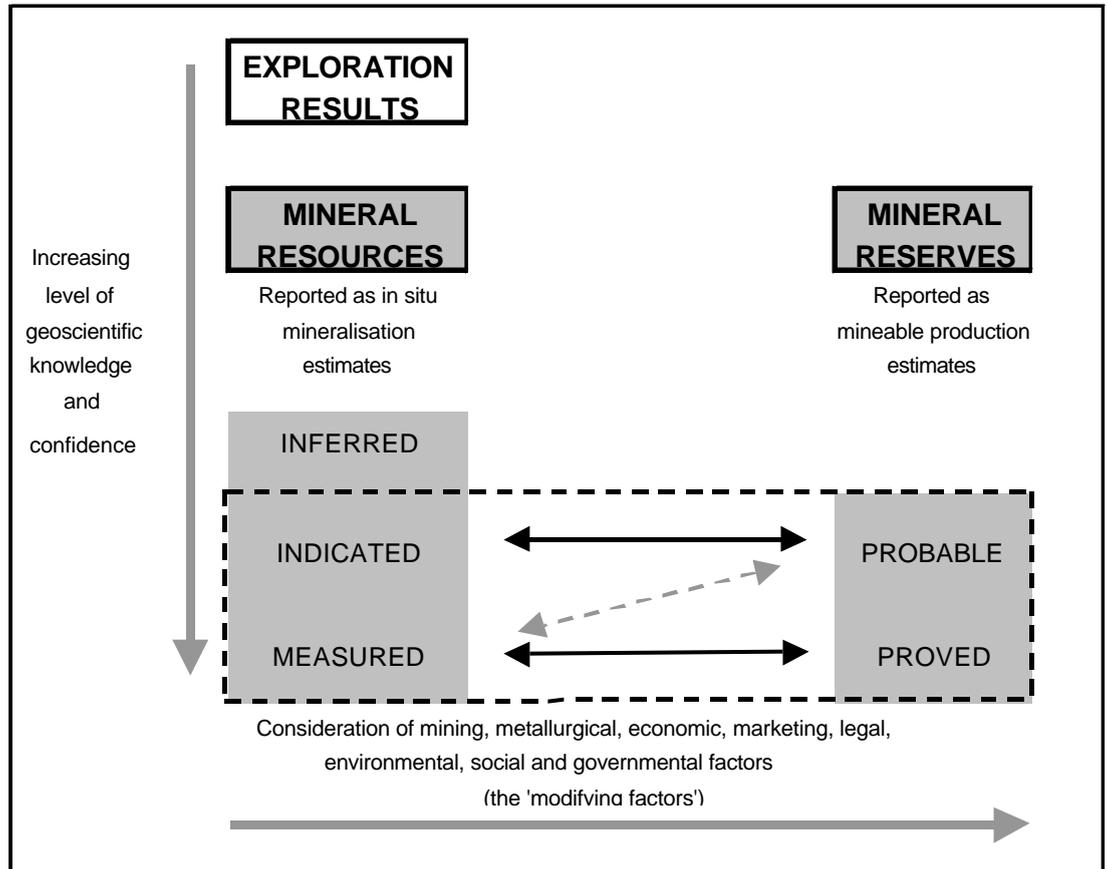


Figure 5.1 Relationship between Mineral Resources and Mineral Reserves

Figure 5.1 sets out the framework for classifying tonnage and grade estimates so as to reflect different levels of geoscientific confidence and different degrees of technical and economic evaluation. Mineral Resources can be estimated on the basis of geoscientific information with input from relevant disciplines. Mineral Reserves, which are a modified sub-set of the Indicated and Measured Mineral Resources (shown within the dashed outline in Figure 5.1), require consideration of factors affecting extraction, including mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors ('modifying factors'), and should in most instances be estimated with input from a range of disciplines.

In certain situations, Measured Mineral Resources could convert to Probable Mineral Reserves because of uncertainties associated with modifying factors which are taken into account in the conversion from Mineral Resources to Mineral Reserves. This relationship is shown by the broken arrow in Figure 5.1. Although the trend of the broken arrow includes a vertical component, it does not, in this instance, imply a reduction in the level of geological knowledge or confidence. In such a situation these modifying factors should be fully explained. Refer also to guidelines in Subclause 5.5.4

5.2 Reporting – General

- 5.2.1 Public Reporting concerning a company's Exploration Results, Mineral Resources or Mineral Reserves should include a description of the style and nature of mineralisation.
- 5.2.2 A company must disclose relevant information concerning the status and characteristics of a mineral deposit which could materially influence the economic value of that deposit, and promptly report any material changes in its Exploration Results, Mineral Resources or Mineral Reserves.
- 5.2.3 When reporting on commodity specific requirements for Coal Resources and Coal Reserves, reference must be made to Part 6, which contains amendments and additions, which will take precedence over all common subclauses in Parts 1 to 5.
- 5.2.4 When reporting on commodity specific requirements for Diamond Resources and Diamond Reserves, reference must be made to Part 7, which contains amendments and additions, which will take precedence over all common subclauses in Parts 1 to 5.
- 5.2.5 Throughout the Code, where appropriate, 'quality' may be substituted for 'grade' and 'volume' may be substituted for 'tonnage'. In this Code any reference to the singular shall include a reference to the plural, where appropriate.

5.3 Reporting of Exploration Results

- 5.3.1 If a Company reports Exploration Results in relation to mineralisation not classified as a Mineral Resource or Mineral Reserve, then estimates of tonnage and associated average grade must not be reported.

Descriptions of exploration targets or exploration potential given in Public Reports, must be expressed so as not to misrepresent them as an estimate of Mineral Resources or Mineral Reserves.

- 5.3.2 Public Reports of Exploration Results relating to mineralisation not classified as a Mineral Resource or Mineral Reserve must contain sufficient information to allow a considered and balanced judgement of the significance of the results. This must include all relevant prospecting information. The reporting of Exploration Results must not be presented so as to unreasonably imply that potentially economic mineralisation has been discovered.

Prospecting information should include the interpretation of geological continuity, sampling results, locations etc. Appendix I, at the end of this Code, is a checklist guideline that those preparing reports on Exploration Results, Mineral Resources and

Mineral Reserves should use as a reference. The checklist is not prescriptive and, as always, relevance and materiality are overriding principles that determine what information should be publicly reported. Reporting of isolated values without placing them in perspective is unacceptable.

5.4 Reporting of Mineral Resources

- 5.4.1 A 'Mineral Resource' is a concentration [or occurrence] of material of economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable and realistic prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics of a Mineral Resource are known, estimated from specific geological evidence and knowledge, or interpreted from a well constrained and portrayed geological model. Mineral Resources are subdivided, in order of increasing confidence in respect of geoscientific evidence, into Inferred, Indicated and Measured categories.**

A deposit is a concentration [or occurrence] of material of possible economic interest in or on the Earth's crust.

Portions of a deposit that do not have reasonable and realistic prospects for eventual economic extraction must not be included in a Mineral Resource.

If the assessment of 'reasonable and realistic prospects' is uncertain, concerns relating to that uncertainty and details of such included resources must be given.

The term 'Mineral Resource' covers the in-situ mineralisation as well as dumps or tailings, which have been identified and estimated through exploration/assessment and sampling from which Mineral Reserves may be derived by the application of technical, economic, legal, environmental, social, marketing, governmental and political factors.

The term 'reasonable and realistic prospects for eventual economic extraction' implies a judgement (albeit preliminary) by the Competent Person in respect of the economic factors likely to influence the prospect of economic extraction, including the approximate mining parameters. In other words, a Mineral Resource is not an inventory of all mineralisation drilled or sampled, regardless of cut-off grades, likely mining dimensions, location or continuity. It is a realistic inventory of mineralisation, which, under assumed and justifiable technical and economic conditions, might become economically extractable.

Interpretation of the word 'eventual' in this context may vary depending on the commodity or mineral involved. For example, for many coal, iron ore, bauxite and other bulk minerals or commodities, it may be reasonable to envisage 'eventual economic extraction' as covering time periods in excess of 50 years. However for the majority of gold deposits, application of the concept would normally be restricted to perhaps 20 to 30 years, and frequently to much shorter periods of time.

Certain reports (e.g.: inventory reports, exploration reports to government and other similar reports not intended primarily for providing information for investment purposes) may require full disclosure of all mineralisation, including some material that does not have reasonable and realistic prospects for eventual economic extraction. Such estimates of mineralisation would not qualify as Mineral Resources or Mineral Reserves.

Mineral Resource estimates are sometimes reported after adjustment by the cutting of high grades. If any of the data are materially adjusted or modified for the purpose of making the estimate, this must be clearly stated in the Public Report and the nature of the adjustment or modification described.

Where considered appropriate by the Competent Person, Mineral Resource estimates may include mineralisation below the selected cut-off grade to ensure that the Mineral Resources comprise bodies of mineralisation of adequate size and continuity to properly consider the most appropriate approach to mining including any dilution resulting from the requirements of any minimum mining width. Documentation of Mineral Resource estimates should clearly identify any such inclusions, and Public Reports should include commentary on the matter if considered material.

- 5.4.2 Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the occurrence and on the available sampling results. Reporting of tonnage and grade figures must reflect the order of accuracy of the estimate by rounding off to appropriately significant figures and, in the case of Inferred Mineral Resources, by qualification with terms such as ‘approximately’.

Rounding off must convey the uncertainties in estimation.

In order to emphasise the imprecise nature of a Mineral Resource or Mineral Reserve estimate, it is recommended that the final results always be referred to as an estimate not a calculation.

- 5.4.3 **An ‘Inferred Mineral Resource’ is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that may be limited or of uncertain quality and reliability.**

An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource.

The category is intended to cover situations where a mineral concentration or occurrence has been identified and limited measurements and sampling completed, but where the data are insufficient to allow the geological and/or grade continuity to be confidently interpreted. Due to the uncertainty which may be attached to some Inferred Mineral Resources, it cannot be assumed that all or part of an Inferred Mineral Resource will necessarily be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration.

Confidence in the estimate is usually not sufficient to allow the appropriate application of technical and economic parameters or to enable an evaluation of economic viability. Caution should be exercised if this category is considered in economic studies, and if included, full disclosure and the effect on the results of the economic studies must be stated. A comparison between the two scenarios, the one with inclusion and the one without inclusion, must be fully explained in the Public Report in such a way as not to mislead the investors (see also Subclause 5.4.6).

- 5.4.4 **An ‘Indicated Mineral Resource’ is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.**

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource, but has a higher level of confidence than that applying to an Inferred Mineral Resource.

An Indicated Mineral Resource requires that the nature, quality, amount and distribution of data are such as to allow the Competent Person to confidently interpret the geological framework and to assume geological continuity of mineralisation. Confidence in the estimate is sufficient to allow the appropriate application of technical and economic parameters and to enable an evaluation of economic viability.

- 5.4.5 **A ‘Measured Mineral Resource’ is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and grade continuity.**

A Measured Mineral Resource requires that the nature, quality, amount and distribution of data are such as to leave no reasonable doubt in the opinion of the Competent Person, that the tonnage and grade of the mineralisation can be estimated to within close limits and that any variation within these limits would not significantly affect potential economic viability. This category requires a high level of confidence in, and understanding of, the geology and the controls of the mineral deposit. Confidence in the estimate is sufficient to allow the appropriate application of technical and economic parameters and to enable an evaluation of economic viability with a high level of confidence.

- 5.4.6 The choice of the appropriate category of Mineral Resource depends upon the quantity, distribution and quality of data available and the level of confidence attached to the data. The appropriate Mineral Resource category must be determined by a Competent Person.

Mineral Resource classification is a matter for skilled judgement and the Competent Person must take into account those items in Appendix I which relate to confidence, accuracy (i.e. lack of bias) and precision in Mineral Resource estimation.

In deciding between Measured Mineral Resources and Indicated Mineral Resources, the Competent Person may find it useful to consider, in addition to the phrases in the two definitions relating to geological and grade continuity in Subclauses 5.4.4 and 5.4.5, the phrase in the guideline to the definition for Measured Mineral Resources, ‘... any variation within these limits would not significantly affect potential economic viability’.

In deciding between Indicated Mineral Resources and Inferred Mineral Resources, the Competent Person may wish to take into account, in addition to the phrases in the two definitions in Subclauses 5.4.3 and 5.4.4 relating to geological and grade continuity, the guideline to the definition for Indicated Mineral Resources: ‘Confidence in the estimate is sufficient to allow the appropriate application of technical, economic

and financial parameters and to enable an evaluation of economic viability'. This contrasts with the guideline to the definition of Inferred Mineral Resources: 'Confidence in the estimates is usually not sufficient to allow the appropriate application of technical, economic and financial parameters or to enable an evaluation of economic viability. Caution should be exercised if this category is considered in economic studies, and if included, full disclosure and the effect on the results of the economic studies must be stated. A comparison between the two scenarios, the one with inclusion and the one without inclusion, must be fully explained in the Public Report in such a way as not to mislead the investors.'

- 5.4.7 Mineral Resource estimates are not precise calculations, and tonnage and grade figures in reports must be expressed so as to convey the order of accuracy of the estimates by rounding off to appropriately significant figures.

Rounding off must convey the uncertainties in estimation.

In order to emphasise the imprecise nature of a Mineral Resource estimate, it is recommended that the final results always be referred to as an estimate not a calculation.

- 5.4.8 Public Reports of Mineral Resources must specify one or more of the categories of 'Inferred', 'Indicated' or 'Measured'. Reports must not contain Mineral Resource figures combining two or more of the categories unless figures for the individual categories are also provided. A Mineral Resource must not be reported in terms of contained mineral content unless corresponding tonnage and grade figures are also presented.

Appendix I provides, in a summary form, a list of the main criteria which should be applied when preparing reports on Exploration Results, Mineral Resources and Mineral Reserves. These criteria need not be discussed in a Public Report unless they materially affect estimation or classification of the Mineral Resources and Mineral Reserves.

It is not necessary, in a Public Report, to comment on each item in Appendix I, but it is essential to discuss any matters which might materially affect the reader's understanding or interpretation of the results or estimates being reported. This is particularly important where inadequate or uncertain data affect the reliability of, or confidence in, a statement of Exploration Results or an estimate of Mineral Resources and/or Mineral Reserves, for example poor sample recovery, poor repeatability of assay or laboratory results, limited information on tonnage factors etc.

- 5.4.9. The words 'ore' and 'reserves' must not be used in stating Mineral Resource estimates as the terms imply technical feasibility and economic viability and are only appropriate when all relevant modifying factors have been considered. Reports and statements should continue to refer to the appropriate category or categories of Mineral Resources until technical feasibility and economic viability have been established. If re-evaluation indicates that any of the Mineral Reserves is no longer viable, such Mineral Reserve must be reclassified.

It is not intended that re-classification from Mineral Reserves to Mineral Resources or vice-versa should be applied as a result of changes expected to be of a short term or temporary nature, or where company management has made a deliberate decision to temporarily operate on a sub-economic basis. Examples of such situations might be a commodity price drop expected to be of short duration, mine emergency of a non-permanent nature, transport strike etc.

5.5 Reporting of Mineral Reserves

- 5.5.1 A 'Mineral Reserve' is the economically mineable material derived from a Measured and/or Indicated Mineral Resource. It is inclusive of diluting materials and allows for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction is reasonably justified. Mineral Reserves are sub-divided in order of increasing confidence into Probable Mineral Reserves and Proved Mineral Reserves.

Mineral Reserves are those portions of Mineral Resources which, after the application of all mining factors, result in an estimated tonnage and grade which, in the opinion of the Competent Person making the estimates, can be the basis of a viable project after taking account of all relevant metallurgical, marketing, environmental, legal, social and governmental factors ('the modifying factors'). Mineral Reserves are reported as inclusive of marginally economic material and diluting material delivered for treatment or dispatched from the mine without treatment. To avoid confusion in reporting Mineral Reserves the definition of treatment is taken to include any beneficiation of the raw product that might take place prior to, or during, the metallurgical process.

The evaluation techniques used (including, where relevant, the block sizes) and the key assumptions made in arriving at the estimate must be disclosed.

The term 'economic' implies that extraction of the Mineral Reserve has been demonstrated to be viable and justifiable under reasonable financial assumptions.

Caution should be exercised when including reserves derived from Inferred Mineral Resources in a mine cashflow or other valuation model. It is acceptable to include these reserves in exceptional circumstances when deemed appropriate by the Competent Person. A comparison between the two scenarios, the one with inclusion and the one without inclusion, must be fully explained in the Public Report in such a way as not to mislead the investors.

The term 'Mineral Reserve' need not necessarily signify that extraction facilities are in place or operative, nor that all governmental approvals have been received. It does signify that there are reasonable expectations of such approvals.

In reporting Mineral Reserves, information on estimated metallurgical recovery factors is very important, and must always be included in Public Reports.

If there is doubt about what should be reported, it is better to err on the side of providing too much information rather than too little.

Mineral Reserve estimates are sometimes reported after downward adjustment of high grades, the application of discount factors such as mine or mill 'call factors' and similar modifying factors. If any of the data are materially adjusted or modified for the purpose of making the estimate, this must be clearly stated in a Public Report and the nature of the adjustment or modification described.

It should be noted that the Code does not imply that an economic operation must have Proved Mineral Reserves. Situations may arise where Probable Mineral

Reserves alone may be sufficient to justify extraction, as for example with some alluvial tin or gold deposits. This is a matter for judgement by the Competent Person.

Where companies prefer to use the term 'Ore Reserves' in their Public Reports, they must state clearly that this is being used with the same meaning as 'Mineral Reserves', defined in this Code.

- 5.5.2 **A 'Probable Mineral Reserve' is the economically mineable material derived from a Measured and/or Indicated Mineral Resource. It is estimated with a lower level of confidence than a Proved Mineral Reserve. It is inclusive of diluting materials and allows for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction is reasonably justified.**
- 5.5.3 **A 'Proved Mineral Reserve' is the economically mineable material derived from a Measured Mineral Resource. It is estimated with a high level of confidence. It is inclusive of diluting materials and allows for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, including consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction is reasonably justified.**
- 5.5.4 The choice of the appropriate category of Mineral Reserve is determined primarily by the relevant level of confidence and must be made by the Competent Person.

The Code provides for a direct relationship between the criteria applied to Indicated Mineral Resources and Probable Mineral Reserves and between the criteria applied to Measured Mineral Resources and Proved Mineral Reserves. In other words, the level of geoscientific confidence for Probable Mineral Reserves is similar to that required for the determination of Indicated Mineral Resources. The level of geoscientific confidence for Proved Mineral Reserves is similar to that required for the determination of Measured Mineral Resources. Inferred Mineral Resources are always additional to Mineral Reserves.

The Code also provides for a two-way relationship between Measured Mineral Resources and Probable Mineral Reserves. This is to cover the situation where uncertainties associated with any of the modifying factors considered when converting Resources to Reserves may result in there being a lower degree of confidence in the Mineral Reserves than in the corresponding Mineral Resources. Such a conversion would not imply a reduction in the level of geological knowledge or confidence.

A Measured Mineral Resource may be converted to a Proved Mineral Reserve if the uncertainties in the modifying factors are removed. No amount of confidence in the modifying factors for conversion of a Mineral Resource into a Mineral Reserve can override the upper level of confidence that exists in the Mineral Resource. Under no circumstances can an Indicated Mineral Resource be converted directly to a Proved Mineral Reserve (see Figure 5.1).

Application of the category of Proved Mineral Reserves implies the highest degree of confidence in the estimate, with consequent expectations in the minds of the readers of the report. These expectations must be borne in mind when categorising a Mineral Resource as Measured.

Refer also to the guidelines in Subclause 5.4.6 regarding classification of Mineral Resources.

- 5.5.5 Mineral Reserve estimates are not precise calculations, and tonnage and grade figures in reports must be expressed so as to convey the order of accuracy of the estimates by rounding off to appropriately significant figures.

Rounding off must convey the uncertainties in estimation.

In order to emphasise the imprecise nature of a Mineral Reserve estimate, it is recommended that the final results always be referred to as an estimate not a calculation.

- 5.5.6 Mineral Reserves reports must specify one or other of the categories of Proved and Probable. Reports must not contain combined Proved and Probable Mineral Reserve figures unless the relevant figures for each of the categories are also provided. Reports must not present mineral content figures unless corresponding tonnage and grade figures are also given.

Mineral Reserves may incorporate material (dilution) which is not part of the original Mineral Resource. It is essential that this fundamental difference between Mineral Resources and Mineral Reserves is borne in mind and caution exercised if attempting to draw conclusions from a comparison of the two.

Public Reporting of tonnage and grade outside the categories as covered by the Code is not permitted. These may be useful estimates for a company in its internal calculations and evaluation processes, but their inclusion in Public Reports would cause confusion.

When revised Mineral Reserve and Mineral Resource statements are publicly reported they must be accompanied by reconciliation with previous statements. A detailed account of differences between the figures is not essential, but sufficient comment should be made to enable significant variances to be understood by the reader.

- 5.5.7 In situations where figures for both Mineral Resources and Mineral Reserves are reported, a clarifying statement must be included in the report which clearly indicates whether the Mineral Resources are inclusive of, or additional to those Resources which have been modified to produce Mineral Reserves.

There are reasons for, in some situations, reporting Mineral Resources inclusive of Mineral Reserves and, in other situations, reporting Mineral Resources additional to Mineral Reserves. It must be made clear which form of reporting has been adopted. Appropriate forms of clarifying statements may be:

'The Measured and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce the Mineral Reserves.'

Or

'The Measured and Indicated Mineral Resources are additional to Mineral Reserves.'

In the former case, if any Mineral Resources have not been modified to produce Mineral Reserves for economic or other reasons, the relevant details of these unmodified Mineral Resources must be included in the report. This is to assist the reader of the report in making a judgement of the likelihood of the unmodified Measured and Indicated Mineral Resources eventually being converted to Mineral Reserves.

For reasons stated in the first guideline of Subclause 5.5.6 and in this paragraph, the reported Mineral Reserve figures cannot be added to the reported Mineral Resource figures. The resulting total is misleading and is capable of being misunderstood or, more seriously, of being misused to give a false impression of a company's prospects.

- 5.5.8 Appendix 1 provides, in a summary form, a list of the main criteria which should be considered when preparing reports on Exploration Results, Mineral Resources and Mineral Reserves. These criteria need not be discussed in a Public Report unless they materially affect estimation or classification of the Mineral Resources and Mineral Reserves. However, changes in economic or political factors alone may be the basis for significant changes in Mineral Reserves and should be reported accordingly.

See guidelines to Subclause 5.4.7 regarding references to Appendix 1.

5.6 Reporting of Mineralised Stope-Fill, Remnants, Pillars, Low Grade Mineralisation, Stockpiles, Dumps and Tailings

- 5.6.1 The Code applies to the reporting of all potentially economic mineralised material including mineralised stope-fill, remnants, pillars, low grade mineralisation, stockpiles, dumps and tailings where there are reasonable and realistic prospects for eventual economic extraction in the case of Mineral Resources and where extraction is reasonably justifiable in the case of Mineral Reserves. Unless otherwise stated, Parts 1 to 5 of this Code (including Figure 5.1 and Appendix 1) apply.

The opinion of a mining engineer or relevant professional should be sought when making judgements about the mineability of stope-fill, remnants and pillars.

If there are no reasonable prospects for the economic extraction of a particular portion of the stope-fill or stockpile, dumps, remnants, pillars and tailings then this material cannot be classified as either Mineral Resources or Mineral Reserves.

If some portion of stope-fill, remnants etc. is currently sub-economic, but there is a reasonable expectation that it will become economic, then this material may be classified as a Mineral Resource. If technical and economic studies have demonstrated that economic extraction could reasonably be justified under realistically assumed conditions, then the material may be classified as a Mineral Reserve.

The above guidelines apply equally to low grade mineralisation, often intended for stockpiling and treatment towards the end of mine life. For clarity of understanding, the tonnage and grade estimates of such material must be itemised separately in Public Reports, although they may be aggregated in total Mineral Resource and Mineral Reserve figures.

Stockpiles are defined to include both surface and underground stockpiles, including broken ore in stopes, and can include ore currently in the ore storage system. Mineralised material in the course of being processed (including leaching), if reported, must be reported separately.

Mineralised remnants, shaft pillars and pillars, which are potentially mineable, must be included in the Mineral Resources and Mineral Reserves.

Mineralised remnants, shaft pillars and mining pillars, which are not potentially mineable, must not be included in Mineral Resource and Mineral Reserve statements.

6 COMMODITY SPECIFIC REPORTING FOR COAL

6.1 General

6.1.1 Part 6 of the Code addresses matters specific to the Public Reporting of Coal Resources and Coal Reserves. Parts 1 to 5 of this Code also apply to the Public Reporting of Coal Resources and Coal Reserves, unless otherwise stated in Part 6 of the Code. However, the term 'Coal' should replace the term 'Mineral', 'coal deposit' should replace 'mineralisation', 'coal quality' should replace 'grade and mineral content' wherever applicable, including the guidelines. In the case of Coal Reserves, all references to 'metallurgical' modifying factors should be replaced by 'coal processing' modifying factors.

6.1.2 The reader is referred to the *South African Guide to the Systematic Evaluation of Coal Resources and Coal Reserves (SABS 0320)* for the definition of the relevant terms and for the methodology for evaluating coal deposits. Any reference to Appendix 1 in the Code should be substituted by a reference to the *Guide*, mentioned above.

6.1.3 Replacement of Figure 5.1 in Subclause 5.1.1

Public Reports for Stock Exchange Reporting purposes dealing with Coal Resources and/or Coal Reserves must only use the terms set out in Figure 6.1. Any reference to 'Figure 5.1' in the Code must be substituted by a reference to 'Figure 6.1'.

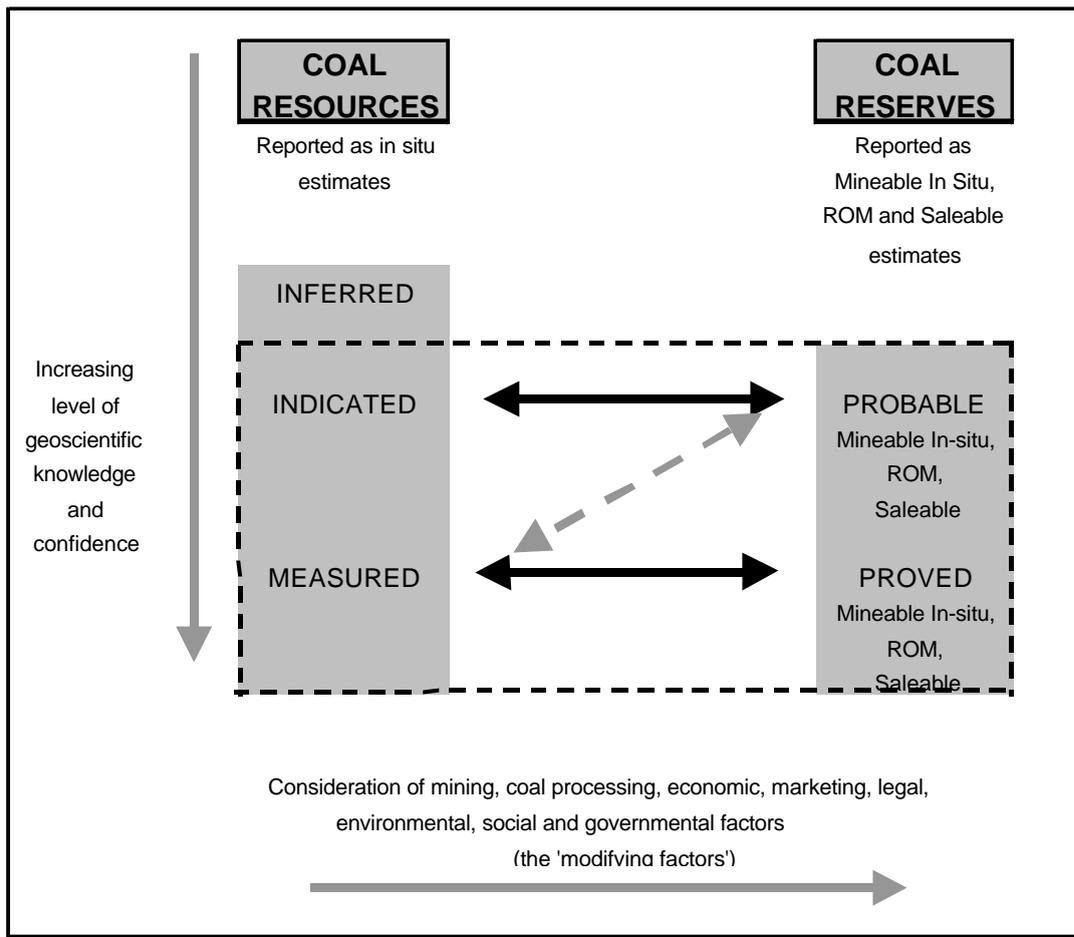


Figure 6.1 Relationship between Coal Resources and Coal Reserves

6.1.4 Amendment to Subclause 5.5.8

The *South African Guide to the Systematic Evaluation of Coal Resources and Coal Reserves* provides the main criteria that should be considered when preparing reports on Coal Resources and Coal Reserves. The evaluation criteria need not be discussed in a Public Report unless they materially affect estimation or classification of the Coal Resources and Coal Reserves. However, changes in economic or political factors alone may be the basis for significant changes in Coal Reserves and should be reported accordingly.

6.2 Reporting of Coal Resources

6.2.1 Amendment to Subclause 5.4.3

An 'Inferred Coal Resource' is that part of a Coal Resource for which tonnage and coal quality can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified physical continuity with or without coal quality

continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill-holes which is limited or of uncertain quality and reliability.

The level of confidence is usually not sufficient to allow a Pre-feasibility Study to be carried out.

6.2.2 Amendment to Subclause 5.4.4

An 'Indicated Coal Resource' is that part of a Coal Resource for which tonnage, densities, shape, physical characteristics and coal quality can be estimated with a moderate level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill-holes. The locations are appropriate to confirm physical continuity, while the locations are too widely or inappropriately spaced to confirm coal quality continuity. However, such locations are spaced closely enough for coal quality continuity to be assumed.

The level of confidence should be sufficient for deciding whether a Pre-feasibility Study or Feasibility Study is warranted.

6.2.3 Amendment to Subclause 5.4.5

A 'Measured Coal Resource' is that part of a Coal Resource for which tonnage, densities, shape, physical characteristics and coal quality can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm physical and coal quality continuity.

6.3 Reporting of Coal Reserves

- 6.3.1. Addition to Subclause 5.5.2
See Subclause 5.5.2 for main definition of 'Probable Coal Reserve'.

A Probable Coal Reserve may be demonstrated to be economically mineable by a Pre-Feasibility Study.

- 6.3.2 Addition to Subclause 5.5.3
See Subclause 5.5.3 for main definition of 'Proved Coal Reserve'.

A Proved Mineral Reserve may be demonstrated to be economically mineable by a Feasibility Study or actual mining activity.

- 6.3.3 **A 'Mineable In Situ Coal Reserve' is the tonnage and coal quality, at specified moisture content, contained in coal seams, or sections of seams, which are proposed to be mined, with the application of the geological loss factors. Sufficient information must be available to enable conceptual or detailed mine planning, and such mine planning must have been undertaken.**

The assessments must demonstrate that at the time of reporting, extraction is reasonably justified. Mineable In Situ Coal Reserve estimates must be quoted separately for surface and underground extraction and an outline of the proposed mining method must be provided. Mineable In Situ Coal Reserves are subdivided in order of increasing confidence into Probable Mineable In Situ Coal Reserve and Proved Mineable In Situ Coal Reserve categories. The Mineable In Situ Coal Reserves may be reported.

- 6.3.4 **A 'Run of Mine' (ROM) Coal Reserve is the tonnage and coal quality of Mineable In Situ Coal Reserves that are expected to be recovered after all geological losses, mining losses, mining dilution, contamination and moisture content factors have been applied.**

The assessments must demonstrate that at the time of reporting extraction is reasonably justified. The ROM Coal Reserves are equivalent to the Mineral Reserves in Part 5. The ROM Coal Reserves are subdivided in order of increasing confidence into Probable ROM Coal Reserves and Proved ROM Coal Reserves. The ROM Coal Reserves must be reported.

- 6.3.5 **A 'Saleable Coal Reserve' is the tonnage and coal quality that will be available for sale, either in the raw ROM state at a specified moisture content, or after beneficiation resulting from coal processing operations of the ROM Coal Reserves to produce a product or products at a specified coal quality, moisture content and size range.**

The assessment must demonstrate that at the time of reporting, the marketing of products is reasonably justified. The basis of the predicted yield to achieve the Saleable Coal Reserve must be stated. In the case of raw ROM products the practical product yield is typically 100%.

Saleable Reserves are subdivided in order of increasing confidence into Probable Saleable Coal Reserve and Proved Saleable Coal Reserve categories. The Saleable Coal Reserves must be reported.

- 6.3.6 The appropriate coal quality must be reported for all Coal Resource and Coal Reserve categories. The basis of reporting of the coal quality parameters must be reported, as for example on an air-dry basis, dry basis etc. Where applicable Saleable Coal Reserves should be subdivided into the relevant coal product types.

The quality of the coal should be expressed according to parameters relevant to specific applications e.g. steam coal, types of metallurgical coal, etc. The selection of parameters is the responsibility of the Competent Person and would include quality parameters such as ash, volatile matter, sulphur, coking properties, calorific value, etc.

Refer to the South African Guide to the Systematic Evaluation of Coal Resources and Coal Reserves for additional guidelines.

6.4 Reporting of Coal in Pillars and Remnants, Discard and Reject Coal in Stockpiles, Dumps and Tailings

6.4.1 Amendment to Subclause 5.6.1

The Code applies to the reporting of all potentially economic coal deposits including coal in pillars and remnants, discard and reject coal presently contained in stockpiles, dumps and tailings where there are reasonable and realistic prospects for eventual economic extraction in the case of Coal Resources and where economic extraction is justified in the case of Coal Reserves. Unless otherwise specified, Parts 1 to 6.3 of the Code (including Figure 6.1 and the *South African Guide to the Systematic Evaluation of Coal Resources and Coal Reserves*) apply.

Discard and Reject Coal are defined as coal and/or carbonaceous material resulting from mining operations or coal processing operations with coal quality parameters that fall outside the current saleable product range.

Discard and Reject Coal produced as part of future production from a coal processing plant, or from mining operations, may be reported as an additional product in the Saleable Coal Reserve category, only if economic extraction is justified.

7 COMMODITY SPECIFIC REPORTING FOR DIAMONDS

7.1 General

- 7.1.1 Part 7 of the Code refers to matters specific to the Public Reporting of Diamond Resources and Diamond Reserves. Parts 1 to 5 of the Code will apply equally to diamonds unless otherwise stated in Part 7 of the Code. The term 'Diamond' should naturally replace the term 'Mineral' and 'grade and average diamond value' should replace 'grade and mineral content', wherever applicable.

- 7.1.2 The following characteristics of diamond deposits are different to those of typical metalliferous and coal deposits, and emphasise the need for a diamond specific code:

The low diamond content of primary and placer diamond deposits and their variability.
The particulate nature of diamonds.
The specialised field of diamond valuation.
The relationship of average diamond value with the underlying diamond size distribution.
The widely differing nature of diamondiferous deposits and their associated forms of mineralisation and the estimation techniques relevant to these.

- 7.1.3 Amendment to Subclause 5.2.5

In the case of diamonds the terms 'quality' must not be used to substitute for 'grade' to avoid confusion with diamond quality.

- 7.1.4 As a general guide for the evaluation of diamondiferous deposits the reader is referred to Appendix II which contains a set of definitions and guidelines to be used in Public Reports on Diamond Resources and Diamond Reserves.

7.2 Reporting of Diamond Resources

- 7.2.1 Amendment to Subclause 5.4.3

An 'Inferred Diamond Resource' is that part of a Diamond Resource for which tonnage, grade and average diamond value can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified by geological and/or grade continuity and a sufficiently large diamond parcel is not available to ensure a reasonable representation of the diamond assortment. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that may be limited or of uncertain quality and reliability.

- 7.2.2 Amendment to Subclause 5.4.4

An 'Indicated Diamond Resource' is that part of a Diamond Resource for which tonnage, densities, shape, physical characteristics, grade and average diamond value can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed and sufficient diamonds have been recovered to allow a confident estimate of average diamond value.

- 7.2.3 Amendment to Subclause 5.4.5

A 'Measured Diamond Resource' is that part of a Diamond Resource for which tonnage, densities, shape, physical characteristics, grade and average diamond value can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes.

The locations are spaced closely enough to confirm geological and grade continuity and sufficient diamonds have been recovered to allow a confident estimate of average diamond value.

7.2.4 Amendment to Subclause 5.4.8

The average diamond value must not be reported without specifying the anticipated Bottom Cut-off Screen Size.

7.3 Reporting of Diamond Reserves

As per the definitions in Subclause 5.5 but with the term 'Mineral' substituted by 'Diamond'.

APPENDIX I

CHECK LIST OF ASSESSMENT AND REPORTING CRITERIA

Appendix I is a checklist and guideline that those preparing reports on Exploration Results Mineral Resources and Mineral Reserves should use as a reference. The checklist is not prescriptive and, as always, relevance and materiality are overriding principles that determine what information should be publicly reported. It is, however, important to report any matters that might materially affect a reader's understanding or interpretation of the results or estimates being reported. This is particularly important where inadequate or uncertain data affect the reliability of, or confidence in, a statement of Exploration Results or an estimate of Mineral Resources and/or Mineral Reserves.

The order and grouping of criteria in Appendix I reflects the normal systematic approach to exploration and evaluation. Criteria in the first group 'Sampling Techniques and Data' apply to all succeeding groups. In the remainder of the checklist, criteria listed in preceding groups would often apply to succeeding groups and should be considered when estimating and reporting.

CRITERIA	EXPLANATION
SAMPLING TECHNIQUES AND DATA (Criteria in this group apply to all succeeding groups)	
<i>Drilling techniques.</i>	<i>Drill type (e.g. core, reverse circulation, etc.) and details (e.g. core diameter). Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>
<i>Logging.</i>	<i>Whether samples have been logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Whether logging is qualitative or quantitative in nature. Core (or trench, channel etc.) photography.</i>
<i>Drill sample recovery.</i>	<i>Whether sample recoveries have been properly recorded and results assessed. In particular whether a relationship exists between sample recovery and grade and sample bias (e.g. preferential loss/gain of fine/coarse material).</i>
<i>Other sampling techniques.</i>	<i>Nature and quality of sampling (e.g. cut channels, random chips etc.) and measures taken to ensure sample representativity. Precise location and unique numbering of each sample.</i>
<i>Sub-sampling techniques and sample preparation.</i>	<i>If core, whether cut or sawn and whether quarter, half or all core taken. If non-core, whether riffled, tube sampled, rotary split etc. and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation technique. Quality control procedures adopted for all sub-sampling stages to maximise representativity of samples. Measures taken to ensure that the sampling is representative of the in situ material collected. Whether sample sizes are appropriate to the grainsize of the material being sampled.</i>
<i>Assay data and laboratory investigations.</i>	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</i>
<i>Verification of results.</i>	<i>The verification of selected intersections by either independent or alternative personnel. The use of twinned holes, deflections or duplicate samples.</i>
<i>Data location.</i>	<i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Quality and adequacy of topographic control. Locality plans.</i>

<i>Data density and distribution.</i>	<i>Data density for reporting of Exploration Results. Whether the data density and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Mineral Reserve estimation procedure and classifications applied. Whether sample compositing has been applied.</i>
<i>Audits or reviews.</i>	<i>The results of any audits or reviews of sampling techniques and data.</i>

REPORTING OF EXPLORATION RESULTS (Criteria listed in the preceding group apply also to this group)	
<i>Mineral rights and land ownership.</i>	<i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, historical sites, wilderness or national park and environmental settings. In particular the security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area. Location plans of mineral rights and titles.</i>
<i>Exploration work done by other parties.</i>	<i>Acknowledgement and appraisal of exploration by other parties.</i>
<i>Geology.</i>	<i>Description of the nature, detail, and reliability of geological information (rock types, structure, alteration, mineralisation, and relation to known mineralized zones, etc.). Description of geophysical and geochemical data. Reliable geological maps and cross sections should exist to support interpretations.</i>
<i>Data compositing (aggregation) methods.</i>	<i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually material and should be stated. Where composite intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such compositing should be stated and some typical examples of such composites should be shown in detail. The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>
<i>Relationship between mineralisation widths and intercept lengths.</i>	<i>These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down-hole lengths are reported, there should be a clear statement to this effect (e.g. 'downhole length, true width not known').</i>
<i>Diagrams.</i>	<i>Where possible, maps, plans and sections (with scales) and tabulations of intercepts should be included for any material discovery being reported if such diagrams significantly clarify the report.</i>
<i>Balanced reporting.</i>	<i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practised to avoid misleading reporting of Exploration Results.</i>
<i>Other substantive exploration data.</i>	<i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples - size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i>

<i>Historical information of interest about the mine.</i>	<i>The past history of the operations should be described as a background to the current operation. Previous success or failure should be referred to on an open basis with reasons why the new works should be commercially viable.</i>
<i>Historic verification of the performance parameters.</i>	<i>If possible historical performance statistics should be presented to indicate historical trends. The discretion of the Competent Person should prevail when determining which statistics should be presented.</i>
<i>Further work.</i>	<i>The nature and scale of planned further work (e.g. additional exploration). Environmental descriptions of anticipated liabilities</i>

ESTIMATION AND REPORTING OF MINERAL RESOURCES (Criteria listed in the first group, and where relevant in the second group, apply also to this group)	
<i>Database integrity.</i>	<i>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. Data validation procedures used.</i>
<i>Geological interpretation.</i>	<i>Description of geological model and inferences made from this model. Discussion of sufficiency of data density to assure continuity of mineralisation and provide an adequate database for the estimation procedure used.</i>
<i>Estimation and modeling techniques.</i>	<i>The nature and appropriateness of the estimation techniques applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters, maximum distance of extrapolation from data points. The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. The assumptions made regarding recovery of by-products. In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. Any assumptions behind modeling of selective mining units (e.g. non-linear kriging). The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available. Detailed description of the method used and the assumptions made to estimate tonnages and grades (section, polygon, inverse distance, geostatistical, or other method). Description of how the geological interpretation was used to control the resource estimates. Discussion of basis for using or not using grade cutting or capping. If a computer method was chosen, description of programs and parameters used. Geostatistical methods are extremely varied and should be described in detail. The method chosen should be justified. The geostatistical parameters, including the variogram, and their compatibility with the geological interpretation should be discussed. Experience gained in applying geostatistics to similar deposits should be taken into account.</i>
<i>Cut-off grades or parameters.</i>	<i>The basis of the cut-off grades or quality parameters applied, including the basis, if appropriate, of equivalent metal formulae.</i>
<i>Mining factors or assumptions.</i>	<i>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It may not always be possible to make assumptions regarding mining methods and parameters when estimating Mineral Resources. Where no assumptions have been made, this should be stated.</i>
<i>Metallurgical factors or assumptions.</i>	<i>The basis for assumptions or predictions regarding metallurgical amenability. It may not always be possible to make assumptions regarding metallurgical treatment processes and parameters when reporting Mineral Resources. Where no assumptions have been made, this should be stated.</i>
<i>Tonnage factors (in situ bulk densities).</i>	<i>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, the frequency of the measurements, the nature, size and representativeness of the samples.</i>
<i>Classification.</i>	<i>The basis for the classification of the Mineral Resources into varying confidence categories. Whether appropriate account has been taken of all relevant factors. I.e. relative confidence in tonnage/grade computations, confidence in continuity of geology and metal values, quality, quantity and distribution of the data. Whether the result appropriately reflects the Competent Person's view of the deposit.</i>

<i>Audits or reviews.</i>	<i>The results of any audits or reviews of Mineral Resource estimates.</i>
<i>Historical information of interest about the mine.</i>	<i>The past history of the operations should be described as a background to the current operation. Previous success or failure should be referred to on an open basis with reasons why the new works should be commercially viable.</i>
<i>Historic verification of the performance parameters.</i>	<i>If possible historical performance statistics should be presented to indicate historical trends. The discretion of the Competent Person should prevail when determining which statistics should be presented.</i>
<i>Others</i>	<i>Environmental descriptions of anticipated liabilities. Location plans of mineral rights and titles.</i>

ESTIMATION AND REPORTING OF MINERAL RESERVES (Criteria listed in the first group, and where relevant in other preceding groups, apply also to this group)	
<i>Mineral Resource estimates for conversion to Mineral Reserves.</i>	<i>Description of the Mineral Resource estimate used as a basis for the conversion to a Mineral Reserve. Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Mineral Reserves. Confidence in the estimate for an Inferred Mineral Resource is usually not sufficient to allow the appropriate application of technical and economic parameters or to enable an evaluation of economic viability. Caution should be exercised if this category is considered in economic studies, and if included, full disclosure and the effect on the results of the economic studies must be stated. A comparison between the two scenarios, the one with inclusion and the one without inclusion, must be fully explained in the Public Report in such a way as not to mislead the investors. Location plans of mineral rights and titles.</i>
<i>Plant and equipment.</i>	<i>Assessment of value, ownership, type, extent and condition of plant and equipment which is significant to the existing operations. Information on and value of significant additional plant and equipment which will be required to achieve the forecast rates of mining. Indication of replacement and salvage value.</i>
<i>Cut-off grades or parameters.</i>	<i>The basis of the cut-off grades or quality parameters applied, including the basis, if appropriate, of equivalent metal formulae. The cut-off grade parameter may be economic value per block rather than grade.</i>
<i>Mining factors or assumptions.</i>	<i>The method and assumptions used to convert the Mineral Resource to Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). The choice of, the nature and the appropriateness of the selected mining methods and other mining parameters including associated design issues such as pre-strip, access, etc. The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling. The major assumptions made and Mineral Resource model used for pit optimisation (if appropriate). The mining dilution factors, mining recovery factors, and minimum mining widths used and the infrastructure requirements of the selected mining methods. Historic reliability of the performance parameters. Diagrams should clearly indicate the spatial relationship of the mining infrastructure, Mineral Reserves and Mineral Resources together with planned mining production capacities. The date on which mining commenced or is expected to commence.</i>
<i>Directors' forecast.</i>	<i>Reasonableness of any mining, technical or economic directors' forecast.</i>
<i>Volume and capacity estimates for processing.</i>	<i>The production volumes and capacities should be clearly indicated in diagrammatic and table form. Where production is sourced from multiple sections sufficient detail should be provided to indicate the effects of different mining parameters on grades and costs. Where waste mining and other dilution issues are relevant these should also be presented for the different source areas.</i>
<i>Mass balance plan and description.</i>	<i>A mass balance should be presented in schematic form that links the mining production information to the metallurgical plant feed and then to final saleable products and wastes. This is particularly important for multi-product operations where the saleable materials are priced for different chemical and physical characteristics.</i>

<i>Metallurgical factors or assumptions.</i>	<i>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. Whether the metallurgical process is well-tested technology or novel in nature. The nature, amount and representativeness of metallurgical test work undertaken and the metallurgical recovery factors used. Any assumptions or allowances made for deleterious elements. The existence of any bulk sample or pilot scale test work and the degree to which such samples are representative of the orebody as a whole. The tonnages and grades reported for Mineral Reserves must state clearly whether these are in respect of material to the plant or after recovery.</i>
<i>Environmental descriptions of anticipated liabilities.</i>	<i>The status of environmental or rehabilitation matters which may impact on a valuation. Identified environmental restoration liabilities and their financial impact.</i>
<i>Plant and equipment.</i>	<i>Assessment of value, ownership, type, extent and condition of plant and equipment which is significant to the existing operations. Information on and value of significant additional plant and equipment which will be required to achieve the forecast rates of mining. Indication of replacement and salvage value.</i>
<i>Cost, revenue factors and funding.</i>	<i>The derivation of, or assumptions made, regarding projected capital and operating costs. The assumptions made regarding revenue including head grade, metal or commodity prices, exchange rates, transportation and treatment charges, penalties, etc. The allowances made for royalties payable, both Government and private. Basic cashflow inputs and funding requirements must be disclosed. These include forecasts of inflation, currency types, product sales prices, escalations, taxes, risk free rates and any other economic parameters that would otherwise influence the cashflow.</i>
<i>Historical information of interest about the mine.</i>	<i>The past history of the operations should be described as a background to the current operation. Previous success or failure should be referred to on an open basis with reasons why the new works should be commercially viable.</i>
<i>Historic verification of the performance parameters.</i>	<i>If possible historical performance statistics should be presented to indicate historical trends. The discretion of the Competent Person should prevail when determining which statistics should be presented.</i>
<i>Market assessment.</i>	<i>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. A customer and competitor analysis along with the identification of likely market windows for the product. Price and volume forecasts and the basis for these forecasts.</i>
<i>Other modifying factors.</i>	<i>The effect, if any, of natural risk, infrastructure, environmental, legal, marketing, social or governmental factors on the likely viability of a project and/or on the estimation and classification of the Mineral Reserves. The status of titles and approvals critical to the viability of the project, such as mining leases, discharge permits, government and statutory approvals.</i>
<i>Comparative values.</i>	<i>The Competent Person should not indicate any project values without reference to other transactions or operations of a similar nature. Similarly, no values should be presented without reference to appropriate market-related discount rates. At all times the reports of value should not present an unrealistic expectation as to the operations profit potential.</i>

<i>Classification.</i>	<i>The basis for the classification of the Mineral Reserves into varying confidence categories. Whether the result appropriately reflects the Competent Person's view of the deposit. The proportion of Probable Mineral Reserves which have been derived from Measured Mineral Resources (if any).</i>
<i>Audits or reviews.</i>	<i>The results of any audits or reviews of Mineral Reserve estimates.</i>

APPENDIX II

CHECKLIST OF ASSESSMENT AND REPORTING CRITERIA FOR DIAMONDS

1. Definitions

Cut- off Screen Sizes

Bottom Cut-off Screen Size is the size of the screen used to separate the product to be treated for diamond recovery from undersize material.

Middle Cut-off Screen Size is the size of the screen used to separate oversize material to be re-crushed prior to re-treatment for diamond recovery.

Top Cut-off Screen Size is the size of the screen used to separate oversize material to be crushed prior to treatment for diamond recovery.

Diamond Grade is the content in carat weight per unit volume or area of resource or per unit weight of reserve (expressed as carats per m³, carats per m², carats per tonne or carats per 100 tonnes).

Diamond Mass is the carat weight of a diamond, one carat being equivalent to 0.2 gram.

Diamond Value is the average value of the diamonds in the deposit expressed in terms of US\$/ton or US\$/carat at a stated Bottom Cut-off Screen Size.

Indicator Minerals include garnet, chrome spinel, illmenite and chrome diopsides having the requisite chemical and physical properties that distinguish them from otherwise similar minerals found in non-diamond associated rock types.

Macro Diamonds are diamonds that will not pass through a 0.5mm square mesh screen.

Micro Diamonds are diamonds that pass through a 0.5mm square mesh screen.

Placer Diamond Deposits have been derived from other primary sources and are typically eluvial, fluvial, beach alluvial or marine alluvial deposits.

Primary Diamond Deposits are igneous rocks that contain diamonds. These include kimberlite pipes, dykes, blows or fissures and lamproites.

2. Check List

CRITERIA	EXPLANATION
REPORTING EXPLORATION RESULTS (Because many exploration techniques remain proprietary information the following criteria are suggested as guidelines in reporting diamond exploration results.)	
<i>Description of mineralisation.</i>	<i>Description of type of deposit, primary or placer. Geographical location and shape. Level of investigation (reconnaissance, regional or detail). Objectives of operators and possible mining method. Surface area and overburden thickness.</i>
<i>Sample collection.</i>	<i>Surface or drill samples. Collection date, number of samples. Sample location coordinate system used. Type of drilling, hole diameter and bit type. Sample size, infield screening, weights of sample and weight of undersize. Chip samples for particle granulometry. Chip samples for geological logging. Chip samples for ore dressing studies.</i>
<i>Sample treatment.</i>	<i>Type of facility, treatment rate, and accreditation. Sample size reduction. Bottom screen size, top screen size and recrush. DMS, Grease, X-ray and handsorting. Process efficiency, tailings auditing and granulometry. Laboratory used, type of process for micro diamonds and accreditation.</i>
<i>Information recorded.</i>	<i>Surface area of mineralisation, gravel thickness and bedrock topography. Water depth, sediment thickness and depth of weathering. Overburden thickness. Hole size (calipered), from and to depths per sample. Sample weight, wet and dry. Concentrate yield, DMS yield. Undersize weight (if screened infield). Bulk pit tests, geological logging (e.g. for fissure deposits). Penetration rate of drill. Lithological logging of chips or core, sediment type. Nature of host rock and surrounding rock, geotechnical information. Report major facies identified. Geophysical logging, hydrological logging. Ore particle grading, density, shape, number of particles, percent kimberlite and particle weight per size class. Mass and number of stones per size category. Diamond breakage. Individual weights and shapes for micro diamonds, report at least total number and weight above bottom cut-off per facies. If micro diamond sampling, total number and weight above and below 0.5mm per facies identified. Value of macro diamonds, total weight valued, facility and valuator.</i>
<i>Security and integrity.</i>	<i>Accredited process audit. Were samples sealed after excavation. Valuator location, escort, delivery, cleaning losses, reconciliation with recorded sample caratage and number of stones. Core samples washed prior to treatment for micro diamonds. Audit samples treated at alternative facility. Results of tailings checks. Recovery of tracer monitors used in sampling and treatment. Geophysical (logged) density and particle density. Cross validation of sample weights, wet and dry, with hole volume and density, moisture factor.</i>
<i>Results and interpretation.</i>	<i>Must be compatible with the level of the investigation specified</i>

	<i>(detailed, reconnaissance or regional). In terms of: grade potential, value potential, tonnage or volume potential, diamond size distribution, representativity of sampling, geological detail, continuity and factors influencing diamond distribution, overburden and other mining constraints, climate, water, environmental and geotechnical issues.</i>
<i>Others.</i>	<i>Topography and proximity to cities and towns.</i>
<i>Further work.</i>	<i>Justification of further work (Consider integrity of exploration contracts). Magnitude of next sample program, purpose and prospects. Type of sampling envisaged and carat goal to be achieved.</i>
(In the preceding section it should be noted that there is a distinction between reporting details of work done and actual results. The Code does not wish to expose the applicant in terms of the results achieved, but wants to provide the investor with sufficient assurance of proper procedures and competence.)	
REPORTING OF DIAMOND RESOURCES	
(The relevant issues mentioned under the section on the reporting of diamond exploration results listed in the previous section apply equally to this section. It is accepted that not all the parameters listed below will be present.)	
<i>Geology.</i>	<i>Demarcated area of potential. Relative priority of target. Petrology and petrography, geochemistry, geochronology and mineralogy. Ore/waste contact model, emplacement model, facies model and waste model. Diamond para-genesis.</i>
<i>Geotechnical.</i>	<i>Geotechnical bore holes with orientation and hydrology. Logging in terms of structure. Weathering test and hydrological parameter model. Selection of core for physical parameter testing. Slope and initial mine design.</i>
<i>Grade estimation.</i>	<i>Micro and macro diamonds per facies. Bulk sampling results, global grade per facies. Spatial structure analysis and grade distribution. Stone size and number distribution. Sample headfeed and tailings particle granulometry. Sample density determination. Percent concentrate and undersize per sample. Grade with change in Bottom Cut-off Screen Size. Geostatistical techniques applied.</i>
<i>Value estimation.</i>	<i>Diamonds roll up per facies or depth. Valuation per parcel, parcel value and size distribution. Estimation of value with size. Diamond breakage. Average US\$/carat and US\$/ton value with change in bottom cut-off. Diamond valuation to be done by internationally accepted valuator.</i>
<i>Resource volume.</i>	<i>Geological model by facies, volume and density per facies, bench or estimation block. Dilution per facies. Number of lithological intersections for facies and contact definition.</i>
<i>Metallurgy.</i>	<i>Conceptual plant design. Comminution characteristics, per facies or globally. Recrush, Top, Middle and Bottom Cut-off Screen Size. Reference ore dressing studies database.</i>
<i>Classification.</i>	<i>State classification of resource in view of level of information. Take account of most important characteristics, geological, grade, size distribution, value, sample treatment, sampling density and</i>

	<i>estimation. Results of spatial simulation, non-conditional or conditional. Magnitude of grade, value and average diamond size differential between facies.</i>
REPORTING OF DIAMOND RESERVES	
<i>Geotechnical.</i>	<i>State all slope angles per facies. If underground mine, specify draw control strategy.</i>
<i>Mine planning.</i>	<i>Define business plan strategy and life of mine plan. Mining methods considered. Mineability of facies. Capital cost estimates. Working cost estimates and contractor strategy. Revenue per facies with depth and block contributions. Mining efficiency and dilution factors. Pit optimization. Underground plan. Ore blending, mine stockpile strategy. Environmental constraints. Waste disposal. Machine replacement plan. Closure plan. Risk analysis.</i>
<i>Metallurgy.</i>	<i>Plant location and design. Recovery factors per facies. Comminution factors per facies. Plant capital and operating costs. Stockpile/tailings strategy per facies. Current treatment flow sheet. Treatment rates per facies. Ore blending definitions, all facies. Head feed tonnage. Gangue composition and behavior. Preliminary mine planning collaboration.</i>
<i>Cost and revenue.</i>	<i>Cost and Revenue models per facies.</i>
<i>Market aspects.</i>	<i>Contracts.</i>
<i>Classification.</i>	<i>Identify reserve. Identify high and low risk areas. Specify reasons for high/low risk. Identify Probable and Proved Diamond Reserves. List items needing more info for reclassification from Probable to Proved Diamond Reserves. List items that could possibly change Diamond Reserves from Proved to Probable.</i>