Date 21December 2002 **Comparison: Exposure Draft 2003 Code with 1999 JORC Code**

1999 JORC Code	*Suggested Revision* **Exposure Draft 2003 JORC Code**	*Comments* Reference is made throughout this document to the Code for Reporting of Mineral Exploration Results, Mineral Resources and Mineral Reserves, prepared by the Institution of Mining and Metallurgy Working Group on Resources and Reserves in conjunction with the European Federation of Geologists and the Institute of Geologists of Ireland (the 'Reporting Code'). This is the latest of the national reporting Codes based on the 1999 JORC Code.
AUSTRALASIAN CODE FOR REPORTING OF MINERAL RESOURCES AND ORE RESERVES (THE JORC CODE) **PREPARED BY THE JOINT ORE RESERVES COMMITTEE OF THE AUSTRALASIAN INSTITUTE OF MINING AND METALLURGY, AUSTRALIAN INSTITUTE OF GEOSCIENTISTS AND**	**AUSTRALASIAN CODE FOR REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND ORE RESERVES (THE JORC CODE)** **PREPARED BY THE JOINT ORE RESERVES COMMITTEE OF THE AUSTRALASIAN INSTITUTE OF MINING AND METALLURGY, AUSTRALIAN INSTITUTE OF GEOSCIENTISTS AND**	Inclusion of "Exploration Results" to reflect new provisions in the Code

MINERALS COUNCIL OF AUSTRALIA **(JORC)** **~~To take effect~~** **~~SEPTEMBER 1999~~**	**MINERALS COUNCIL OF AUSTRALIA** **(JORC)** **To take effect** **JULY 2003** **EXPOSURE DRAFT** **19 DECEMBER 2002**	
Foreword	**Foreword**	
1. The *Australasian Code for Reporting of Mineral Resources and Ore Reserves* (the 'JORC Code' or 'the Code') sets out minimum standards, recommendations and guidelines for Public Reporting of exploration results, Mineral Resources and Ore Reserves in Australasia. It has been drawn up by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, the Australian Institute of Geoscientists and the Minerals Council of Australia. The Joint Ore Reserves Committee was established in 1971 and published a number of reports which made recommendations on the classification and Public Reporting of Ore Reserves prior to the first release of the JORC Code in 1989.	1. The *Australasian Code for Reporting of Mineral Resources and Ore Reserves* (the 'JORC Code' or 'the Code') sets out minimum standards, recommendations and guidelines for Public Reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves. The Joint Ore Reserves Committee ('JORC') was established in 1971 and published several reports containing recommendations on the classification and Public Reporting of Ore Reserves prior to the release of the first edition of the JORC Code in 1989. Revised and updated editions of the Code were subsequently issued in 1992, 1996 and 1999. This 2003 edition supersedes all previous editions. Concurrently with the evolution of the JORC Code, the Combined Reserves International Reporting Standards Committee ('CRIRSCO'), initially a committee of the Council of Mining and Metallurgical Institutions ('CMMI'), has, since 1994, been working to create a set of standard international definitions for reporting Mineral Resources and Mineral (Ore) Reserves, modelled on those of the JORC Code. Representatives of bodies from participating countries	"Exploration Results" now capitalised as a 'proper' term. JORC's parent bodies are already listed on Code cover page.

	Representatives of bodies from participating countries (Australia, Canada, South Africa, UK and USA) reached provisional agreement in 1997. This was followed in 1998 by an agreement to incorporate of the CMMI definitions into the International Framework Classification for Reserves and Resources – Solid Fuels and Mineral Commodities, developed by the United Nations Economic Commission for Europe ('UN-ECE'). As a result of the CRISCO/CMMI initiative, considerable progress has been made towards widespread adoption of consistent reporting standards throughout the world. These are embodied in the similar Codes, Guidelines and Standards published and adopted by professional bodies in Australia, South Africa, USA, Canada, UK, Ireland and Europe. The definitions in this edition of the JORC Code are either identical with, or not materially different from, those international definitions.	
	Introduction	New section sub-heading
2. In this edition of the JORC Code, the guidelines, which were previously separated from the Code, have been placed after the respective Code clauses to provide improved assistance and guidance to readers. These guidelines are indented and are in a different, smaller type face. They do not form part of the Code but should be considered persuasive when interpreting the Code. The same indented and reduced type face formatting has been applied to Appendix 1 – '*The JORC Code and Australasian Stock Exchanges*, and to Table 1 – '*Check List of Assessment and Reporting Criteria'* to emphasise	2. In this edition of the JORC Code, important terms and their definitions are highlighted in **bold** text. The guidelines are placed after the respective Code clauses, using *indented italics*. They are intended to provide assistance and guidance to readers, and should be considered persuasive when interpreting the Code. Indented italics are also used for Appendix 1 – *'The JORC Code and Australasian Stock Exchanges'*, Appendix 2 – *'Generic Terms and Equivalents" and* for Table 1 –*'Check List of Assessment and Reporting Criteria',* to make it clear that they are also part of the guidelines, and that the	Superscript referencing of definitions has been abandoned.

that both these sections are guidelines, and that the latter is not a mandatory list of assessment and reporting criteria. Also in this edition of the Code, the first or a particularly significant mention, after Clause 2, of terms which are defined in the Code have been marked with a superscript 'D10', and the corresponding definitions have been highlighted in bold type. For example, Competent Person[D10] means that this term is defined in Clause 10.	latter is not mandatory for reporting purposes.	
3. The Code has been adopted by The Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists and is therefore binding on members of those organisations. It is supported by the Minerals Council of Australia and the Securities Institute of Australia as a contribution to best practice. The Australian Stock Exchange and New Zealand Stock Exchange listing rules each incorporate the Code. See Appendix 1.	3. The Code has been adopted by The Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists and is therefore binding on members of those organisations. It is endorsed by the Minerals Council of Australia, and the Securities Institute of Australia as a contribution to best practice. The Code has also been adopted by and included in the listing rules of the Australian ('ASX') and New Zealand ('NZSE') Stock Exchanges. See Appendix 1.	
	Scope	New section sub-heading
4. The main principles governing the operation and application of the JORC Code are transparency, materiality and competence. 'Transparency' requires that the reader of a Public Report[D5] is provided with sufficient information, the presentation of which is clear and unambiguous, to understand the report and is not misled. 'Materiality' requires that a Public Report contains all the relevant 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	4. The main principles governing the operation and application of the JORC Code are transparency, materiality and competence. • ***Transparency*** requires that the reader of a Public Report is provided with sufficient information, the presentation of which is clear and unambiguous, to understand the report and is not misled. • ***Materiality*** requires that a Public Report contains all the relevant 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 Exploration Results, Mineral	Key principles of the Code in highlighted in bold italics and bullet pointed.

Report is based on work which is the responsibility of a suitably qualified and experienced person who is subject to an enforceable professional code of ethics.	judgement regarding the Exploration Results, Mineral Resources or Ore Reserves being reported. • ***Competence*** requires that the Public Report be based on work that is the responsibility of suitably qualified and experienced persons who are subject to an enforceable professional code of ethics.	
5. The Code is a required minimum standard for Public Reporting. The committee also recommends its adoption as a minimum standard for other reporting. **Reference in the Code to a Public Report or Public Reporting is to a report or reporting on exploration results, Mineral Resources[D20] or Ore Reserves[D29], prepared for the purpose of informing investors or potential investors and their advisers. This includes a report or reporting prepared to satisfy 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 Australian or New Zealand Stock Exchanges or required by corporations law. It is recommended that the Code apply to*	*5.* **Reference in the Code to a Public Report or Public Reporting is to a report or reporting on Exploration Results, Mineral Resources or Ore Reserves, prepared for the purpose of informing investors or potential investors and their advisers. This includes a report or reporting to satisfy regulatory requirements.** *The Code is a required minimum standard for Public Reporting. The committee also recommends its adoption as a minimum standard for other reporting. Companies are encouraged to provide information in their Public Reports which is as comprehensive as possible.* *Public Reports include but are not limited to: company annual reports, quarterly reports and other reports to Australian and New Zealand Stock Exchanges, or as required by law. The*	Minor rearrangement of Clause 5. In the 1999 Code there was a distinction in this guideline between necessary compliance in the case of some public reports, and recommended compliance for others. This distinction is not made in some other Codes eg the Reporting Code. Clearly if the report has been prepared 'for the purposes described in Clause 5' then to simply 'recommend' compliance is insufficient, it is in fact a requirement. As the application of the Code is also covered in Clause 1 this is now included as a guideline to clause 5. The second sentence is a guideline rather than a clause.

the following reports if they have been prepared for the purpose described in Clause 5: environmental statements; Information Memoranda; Expert Reports and technical papers in respect of reporting on exploration results, Mineral Resources or Ore Reserves.	*Code applies to other publicly released company information in the form of postings on company web sites and briefings for shareholders, brokers and analysts. The Code also applies to the following reports if they have been prepared for the purposes described in Clause 5: environmental statements; Information Memoranda; Expert Reports, and technical papers referring to Exploration Results, Mineral Resources or Ore Reserves.*	
	For companies issuing concise annual reports, inclusion of all material information relating to Exploration Results, Mineral Resources and Ore Reserves is recommended. In cases where summary information is presented, this should be stated, and a reference attached giving the location of the complete resource and reserve statement on which the summary is based.	This additional guideline addresses the issue of concise annual reports raised by the Institute of Chartered Secretaries.
	It is recognised that companies can be required to issue reports into more than one regulatory jurisdiction, with compliance standards that may differ from this Code. It is recommended that such reports include a statement alerting the reader to this situation.	This additional guideline addresses the issue of reporting into more than one jurisdiction.
The term 'regulatory requirements' as used in Clause 5 is not intended to cover reports by companies to government agencies which may be required for State Government or Federal Government inventory or planning purposes. If reports prepared for such purposes subsequently become available to the public, they would not normally be regarded as Public Reports in terms of	*The term 'regulatory requirements' as used in Clause 5 is not intended to cover reports provided to State and Federal Government agencies for statutory purposes, where providing information to the investing public is not the primary intent. If such reports become available to the public, they would not normally be regarded as Public Reports under the JORC*	

the JORC Code (refer also to the guidelines to Clauses 20 and 37) *It is recognised that there may be situations where a Competent Person[D10] prepares documentation for internal company purposes or similar non-public purposes that does not comply with the JORC Code. In such circumstances, the documentation should include a statement that it does not comply with the JORC Code. This will minimise the likelihood of non-complying documentation being used as a basis for Public Reports, since Clause 8 requires Public Reports to fairly reflect Mineral Resource and/or Ore Reserve estimates and supporting documentation prepared by a Competent Person (refer to Clause 8, and also to Appendix 1 in respect of stock exchange requirements on Public Reporting).* *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 Ore Reserves, there will inevitably 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 and to ensure that such reporting contains all 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*	*Code (see also guidelines to Clauses 21 and 39).* *It is recognised that situations arise where documentation prepared by Competent Persons for internal company or similar non-public purposes does not comply with the JORC Code. In such situations it is recommended that the documentation includes a prominent statement to this effect. This will make it less likely that non-complying documentation will be used to compile Public Reports, since Clause 8 requires Public Reports to fairly reflect Exploration Results, Mineral Resource and/or Ore Reserve estimates, and supporting documentation, prepared by a Competent Person.* *While every effort has been made within the Code and Guidelines to cover most situations likely to be encountered in Public Reporting, there may be occasions when doubt exists as to the appropriate form of disclosure. On such occasions, users of the Code and those compiling reports to comply with the Code should be guided by its intent, which is to provide a minimum standard for Public Reporting, and to ensure that such reporting contains all information which investors and their professional advisers would reasonably require, and reasonably expect to find in the report, for the purpose of making of a reasoned and balanced judgement regarding the Exploration Results, Mineral Resources or Ore Reserves being reported*	

	reported.	
6. The Code is applicable to all solid minerals, including diamonds, other gemstones and coal, for which Public Reporting of exploration results, Mineral Resources and Ore Reserves is required by the Australian and New Zealand Stock Exchanges.	6. The Code is applicable to all solid minerals, including diamonds, other gemstones and coal, for which Public Reporting of Exploration Results, Mineral Resources and Ore Reserves is required by the Australian and New Zealand Stock Exchanges. *The JORC Code is cited by the 'Code and Guidelines for Technical Assessment and/or Valuation of Mineral and Petroleum Assets and Mineral and Petroleum Securities for Independent Expert Reports' (the 'VALMIN Code') as the applicable standard for the public reporting of Exploration Results, Mineral Resources and Ore Reserves. References to 'technical and economic studies', 'feasibility studies' and the like in the JORC Code are not intended as references to Technical Assessments or Valuations as defined in the VALMIN Code.*	Guideline inserted to provide a clear distinction between the purposes of the JORC and Valmin Codes in relation to studies.
7. The Joint Committee recognises that further review of the Code will be required from time to time.	7. JORC recognises that further review of the Code and Guidelines will be required from time to time.	
Competence and Responsibility	**Competence and Responsibility**	
8. A Public Report concerning a company's Mineral Resources and/or Ore Reserves is the responsibility of the company acting through its Board of Directors. Any such report must be based on, and fairly reflect, the Mineral Resource and/or Ore	8. A Public Report concerning a company's Exploration Results, Mineral Resources and/or Ore Reserves is the responsibility of the company acting through its Board of Directors. Any such report must be based on, and fairly reflect the information and supporting	Inclusion of 'Exploration Results' in this context is a **major change in the 2003 JORC Code**. See also Clause 10 - definition of a Competent Person.

Reserve estimates and supporting documentation prepared by a Competent Person[D10] or Persons. In compiling Mineral Resource and/or Ore Reserve information in a Public Report, a company may need to edit the documentation prepared by the Competent Persons. Where such editing takes place, the Competent Persons must give their consent in writing to the company to the inclusion in the Public Report of the matters based on their information in the form and context in which it appears in the Public Report. *Refer to Appendix 1 for information on stock exchange requirements to name the Competent Person(s)*	documentation prepared by a Competent Person or Persons. A company issuing a Public Report shall disclose the name(s) of the Competent Person or Persons, state whether the Competent Person is a full-time employee of the company, and, if not, name the Competent Person's employer. The report shall be issued with the written consent of the Competent Person or Persons as to the form and context in which it appears. *See Appendix 1 for an appropriate form of words to comply with this requirement.*	Currently, the requirement to name the Competent Person is in the ASX Listing Rules, not the JORC Code. JORC believes, and the ASX has agreed, that it would make more sense for the requirement to be transferred to the JORC Code. The proposed wording has been taken largely from the relevant ASX Listing Rule. **This is a significant change.** As the requirement to name the Competent Person is now proposed to be in the body of the Code, the second paragraph in the 1999 Code is no longer required.
9. Documentation detailing Mineral Resources and Ore Reserves estimates from which a Public Report on Mineral Resources and Ore Reserves is prepared, must be prepared by or under the direction of, and signed by, a Competent Person or Persons.	9. Documentation detailing Exploration Results, Mineral Resource and Ore Reserve estimates, on which a Public Report on Exploration Results, Mineral Resources and Ore Reserves is based, must be prepared by, or under the direction of, and signed by, a Competent Person or Persons.	The inclusion of the requirement for a Competent Person to prepare the documentation for the reporting of Exploration Results is **a significant change**.
10. A 'Competent Person' is a person who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy and/or the Australian Institute of Geoscientists with a minimum of five years experience which is 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	10. **A 'Competent Person' is a person who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy, or of the Australian Institute of Geoscientists, or of a 'Recognised Overseas Professional Organisation' ('ROPO') included in a list promulgated by the ASX from time to time.**	The modified wording preserves the position of the AusIMM and AIG as the prime Competent Person bodies, and extends the definition to Recognised Overseas Professional Organisations as has been agreed with JORC's parents and the ASX. **This is a significant Change.**

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 Ore Reserves, the relevant experience must be in the estimation, assessment, evaluation and economic extraction of Ore Reserves.	**A 'Competent Person' must have a minimum of five years experience which is 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 preparing a report on Exploration Results, the relevant experience must be in exploration. 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 Ore Reserves, the relevant experience must be in the estimation, assessment, evaluation and economic extraction of Ore Reserves.**	The Competent Person definition has been divided into three short paragraphs to improve presentation. A new section has been added to cover the reporting of Exploration Results. **This is a significant Change.**
The key qualifier in the definition of a Competent Person is the word `relevant'. Determination of what constitutes relevant experience can be a difficult area and common sense has to be exercised. For example, in estimating Mineral Resources for vein gold mineralisation, experience in a high-nugget, vein-type mineralisation such as tin, uranium etc. will probably be relevant whereas experience in (say) massive base metal deposits may not be. As a second example, for a person to qualify as a Competent Person in the estimation of Ore Reserves for alluvial gold deposits, he or she would need to have considerable (probably at least five years) experience in the evaluation and economic extraction of this type of mineralisation, due to the characteristics of gold in alluvial systems, the particle sizing of the host sediment, and the low grades involved. Experience with placer deposits	*The key qualifier in the definition of a Competent Person is the word `relevant'. Determination of what constitutes relevant experience can be a difficult area and common sense has to be exercised. For example, in estimating Mineral Resources for vein gold mineralisation, experience in a high-nugget, vein-type mineralisation such as tin, uranium etc. will probably be relevant whereas experience in (say) massive base metal deposits may not be. As a second example, to qualify as a Competent Person in the estimation of Ore Reserves for alluvial gold deposits, considerable (probably at least five years) experience in the evaluation and economic extraction of this type of mineralisation would be needed. This is due to the characteristics of gold in alluvial systems, the particle sizing of the host sediment, and the low grades involved. Experience with placer deposits containing minerals other than gold may not*	

containing minerals other than gold may not necessarily provide appropriate 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 (say) 20 years experience in Mineral Resource estimation in a variety of metalliferous hard-rock deposit types may not require five years specific experience in (say) porphyry copper deposits in order to act as a Competent Person. Relevant experience in the other deposit types could count towards the required experience in relation to porphyry copper deposits.* *In addition to experience in the style of mineralisation, a Competent Person preparing or taking responsibility for Mineral Resource estimates should have sufficient experience in the 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 act as Competent Persons 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. If doubt exists, the person should either seek opinions from other colleagues or should decline to act as a Competent Person.*	*deposits containing minerals other than gold may not necessarily provide appropriate 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 (say) 20 years experience in estimating Mineral Resources for a variety of metalliferous hard-rock deposit types may not require five years specific experience in (say) porphyry copper deposits in order to act as a Competent Person. Relevant experience in the other deposit types could count towards the required experience in relation to porphyry copper deposits.* *In addition to experience in the style of mineralisation, a Competent Person taking responsibility for Exploration Results or Mineral Resource estimates should have sufficient experience in the sampling and analytical techniques relevant to the deposit under consideration to be aware of problems which could affect the reliability of data. Some appreciation of extraction and processing techniques applicable to that deposit type may also be important.* *As a general guide, persons being called upon to act as Competent Persons 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. If doubt exists, the person should either seek opinions from appropriately experienced colleagues or should decline to act as a Competent Person.*	

should decline to act as a Competent Person. *Estimation of Mineral Resources is often a team effort (for example, involving one person or team collecting the data and another person or team preparing the Mineral Resource estimate). Within this team, geologists usually occupy the pivotal role. Estimation of Ore Reserves is almost always a team effort involving a number of technical disciplines, and within this team, mining engineers usually occupy the pivotal role. Documentation for a Mineral Resource or Ore Reserve estimate must be compiled by, or under the supervision of, a Competent Person or Persons, whether a geologist, mining engineer or member of another discipline. However, it is recommended that, where there is a clear division of responsibilities within a team, each Competent Person should accept responsibility for his or her particular contribution. For example, one Competent Person could accept responsibility for the collection of Mineral Resource data, another for the Mineral Resource estimation process, another for the mining study, and the project leader could accept responsibility for the overall document. It is important that the Competent Person accepting overall responsibility for a Mineral Resource or Ore Reserve estimate and supporting documentation which has been prepared in whole or in part by others is satisfied that the work of the other contributors is acceptable.* *If the Competent Person is a Member or Fellow of The Australasian Institute of Mining and Metallurgy ('The AusIMM'), he or she is answerable to The AusIMM Ethics Committee if a complaint is made in respect of his or her professional work. If the*	*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 estimate). Estimation of Ore Reserves is very commonly a team effort involving several technical disciplines. The Competent Person signing the Mineral Resource or Ore Reserve report is responsible and accountable for the whole of the report under the Code. However, it is recommended that, where there is clear division of responsibility within a team, each Competent Person and his or her contribution should be identified, and responsibility accepted for that particular contribution. It is important that the Competent Person accepting overall responsibility for a Mineral Resource or Ore Reserve estimate and supporting documentation prepared in whole or in part by others is satisfied that the work of the other contributors is acceptable.* *Complaints made in respect of the professional work of a Competent Person will be dealt with under the disciplinary procedures of the professional organisation to which the Competent Person belongs*	Modified to use similar wording to that in the Reporting Code. Specific example in 1999 Code deleted. This has been modified to make the reference more generic and to cover ROPOs.

Competent Person is a Member or Fellow of the Australian Institute of Geoscientists ('AIG') the matter will be dealt with by the Ethics and Standards Committee of the AIG Council, if a complaint is made in respect of his or her professional work. *When an Australian listed or New Zealand listed company with overseas interests wishes to report an overseas Mineral Resource or Ore Reserve estimate prepared by a person who is not a member of The AusIMM or of the AIG, it is necessary for the company to nominate a Competent Person or Persons to take responsibility for the Mineral Resource or Ore Reserve estimate. The Competent Person or Persons undertaking this activity should appreciate that they are accepting full responsibility for the estimate and supporting documentation under ASX or NZSX listing rules and should not treat the procedure merely as a 'rubber-stamping' exercise.*	*When an Australian listed or New Zealand listed company with overseas interests wishes to report overseas Exploration Results, Mineral Resource or Ore Reserve estimates prepared by a person who is not a member of The AusIMM, the AIG or a ROPO, the company may nominate a Competent Person or Persons to take responsibility for the Exploration Results, Mineral Resource or Ore Reserve estimate. The Competent Person or Persons undertaking this activity should appreciate that they are accepting full responsibility for the estimate and supporting documentation under Stock Exchange listing rules and should not treat the procedure merely as a 'rubber-stamping' exercise.*	This wording assumes the deletion of provisions relating to the role of a 'recognised mining professional' currently in the Listing Rules, which the ASX has agreed will occur once the ROPO system is operational.
11 For Public Reports dealing with diamond or other gemstone mineralisation, it is also a requirement of this Code that, if a valuation of a parcel of diamonds or gemstones is reported, the person(s) or organisations valuing the parcel must be named in the report and their professional valuation experience, competency and independence stated.	11. For Public Reports dealing with diamond or other gemstone mineralisation, it is a requirement of this Code that any reported valuation of a parcel of diamonds or gemstones be accompanied by a statement verifying the independence of the valuation.	Modified to remove the requirement to name the valuer. **This is a significant change.**
Reporting Terminology	**Reporting Terminology**	
12. Public Reports dealing with Mineral Resources and/or Ore Reserves must only use the terms set	12. Public Reports dealing with Exploration Results, Mineral Resources and/or Ore Reserves must only	Exploration Results included

out in Figure 1.	use the terms set out in Figure 1. **The term 'Modifying Factors' is defined to include mining, metallurgical, economic, marketing, legal, environmental, social and governmental considerations.**	Definition of Modifying Factors added for reference, close to Figure 1 where it first appears.
FIGURE 1	**FIGURE 1 REMAINS THE SAME AS IN THE CURRENT CODE**	

Figure 1
Relationship between Mineral Resources and Ore Reserves

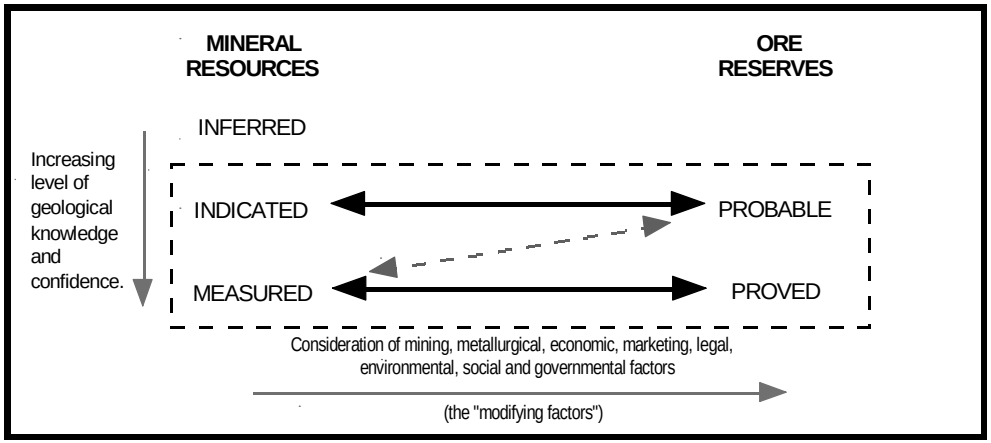

Figure 1 sets out the framework for classifying tonnage and grade estimates so as to reflect different levels of geological confidence and different degrees of technical and economic evaluation. Mineral Resources can be estimated mainly by a geologist on the basis of geoscientific information with some input from other disciplines. Ore Reserves, which are a modified sub-set of the Indicated[D22] and Measured Mineral Resources[D23] (shown within the dashed outline in Figure 1), require consideration of those factors affecting extraction, including mining, metallurgical, economic, marketing, legal, environmental, social and governmental 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 Ore Reserves[D30] because of uncertainties associated with the modifying factors which are taken into account in the conversion from Mineral Resources to Ore Reserves. This relationship is shown by the broken arrow in Figure 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 the guidelines to Clause 32.*	*Figure 1 sets out the framework for classifying tonnage and grade estimates to reflect different levels of geological confidence and different degrees of technical and economic evaluation. Mineral Resources can be estimated mainly by a geologist on the basis of geoscientific information with some input from other disciplines. Ore Reserves, which are a modified sub-set of the Indicated and Measured Mineral Resources (shown within the dashed outline in Figure 1), require consideration of the Modifying Factors affecting extraction, and should in most instances be estimated with input from a range of disciplines.* *In certain situations, Measured Mineral Resources could convert to Probable Ore Reserves because of uncertainties associated with the Modifying Factors which are taken into account in the conversion from Mineral Resources to Ore Reserves. This relationship is shown by the broken arrow in Figure 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 the guidelines to Clause 33.*	Replaced with Modifying Factors defined above.
Reporting – General	**Reporting – General**	
13. Public Reports concerning a company's Mineral Resources or Ore Reserves should include a	13. Public Reports concerning a company's Exploration Results, Mineral Resources or Ore Reserves should	"Exploration Results" included.

Resources or Ore Reserves should include a description of the style and nature of mineralisation.	include a description of the style and nature of the mineralisation.	
14. 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. A company must promptly report any material changes in its Mineral Resources or Ore Reserves.	14. A company must disclose any relevant information concerning a mineral deposit that could materially influence the economic value of that deposit to the company. A company must promptly report any material changes in its Mineral Resources or Ore Reserves.	ASX Listing Rules were amended in 2001 to remove the previous inconsistency between Listing Rule 5.6 and Clauses 14 and 15 of the JORC Code.
15. Companies must review and publicly report on their Mineral Resources and Ore Reserves annually.	15. Companies must review and publicly report on their Mineral Resources and Ore Reserves at least annually.	Added flexibility
16. Throughout the Code, where appropriate, 'quality' may be substituted for 'grade' and 'volume' may be substituted for 'tonnage'.	16. Throughout the Code, if appropriate, 'quality' may be substituted for 'grade' and 'volume' may be substituted for 'tonnage'. (Refer Appendix 2 – Table of Generic Terms and Equivalents).	Appendix 2 'Table of Generic Terms and Equivalents' modified slightly from the Reporting Code included in the 2003 Code.
Reporting of Exploration Results	**Reporting of Exploration Results**	
17. A company may choose, or be required under stock exchange listing rules, to report exploration results. If a company reports exploration results in relation to mineralisation not classified as a Mineral Resource or an Ore Reserve, then estimates of tonnages and average grade must not be assigned to the mineralisation.	**17. Exploration Results include data and information generated by exploration programmes that may be of use to investors but which may not be part of a formal declaration of Mineral Resources or Ore Reserves.** The reporting of such information is common in the	Inclusion of a definition for Exploration Results, and the requirement for reporting of Exploration Results to involve a Competent Person, is **a major proposed change**. The new definition is in bold in keeping with rest of Code, and has been taken largely from the Reporting Code.

	early stages of exploration when the quantity of data available is generally not sufficient to allow any reasonable estimates of Mineral Resources. If a company reports Exploration Results in relation to mineralisation not classified as a Mineral Resource or an Ore Reserve, then estimates of tonnages and average grade must not be assigned to the mineralisation. *Examples of Exploration Results include results of outcrop sampling, assays of drill hole intercepts, geochemical results or results of geophysical surveys.*	**This is a significant Change.** It was recognised that the juxtaposition in the 1999 Code of a clause disallowing the reporting of tonnes/grade at the Exploration Results stage with a guideline that allowed such reporting for exploration targets was illogical and confusing. The relevant guideline from Clause 17 of the 1999 Code, relating to "potential" tonnes and grade, has been removed from the Exploration Results section and placed in Clause 20.
Where descriptions of exploration targets or exploration potential are given in Public Reports, any tonnage/grade figures mentioned must be clearly order-of-magnitude and conceptual in nature and expressed so as not to misrepresent them as an estimate of Mineral Resources or Ore Reserves.		
18. Public Reports of exploration results relating to mineralisation not classified as Mineral Resources or Ore Reserves must contain sufficient information to allow a considered and balanced judgement of the significance of the results. This must include relevant information such as sampling intervals and methods, sample locations, assay data, laboratory analyses, data aggregation methods plus information on any of the other criteria listed in	18. Public Reports of Exploration Results must contain sufficient relevant information to allow a considered and balanced judgement of their significance. Reports must include relevant information such as exploration context, type and method of sampling, sampling intervals and methods, sample locations, distribution, dimensions and relative location of all relevant assay data, data aggregation methods, land tenure status plus information on any of the other	Following an agreement reached with the ASX to transfer certain requirements for reporting of Exploration Results from the Listing Rules to the JORC Code, Clause 18 has been amended to incorporate the wording from the relevant Listing Rules (mainly LR 5.7 and 5.8). Otherwise the wording has been taken largely from the Reporting Code.

Table 1 that are material to an assessment. The reporting of exploration sampling or geophysical results must not be presented so as to unreasonably imply that potentially economic mineralisation has been discovered. *Table 1 is a check list and guideline to which those preparing reports on exploration results, Mineral Resources and Ore Reserves should refer. The check list is not prescriptive and, as always, relevance and materiality are overriding principles which determine what information should be publicly reported. Reporting of isolated assays without placing them in perspective is unacceptable.*	criteria listed in Table 1 that are material to an assessment. Public Reports of Exploration Results must include the statement or words to the effect: "It should not be assumed that the reported Exploration Results will result, with further exploration, in the definition of a Mineral Resource." If true widths of mineralisation are not stated in the report, an appropriate qualification must be included. Assay results must be reported either by listing all results, with sample widths (or size, in the case of bulk samples) or by reporting weighted average grades of the mineralised zone, indicating clearly how the grade was calculated. Reporting of selected information such as isolated assays, isolated drill holes, assays of panned concentrates or supergene enriched soils or surface samples, without placing them in perspective is unacceptable. *Table 1 is a check list and guideline to which those preparing reports on Exploration Results, Mineral Resources and Ore Reserves should refer. The check list is not prescriptive and, as always, relevance and materiality are overriding principles which determine what information should be publicly reported.*	This is a new requirement proposed to clarify the purpose of the inclusion of Exploration Results and their limitations. This guideline is consistent with current wording in ASX Listing Rules. Last words relocated from 1999 guideline.
19. Public Reports dealing with diamonds require the following additions:	19. Public Reports dealing with diamonds require the following additions:	

▪ Reports of diamonds recovered from sampling programs must specify the number and total weight (in carats) of diamonds recovered. Details of the type and size of samples which produced the diamonds must also be specified including the lower cut-off sieve size used in the recovery ▪ The weight of diamonds recovered may only be omitted from the report when the diamonds are less than 0.4mm in size (ie when the diamonds recovered are microdiamonds).	• Reports of diamonds recovered from sampling programs must describe the size/number and size/ weight distributions (including total numbers and total weights in carats) of diamonds recovered for specified mesh sizes. Details of the type and size of samples that produced the diamonds must also be specified including the lower cut-off sieve size and the final crushing top size used in the recovery • The weight of diamonds recovered may only be omitted from the report when the diamonds are considered to be too small to be of commercial significance. This cut-off size should be stated. The preferred definition of a macrodiamond is a stone that is retained by a 0.5 mm sieve and a microdiamond is a stone that falls through a 0.5 mm sieve but is retained by a 0.1mm sieve. *The following information should be reported: sample source (eg surface outcrop, talus, scree, drill core, drill chips, stream sediments), sample weight (dry tonnes or kg), lower cut-off mesh size for processing of samples, number of diamonds larger than lower cut-off sizes, weight per size class of any diamonds larger than a stated commercial cut-off size.*	Clause and guideline expanded in response to suggestions from diamond specialists. JORC is aware of an initiative being led by the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") to develop a set of guidelines for the reporting of diamond exploration results in Canada. If the CIM guidelines are published before the JORC Code revision is completed, JORC will review them for possible inclusion in the 2003 JORC Code.
	Reporting of Exploration Targets	New section sub-heading
	20. A company may choose to describe the aims of its exploration in terms of exploration targets with tonnages, grades and/or metal contents, expressed as ranges.	Clause 20 separates the reporting of exploration targets from the reporting of Exploration Results, and **is a significant change**. In the committee's view, it is necessary to include a provision allowing conditional reporting of exploration targets,

	Public Reports that mention target sizes must include a statement or words to the effect, that: "The exploration target sizes mentioned are conceptual in nature and do not imply that Mineral Resources have been, or will be, defined."	since a prohibition could result in investors not being fully informed. Canada has also dealt with this issue. Section 2.3 of National Instrument 43-101 reads: "*subsection 2.3(2) permits an issuer to disclose in writing potential quantity and grade of an exploration target provided that the disclosure includes (1) the basis for the potential, and (2) a proximate statement that potential quantity and grade is conceptual in nature and that there has been insufficient exploration to define a mineral resource on the property and it is uncertain if further exploration will result in discovery of a mineral resource on the property*"
Reporting of Mineral Resources	**Reporting of Mineral Resources**	
20. A 'Mineral Resource' is a concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred[D21], Indicated[D22] and Measured[D23] categories. Portions of a deposit that do not have reasonable prospects for eventual economic extraction must	**21. A 'Mineral Resource' is a concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.** Portions of a deposit that do not have reasonable prospects for eventual economic extraction must not	"Quality" was inserted into the Reporting Code and SAMREC Code. Removal of Superscript Indexing

not be included in a Mineral Resource.	be included in a Mineral Resource. If the judgement as to 'eventual economic extraction' relies on untested practices or assumptions, this is a material matter which must be disclosed in a public report.	
The term 'Mineral Resource' covers mineralisation which has been identified and estimated through exploration and sampling and within which Ore Reserves may be defined by the consideration and application of technical, economic, legal, environmental, social and governmental factors.	*The term 'Mineral Resource' covers mineralisation, including dumps and tailings, which has been identified and estimated through exploration and sampling and within which Ore Reserves may be defined by the consideration and application of Modifying Factors.*	Additional words included from The Reporting Code. The words "mining, metallurgical, economic, marketing, legal, environmental, social, and governmental factors" are replaced by the term "Modifying Factors" now defined in clause 12.
The term 'reasonable prospects for eventual economic extraction' implies a judgement (albeit preliminary) by the Competent Person in respect of the technical and 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 grade, likely mining dimensions, location or continuity. It is a realistic inventory of mineralisation which, under assumed and justifiable technical and economic conditions, might, in whole or in part, become economically extractable.	*The term 'reasonable prospects for eventual economic extraction' implies a judgement (albeit preliminary) by the Competent Person in respect of the technical and 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 grade, likely mining dimensions, location or continuity. It is a realistic inventory of mineralisation which, under assumed and justifiable technical and economic conditions, might, in whole or in part, become economically extractable.*	
Where considered appropriate by the Competent Person, Mineral Resource estimates may include material 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. Documentation of Mineral Resource	*Where considered appropriate by the Competent Person, Mineral Resource estimates may include material 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*	In the 1999 Code, the guideline paragraph beginning "*Where considered appropriate ……"* was located at the end of this clause. It has been repositioning in the 2003 Code and also in the 1999 comparative Code for

mining. Documentation of Mineral Resource estimates should clearly identify any such inclusions, and Public Reports should include commentary on the matter if considered material.	*mining. Documentation of Mineral Resource estimates should clearly identify any diluting material included, and Public Reports should include commentary on the matter if considered material.* *Any material assumptions made in determining the 'reasonable prospects for eventual economic extraction' should be clearly stated in the Public Report.*	ease of comparison.
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.	*Interpretation of the word 'eventual' in this context may vary depending on the commodity or mineral involved. For example, for some 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 10 to 15, and frequently to much shorter periods of time.*	
	Any adjustment made to the data for the purpose of making the Mineral Resource estimate, for example by cutting or factoring grades, should be clearly stated and described in the Public Report.	Adapted from "The Reporting Code". This also picks up part of a guideline in Clause 28 of the 1999 Code.
Certain reports (eg: coal 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 prospects for eventual economic extraction. Such estimates of	*Certain reports (eg: coal 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 prospects for eventual economic extraction. Such estimates of mineralisation would not qualify as Mineral*	

mineralisation would not qualify as Mineral Resources or Ore Reserves in terms of the JORC Code (refer also to the guidelines to Clauses 5 and 37).	*Resources or Ore Reserves in terms of the JORC Code (refer also to the guidelines to Clauses 5 and 39).*	
21. 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 which 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 attach to some Inferred Mineral Resources, it cannot be assumed that all or part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration.*	**22. 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 which 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. Commonly, it would be reasonable to expect that the majority of Inferred Mineral Resources would upgrade to Indicated Mineral Resources with continued exploration. However, due to the uncertainty of Inferred Mineral Resources, it should not be assumed that such upgrading will always occur.*	The wording of this guideline in the 1999 Code implied a greater degree of uncertainty in Inferred Resources than was appropriate, hence the proposed re-wording.

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.*	*Confidence in the estimate is usually not sufficient to allow the application of technical and economic parameters or to enable an evaluation of economic viability. For this reason, there is no direct link from an Inferred Resource to any category of Ore Reserves (see Figure 1).* *Caution should be exercised if this category is considered in technical and economic studies.*	Adapted from "The Reporting Code".
22. **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. *Mineralisation may be classified as an Indicated Mineral Resource when the nature, quality, amount and distribution of data are such as to allow confident interpretation of the geological framework*	23. **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. *Mineralisation may be classified as an Indicated Mineral Resource when the nature, quality, amount and distribution of data are such as to allow confident*	

confident interpretation of the geological framework and to assume 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.*	*interpretation of the geological framework and to assume continuity of mineralisation.* *Confidence in the estimate is sufficient to allow the application of technical and economic parameters, and to enable an evaluation of economic viability that is unlikely to be materially affected by uncertainty in the estimate.*	
23. **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/or grade continuity.** *Mineralisation may be classified as a Measured Mineral Resource when the nature, quality, amount and distribution of data are such as to leave no reasonable doubt, in the opinion of the Competent Person determining the Mineral Resource, that the tonnage and grade of the mineralisation can be estimated to within close limits and that any variation from the estimate would not significantly affect potential economic viability.* *This category requires a high level of confidence in, and understanding of, the geology and controls of*	24. **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.** *Mineralisation may be classified as a Measured Mineral Resource when the nature, quality, amount and distribution of data are such as to leave no reasonable doubt, in the opinion of the Competent Person determining the Mineral Resource, that the tonnage and grade of the mineralisation can be estimated to within close limits, and that any variation from the estimate would not significantly affect potential economic viability.* *This category requires a high level of confidence in,*	"and" instead of "and/or", correcting an oversight in the 1999 Code.

and understanding of, the geology and 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.*	*and understanding of, the geology and controls of the mineral deposit.* *Confidence in the estimate is sufficient to allow the application of technical and economic parameters and to enable a definitive evaluation of economic viability.*	
24. The choice of the appropriate category of Mineral Resource depends upon the quantity, distribution and quality of data available and the level of confidence that attaches to those data. The appropriate Mineral Resource category must be determined by a Competent Person or Persons. *Mineral Resource classification is a matter for skilled judgement and Competent Persons should take into account those items in Table 1 which relate to confidence in Mineral Resource estimation.* *In deciding between Measured Mineral Resources and Indicated Mineral Resources, Competent Persons may find it useful to consider, in addition to the phrases in the two definitions relating to geological and grade continuity in Clauses 22 and 23, the phrase in the guideline to the definition for Measured Mineral Resources: '.... any variation from the estimate would not significantly affect potential economic viability'.* *In deciding between Indicated Mineral Resources and Inferred Mineral Resources, Competent Persons may wish to take into account, in addition to the phrases in the two definitions in Clauses 21 and 22 relating to geological and grade continuity,*	25. The choice of the appropriate category of Mineral Resource depends upon the quantity, distribution and quality of data available and the level of confidence that attaches to those data. The appropriate Mineral Resource category must be determined by a Competent Person or Persons. *Mineral Resource classification is a matter for skilled judgement and Competent Persons should take into account those items in Table 1 which relate to confidence in Mineral Resource estimation.* *In deciding between Measured Mineral Resources and Indicated Mineral Resources, Competent Persons may find it useful to consider, in addition to the phrases in the two definitions relating to geological and grade continuity in Clauses 23 and 24, the phrase in the guideline to the definition for Measured Mineral Resources: '.... any variation from the estimate would not significantly affect potential economic viability'.* *In deciding between Indicated Mineral Resources and Inferred Mineral Resources, Competent Persons may wish to take into account, in addition to the phrases in the two definitions in Clauses 22 and 23 relating to geological and grade continuity, the*	

the guideline to the definition for Indicated Mineral Resources: 'Confidence in the estimate is sufficient to allow the appropriate application of technical and economic parameters and to enable an evaluation of economic viability', which contrasts with the guideline to the definition for Inferred Mineral Resources: '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'.	*guideline to the definition for Indicated Mineral Resources: 'Confidence in the estimate is sufficient to allow the application of technical and economic parameters and to enable an evaluation of economic viability that is unlikely to be materially affected by uncertainty in the estimate.', which contrasts with the guideline to the definition for Inferred Mineral Resources: 'Confidence in the estimate is usually not sufficient to allow the application of technical and economic parameters or to enable an evaluation of economic viability'. Caution should be exercised if this category is considered in technical and economic studies'.* *The Competent Person should take into consideration issues of the style of mineralisation, scale and cut-off grade when assessing geological and grade continuity.* *Cut-off grades chosen for the estimation should be realistic in relation to the style of mineralisation.*	Adjusted to reflect revised guidelines in clause 22. Adapted from "The Reporting Code".
25. 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 should 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'. *In most situations, rounding to the second significant figure should be sufficient. For example*	26. 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 should reflect the relative uncertainty 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'. *In most situations, rounding to the second significant figure should be sufficient. For example 10,863,000*	Change in wording to better express the intention.

10,863,000 tonnes at 8.23 per cent should be stated as 11 million tonnes at 8.2 per cent. There will be occasions, however, where rounding to the first significant figure may be necessary in order to convey properly the uncertainties in estimation. This would usually be the case with Inferred Mineral Resources. *To emphasise the imprecise nature of a Mineral Resource or Ore Reserve estimate, the final result should always be referred to as an estimate not a calculation.*	*tonnes at 8.23 per cent should be stated as 11 million tonnes at 8.2 per cent. There will be occasions, however, where rounding to the first significant figure may be necessary in order to convey properly the uncertainties in estimation. This would usually be the case with Inferred Mineral Resources.* *To emphasise the imprecise nature of a Mineral Resource estimate, the final result should always be referred to as an estimate not a calculation.* *Competent Persons are encouraged, where appropriate, to discuss the relative accuracy and/or confidence of the Mineral Resource estimates. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnage or volume. Where a statement of the relative accuracy and/or confidence is not possible, discussion of associated risk should be provided (refer to Table 1).*	New guideline to encourage improved communication of the uncertainty associated with Mineral Resource estimates. **This is a significant Change.**
26. Public Reports of Mineral Resource must specify one or more of the categories of 'Inferred', 'Indicated' and 'Measured'. Categories must not be reported in a combined form unless details for the individual categories are also provided. Mineral Resources must not be reported in terms of contained metal or mineral content unless corresponding tonnages and grades are also presented. Mineral Resources must not be aggregated with Ore Reserves.	27. Public Reports of Mineral Resource must specify one or more of the categories of 'Inferred', 'Indicated' and 'Measured'. Categories must not be reported in a combined form unless details for the individual categories are also provided. Mineral Resources must not be reported in terms of contained metal or mineral content unless corresponding tonnages and grades are also presented. Mineral Resources must not be aggregated with Ore Reserves. Public Reporting of tonnage and grade outside the categories covered by the Code is not permitted. *Estimation of tonnage and grade outside of the*	This subclause repeated from Clause 35 the general clause about Ore Reserves as by leaving it in clause 35 only it may be implied that it is only referring to Ore

	categories covered by the Code may be useful for a company in its internal calculations and evaluation processes, but their inclusion in Public Reports could cause undue confusion.	implied that it is only referring to Ore Reserves.
27. Table 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 Ore Reserves. These criteria need not be discussed in a Public Report unless they materially affect estimation or classification of the Mineral Resources. Where diamond Mineral Resource grades are based on the correlation of macrodiamond grade with the grade of microdiamonds, this must be stated and its reliability explained. *It is not necessary, when publicly reporting, to comment on each item in Table 1, 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 Ore Reserves; for example, poor sample recovery, poor repeatability of assay or laboratory results, limited information on tonnage factors etc.* *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.*	28. Table 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 Ore Reserves. These criteria need not be discussed in a Public Report unless they materially affect estimation or classification of the Mineral Resources. Where diamond Mineral Resource grades are based on the correlation of macrodiamond grade with the grade of microdiamonds, this must be stated and its reliability explained. *It is not necessary, when publicly reporting, to comment on each item in Table 1, 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 Ore Reserves; for example, poor sample recovery, poor repeatability of assay or laboratory results, limited information on tonnage factors etc.* *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.* *Uncertainties in any of the criteria listed in Table 1 that could lead to under- or over- statement of*	There may be instances where, due to improvements in assay technique (e.g.

	resources should be disclosed.	aqua regia vs fire assay), the results being considered may be understated in the data. This insertion is to remind people that positive adjustments, where they can be justified, should also be considered and reported.
Mineral Resource or Ore Reserve estimates are sometimes reported after adjustment by cutting of high grades, or after the application of modifying factors arising from reconciliation with mill data. If any of the data are materially adjusted or modified for the purpose of making the estimate, or if the estimate is subsequently adjusted, this should be clearly stated in a Public Report of Mineral Resources or Ore Reserves and the nature of the adjustment or modification described.	*Mineral Resource estimates are sometimes reported after adjustment from reconciliation with production data. Such adjustments should be clearly stated in a Public Report of Mineral Resources and the nature of the adjustment or modification described.*	The section of the 1999 guideline that referred to adjustments to data has been moved to Clause 21. The references to Ore Reserves that were in this guideline in the 1999 Code are now included under Clause 30.
28. 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 technical, economic, marketing, legal, environmental, social and governmental 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 the Ore Reserves are no longer viable, the Ore Reserves must be reclassified as Mineral Resources or removed from Mineral Resource/Ore Reserve statements.	29. The words 'ore' and 'reserves' must not be used in describing 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 the Ore Reserves are no longer viable, the Ore Reserves must be reclassified as Mineral Resources or removed from Mineral Resource/Ore Reserve statements.	"Modifying Factors" have replaced the words "mining, metallurgical, economic, marketing, legal, environmental, social, and governmental factors" throughout the Code after being defined in clause 12, except in the major definitions.
It is not intended that re-classification from Ore Reserves to Mineral Resources should be applied	*It is not intended that re-classification from Ore Reserves to Mineral Resources or vice versa should be applied as a result of changes expected to be of a*	Adapted from "The Reporting Code".

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 operate on a non-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.	*short term or temporary nature, or where company management has made a deliberate decision to operate on a non-economic basis. Examples of such situations might be a commodity price fluctuations expected to be of short duration, mine emergency of a non-permanent nature, transport strike etc.*	
Reporting of Ore Reserves	**Reporting of Ore Reserves**	
29. **An 'Ore Reserve' is the economically mineable part of a Measured or Indicated Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include 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 could reasonably be justified. Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves[D30] and Proved Ore Reserves[D31].**	**30. An 'Ore Reserve' is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include 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 could reasonably be justified. Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves.** In reporting Ore Reserves, information on estimated mineral processing recovery factors is very important, and should always be included in Public Reports.	Former guideline from Clause 34 converted to a clause and moved forward
Ore Reserves are those portions of Mineral Resources which, after the application of all mining factors, result in an estimated tonnage and grade	*Ore 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*	

which, in the opinion of the Competent Person or Persons making the estimates, can be the basis of a viable project after taking account of all relevant metallurgical, economic, marketing, legal, environmental, social and governmental factors.	*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 Modifying Factors*	
Ore Reserves are inclusive of diluting material, which will be mined in conjunction with the Ore Reserves and delivered to the treatment plant or equivalent.	*Ore Reserves are reported as inclusive of marginally economic material and diluting material delivered for treatment or dispatched from the mine without treatment.*	Rewording for clarification
	The material aspects of the assumptions made in arriving at the estimate should be disclosed.	New guideline.
The term 'economic' implies that extraction of the Ore Reserve has been established or analytically demonstrated to be viable and justifiable under reasonable investment assumptions.	*The term 'economically mineable' implies that extraction of the Ore Reserve has been demonstrated to be viable under reasonable financial assumptions. What constitutes the term 'realistically assumed' will vary with the type of deposit, the level of study that has been carried out and the financial criteria of the individual company. For this reason, there can be no fixed definition for the term 'economically mineable'.*	Rewording to specifically reference the opening sentence of this clause. Adapted from the Reporting Code.
	In order to achieve the required level of confidence in the Modifying Factors it is expected that appropriate studies will have been carried out prior to determination of the Ore Reserves. The studies will have determined a mine plan that is technically achievable and economically viable and from which the Ore Reserves can be derived.	Guideline for the level of study expected to enable the estimation of an Ore Reserve. Adapted from the Reporting Code but not including the words "prefeasibility study" which are included in the Reporting Code. **This is a significant change in the guideline.**
The term 'Ore Reserve' need not necessarily signify	*The term 'Ore Reserve' need not necessarily signify that extraction facilities are in place or operative, or*	

that extraction facilities are in place or operative or that all governmental approvals have been received. It does signify that there are reasonable expectations of such approvals.	*that all necessary approvals or sales contracts have been received. It does signify that there are reasonable expectations of such approvals or contracts. The Competent Person should consider the materiality of any unresolved matter that is dependent on a third party, on which extraction is contingent.*	
	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. *Any adjustment made to the data for the purpose of making the Ore Reserve estimate, for example by cutting or factoring grades, should be clearly stated and described in the Public Report.*	While this guideline appears under Clause 28 "Mineral Resources", it was felt useful to repeat it under "Ore Reserves" Modification of Guideline from Clause 27 of the 1999 Code. The section of the guideline dealing with reconciliation with production data has been moved to Clause 37.
It should be noted that the Code does not imply that an economic operation must have Proved Ore Reserves. Situations arise where Probable Ore Reserves alone may be sufficient to justify extraction, as for example with some alluvial tin or gold deposits.		This guideline in the 1999 Code has been deleted as it is considered beyond the scope of reporting.
Some countries use the term 'Mineral Reserve' instead of 'Ore Reserve'. The Joint Ore Reserves Committee has retained the term 'Ore Reserve' because it assists in maintaining a clear distinction between a 'Mineral Resource' and an 'Ore Reserve', a distinction which might be less clear if 'Mineral Reserve' was substituted. However, if preferred by the reporting company, 'Ore Reserve' and 'Mineral Resource' estimates for coal may be	*Where companies prefer to use the term 'Mineral Reserves' in their Public Reports, e.g. for reporting industrial minerals or for reporting outside Australasia, they should state clearly that this is being used with the same meaning as 'Ore Reserves', defined in this Code. If preferred by the reporting company, 'Ore Reserve' and 'Mineral Resource' estimates for coal may be reported as 'Coal Reserve' and 'Coal Resource' estimates.*	Minor rewording.

reported as 'Coal Reserve' and 'Coal Resource' estimates.	*'Coal Reserve' and 'Coal Resource' estimates.* *JORC prefers the term 'Ore Reserve' because it assists in maintaining a clear distinction between a 'Mineral Resource' and an 'Ore Reserve'.*	
30. A 'Probable Ore Reserve' is the economically mineable part of an Indicated, and in some circumstances, Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include 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 could reasonably be justified. *A Probable Ore Reserve has a lower level of confidence than a Proved Ore Reserve.*	**31. A 'Probable Ore Reserve' is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include 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 could reasonably be justified.** *A Probable Ore Reserve has a lower level of confidence than a Proved Ore Reserve but is of sufficient quality to serve as the basis for a decision on the development of the deposit.*	Expanded guideline taken from the Reporting Code.
31. A 'Proved Ore Reserve' is the economically mineable part of a Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors	**32. A 'Proved Ore Reserve' is the economically mineable part of a Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include 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 could reasonably be justified.	**environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified.** *A Proved Ore Reserve represents the highest confidence category of reserve estimate. However the style of mineralisation or other factors could mean that Proved Ore Reserves are not achievable in some deposits.*	New Guideline modified from the Reporting Code.
32 The choice of the appropriate category of Ore Reserve is determined primarily by the classification of the corresponding Mineral Resource and must be made by the Competent Person or Persons. *The Code provides for a direct relationship between Indicated Mineral Resources and Probable Ore Reserves and between Measured Mineral Resources and Proved Ore Reserves. In other words, the level of geoscientific confidence for Probable Ore Reserves is the same as that required for the in situ determination of Indicated Mineral Resources and for Proved Ore Reserves is the same as that required for the in situ determination of Measured Mineral Resources.* *The 1999 edition of the Code also provides, for the first time, for a two-way relationship between Measured Mineral Resources and Probable Ore Reserves. This is to cover the situation where uncertainties associated with any of the Modifying Factors considered when converting Mineral*	**33. The choice of the appropriate category of Ore Reserve is determined primarily by the relevant level of confidence in the Mineral Resource and after considering any uncertainties in the Modifying Factors. Allocation of the appropriate category must be made by the Competent Person.** *The Code provides for a direct relationship between Indicated Mineral Resources and Probable Ore Reserves and between Measured Mineral Resources and Proved Ore Reserves. In other words, the level of geological confidence for Probable Ore Reserves is similar to that required for the determination of Indicated Mineral Resources. The level of geological confidence for Proved Ore Reserves is similar to that required for the determination of Measured Mineral Resources.* *The Code also provides for a two-way relationship between Measured Mineral Resources and Probable Ore Reserves. This is to cover a situation where uncertainties associated with any of the Modifying Factors considered when converting Mineral Resources to Ore Reserves may result in there being*	

Resources to Ore Reserves may result in there being a significantly lower degree of confidence in the Ore Reserves than in the corresponding Measured Mineral Resources. Such a conversion would not imply a reduction in the level of geological knowledge or confidence.	*a lower degree of confidence in the Ore Reserves than in the corresponding Mineral Resources. Such a conversion would not imply a reduction in the level of geological knowledge or confidence.*	
If the uncertainties in the modifying factors preventing the Measured Mineral Resource being converted to a Proved Ore Reserve are removed, the Measured Mineral Resource may be converted to a Proved Ore Reserve. However modification is only acceptable to an equivalent or lower level of confidence. No amount of confidence in the modifying factors for conversion of a Mineral Resource to an Ore Reserve can override the upper level of confidence which exists in the Mineral Resource. Under no circumstances can an Indicated Mineral Resource be converted directly to a Proved Ore Reserve.	*A Probable Ore Reserve derived from a Measured Mineral Resource may be converted to a Proved Ore Reserve if the uncertainties in the Modifying Factors are removed. No amount of confidence in the Modifying Factors for conversion of a Mineral Resource to an Ore 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 Ore Reserve (see Figure 1).*	Clearer explanation of the application of the dotted arrow in Figure 1.
Application of the category of a Proved Ore Reserve implies the highest degree of confidence in the estimate with consequent expectations in the minds of readers of the report. These expectations should be borne in mind when categorising a Mineral Resource as Measured. *Refer also to the guidelines to Clause 24 regarding classification of Mineral Resources.*	*Application of the category of Proved Ore Reserve implies the highest degree of confidence in the estimate, with consequent expectations in the minds of the readers of the report. These expectations should be borne in mind when categorising a Mineral Resource as Measured.* *Refer also to the guidelines in Clause 25 regarding classification of Mineral Resources.*	

33. Ore Reserve estimates are not precise calculations and tonnage and grade figures in Public Reports should be expressed so as to convey the order of accuracy of the estimates by rounding off to appropriately significant figures. *Refer to the guidelines to Clause 25, regarding rounding of Mineral Resource estimates.*	34. Ore Reserve estimates are not precise calculations. Reporting of tonnage and grade figures should reflect the relative uncertainty of the estimate by rounding off to appropriately significant figures. Refer also to Clause 26. *In order to emphasise the imprecise nature of an Ore Reserve estimate, it is recommended that the final results always be referred to as an estimate not a calculation.* *Competent Persons are encouraged, where appropriate, to discuss the relative accuracy and/or confidence of the Ore Reserve estimates. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnage or volume. Where a statement of the relative accuracy and/or confidence is not possible, discussion of associated risk should be provided (refer to Table 1).*	Same guideline as included in Clause 26 referring to Mineral Resources. New guideline to encourage improved communication of the uncertainty associated with Mineral Resource estimates. **This is a significant Change.**
34. Except for the special provisions relating to coal (see Clause 39) Public Reports of Ore Reserves must specify one or both of the categories of 'Proved' and 'Probable'. Categories must not be reported in a combined form unless details for the individual categories are also provided. Ore Reserves must not be reported in terms of contained metal or mineral content unless corresponding tonnages and grades are also	35. Public Reports of Ore Reserves must specify one or other of the categories of 'Proved' and 'Probable'. Reports must not contain combined Proved and Probable Ore Reserve figures unless the relevant figures for each of the categories are also provided. Reports must not present metal or mineral content figures unless corresponding tonnage and grade figures are also given.	The special provision has been removed with the agreement of the Coal Guidelines Committee. Improved wording.

corresponding tonnages and grades are also presented.	Public Reporting of tonnage and grade outside the categories covered by the Code is not permitted. *Estimation of tonnage and grade outside of the categories covered by the Code may be useful for a company in its internal calculations and evaluation processes, but their inclusion in Public Reports could cause undue confusion.*	Changed from a guideline to Clause 35 in the 1999 Code to now be part of the Clause.
In reporting Ore Reserves, information on assumed metallurgical recovery factors is very important, and should always be included in Public Reports.		Amended slightly and converted to part of the clause in New clause 30.
	Ore 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 Ore Reserves is borne in mind and caution exercised if attempting to draw conclusions from a comparison of the two.	Brought forward from Guideline section of Clause 35 in the 1999 Code, with amended text.
	When revised Ore Reserve and Mineral Resource statements are publicly reported they should 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 changes to be understood by the reader.	Ditto

35. In situations where figures for both Mineral Resources and Ore 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 the Ore Reserves. *The committee recognises that there are legitimate reasons, in some situations, for reporting Mineral Resources inclusive of Ore Reserves and, in other situations, for reporting Mineral Resources additional to Ore Reserves. The committee does not express a preference but it does require that reporting companies make it 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 Ore Reserves.'* *or* *'The Measured and Indicated Mineral Resources are additional to the Ore Reserves.'* *Where there is a substantial difference between the statement of Mineral Resources and the statement of Ore Reserves in a Public Report, an explanation of the reasons for the difference should be included in the report. This will assist the reader of the report in making a judgement of the likelihood of the remaining Mineral Resources eventually being converted to Ore Reserves.*	36. In situations where figures for both Mineral Resources and Ore Reserves are reported, a statement must be included in the report which clearly indicates whether the Mineral Resources are inclusive of, or additional to the Ore Reserves. Ore Reserve estimates must not be added to Mineral Resource estimates to report a single combined figure. *In some situations there are reasons for reporting Mineral Resources inclusive of Ore Reserves and in other situations for reporting Mineral Resources additional to Ore 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 Ore Reserves.'* *or* *'The Measured and Indicated Mineral Resources are additional to the Ore Reserves.'* *Where there is a substantial difference between the statement of Mineral Resources and the statement of Ore Reserves in a Public Report, an explanation of the reasons for the difference should be included.* *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 Ore Reserves.* *Inferred Mineral Resources are by definition always*	This addition has been extracted and modified from the subsequent Guideline. "must" acceptable in this guideline since it reflects a requirement in the Clause. The 1999 Edition guideline retained to provide for the intended choice of reporting method.

	additional to Ore Reserves.	
Inferred Mineral Resources are, by definition, always additional to Ore Reserves.		
Ore 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 Ore Reserves is borne in mind and caution exercised if attempting to draw conclusions from a comparison of the two.	*For reasons stated in the guidelines to Clause 35 and in this paragraph, the reported Ore Reserve figures must not be added to the reported Mineral Resource figures. The resulting total is misleading and is capable of being misunderstood or of being misused to give a false impression of a company's prospects.*	.
For the same reason, Ore Reserves should not be added to Mineral Resources. The resulting total can be very misleading in economic terms and is capable of being misunderstood or, more seriously, of being misused to give a false impression of a company's mineral prospects.		Converted to part of the clause and moved up. The word "must" is acceptable in this guideline since it reflects a requirement in the Clause.
Public Reporting of tonnage and grade estimates using terms other than Mineral Resources and Ore Reserves is not permitted under the Code.		This guideline in the 1999 Code has been converted to part of a clause and moved forward (and reworded) into new Clause 35.
In preparing the Ore Reserve statement, the relevant Mineral Resource statement on which it is based should first be developed. This can be reconciled with the Mineral Resource statement estimated for the previous comparable period and differences (due, for example, to mine production, exploration etc) identified. The application of cut-off and other criteria to the Mineral Resource can then be made to develop the Ore Reserve statement which can also be reconciled with the previous		This guideline in the 1999 Code has been moved forward (and reworded) into new Clause 35.

comparable statement. Companies are encouraged whenever possible to reconcile estimates in their reports. A detailed account of differences between estimates is not essential, but sufficient comment should be made to enable significant variances to be understood by the reader.		
36. Table 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 Ore Reserves. These criteria need not be discussed in a Public Report unless they materially affect estimation or classification of the Ore Reserves. Changes in economic or political factors alone may be the basis for significant changes in Ore Reserves and should be reported accordingly. Where diamond Ore Reserve grades are based on the correlation of macrodiamond grade with the grade of microdiamonds, this must be stated and its reliability explained. If a valuation of a parcel of diamonds is reported, the weight in carats and size range of the contained diamonds must be stated and the value of the diamonds must be given in US dollars per carat. *Refer also to Clause 19 and to the guidelines to Clause 27*	37. Table 1 provides, in a summary form, a list of the criteria which should be considered when preparing reports on Exploration Results, Mineral Resources and Ore Reserves. These criteria need not be discussed in a Public Report unless they materially affect estimation or classification of the Mineral Resources and Ore Reserves. Changes in economic or political factors alone may be the basis for significant changes in Ore Reserves and should be reported accordingly. Where diamond Ore Reserve grades are based on the correlation of macrodiamond grade with the grade of microdiamonds, this must be stated and its reliability explained. If a valuation of a parcel of diamonds is reported, the weight in carats and size range of the contained diamonds must be stated and the value of the diamonds must be given in US dollars per carat. *Refer also to Clause 19 and to the guidelines to Clause 28.* *Ore Reserve estimates are sometimes reported after adjustment from reconciliation with production data. Such adjustments should be clearly stated in a Public Report of Ore Reserves and the nature of the adjustment or modification described*	Moved from Clause 27 of 1999 Code.

Reporting of Mineralised Stope Fill, Stockpiles, Remnants, Pillars, Low Grade Mineralisation and Tailings	**Reporting of Mineralised Fill, Pillars, Low Grade Mineralisation, Remnants, Stockpiles, Dumps and Tailings**	This section has been moved to immediately after the Ore Reserve section as this is a more logical position. "Fill" replaces "stope-fill" as it may be in a pit etc. "Dumps" included as sometimes waste dumps become economic even though they were never stockpiles.
41. The Code applies to the reporting of all potentially economic mineralised material including mineralised stope fill, stockpiles, remnants, pillars, low grade mineralisation and tailings.	38. The Code applies to the reporting of all potentially economic mineralised material. This can include mineralised fill, remnants, pillars, low grade mineralisation, stockpiles, dumps and tailings (remnant materials) where there are reasonable prospects for eventual economic extraction in the case of Mineral Resources, and where extraction is reasonably justifiable in the case of Ore Reserves. Unless otherwise stated, all other clauses of the Code (including Figure 1) apply.	As per Reporting Code. The Reporting Code uses "Reasonable and realistic" but "reasonable" is proposed to be consistent with the definition of Resource.
For the purposes of the Code, mineralised stope fill and stockpiles of mineralised material can be considered to be similar to in situ mineralisation when reporting Mineral Resources and Ore Reserves. Consequently the Competent Person assessing the fill or stockpiles must use the bases of classification outlined in the Code. In most cases, the opinion of a relevant professional should be sought when making judgements about the mineability of fill, remnants and pillars.	*Any mineralised material as described in this clause can be considered to be similar to in situ mineralisation for the purposes of reporting Mineral Resources and Ore Reserves. Judgements about the mineability of such mineralised material should be made by professionals with relevant experience.*	The Reporting Code refers only to mining engineers, which is considered to be too restrictive.
If there are not reasonable prospects for the eventual economic extraction of a particular portion of the fill or stockpile, this material cannot be classified as either Mineral Resources or Ore	*If there are no reasonable prospects for the eventual economic extraction of all or part of the mineralised material as described in this clause, then this material*	

classified as either Mineral Resources or Ore Reserves. If some portion 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. Such stockpile material may include old dumps and tailings dam material. If technical and economic studies have demonstrated that economic extraction could reasonably be justified under realistically assumed conditions, the material may be classified as an Ore Reserve. *The above guidelines apply equally to low grade in situ mineralisation, sometimes referred to as 'mineralised waste' or 'marginal grade material', and often intended for stockpiling and treatment towards the end of mine life. For clarity of understanding, it is recommended that tonnage and grade estimates of such material be itemised separately in Public Reports, although they may be aggregated with total Mineral Resource and Ore 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 being processed (including leaching), if reported, should be reported separately.* *Mineralised remnants, shaft pillars and mining pillars which are potentially mineable are in situ mineralisation and consequently are included in the Code definitions of Mineral Resources and Ore Reserves.* *Mineralised remnants, shaft pillars and mining pillars which are not potentially mineable must not*	*cannot be classified as either Mineral Resources or Ore Reserves. If some portion of the mineralised material 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 an Ore Reserve.* *The above guidelines apply equally to low grade in situ mineralisation, sometimes referred to as 'mineralised waste' or 'marginal grade material', and often intended for stockpiling and treatment towards the end of mine life. For clarity of understanding, it is recommended that tonnage and grade estimates of such material be itemised separately in Public Reports, although they may be aggregated with total Mineral Resource and Ore 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, should be reported separately.* .	Consistent with the Reporting Code, these two paragraphs have been deleted as the intent is covered elsewhere in the clause.

be included in Mineral Resource and Ore Reserve statements.		
Reporting of Coal Resources and Reserves	**Reporting of Coal Resources and Reserves**	
37. Clauses 38 to 40 of the Code address matters which relate specifically to the Public Reporting of Coal Resources and Reserves. Unless otherwise stated, clauses 1 to 36 of this Code (including Figure 1) apply. Table 1, as part of the guidelines, should also be considered persuasive when reporting on Coal Resources and Reserves.	39. Clauses 39 to 41 of the Code address matters that relate specifically to the Public Reporting of Coal Resources and Reserves. Unless otherwise stated Clauses 1 to 38 of this Code (including Figure 1) apply. Table 1, as part of the guidelines, should also be considered persuasive when reporting on Coal Resources and Reserves.	
	For purposes of Public Reporting, the requirements for coal are generally similar to those for other commodities with the replacement of terms such as 'mineral' by 'coal' and 'grade' by 'quality'.	As in 'Reporting Code'
*For guidance on the estimation of black Coal Resources and Reserves and on statutory reporting not primarily intended for providing information to the investing public, readers are referred to the 1999 edition of the "*Guidelines for the Estimation and Reporting of Australian Black Coal Resources and Reserves", *a document drawn up by a committee of coal industry and government representatives and consultants from New South Wales and Queensland.*	*For guidance on the estimation of Coal Resources and Reserves and on statutory reporting not primarily intended for providing information to the investing public, the 2002 edition of the* "Australian Guidelines for the Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves" *is recommended. These guidelines do not override the provisions and intention of the JORC Code for public reporting.*	Revised Coal Guidelines document no longer refers to "Black". A review of Coal Guidelines has been completed late 2002 – this is the name of the revised guidelines.
Coal is of particular interest to State and Federal Governments because of its impact on government planning and land use implications. Reports to governments may require estimates of coal resources which are not constrained by short to medium term economic considerations. Such	*Because of its impact on planning and land use, governments may require estimates of inventory coal that are not constrained by short to medium term economic considerations. The JORC Code does not*	Reflects the Reporting Code.

reports and estimates of strategic resources are not covered by the JORC Code. Refer also to the guidelines to Clauses 5 and 20.	*cover such estimates. Refer also to the guidelines to Clauses 5 and 21.*	
38. The terms 'Mineral Resource(s)' and 'Ore Reserve(s)', and the subdivisions of these as defined above, apply also to coal reporting, but if preferred by the reporting company, the terms 'Coal Resource(s)' and 'Coal Reserve(s)' and appropriate subdivisions may be substituted.	40. The terms 'Mineral Resource(s)' and 'Ore Reserve(s)', and the subdivisions of these as defined above, apply also to coal reporting, but if preferred by the reporting company, the terms 'Coal Resource(s)' and 'Coal Reserve(s)' and appropriate subdivisions may be substituted.	
39. For coal reporting only, Probable and Proved Ore (Coal) Reserves may be combined and reported as Recoverable Reserves.		With the agreement of the Coal Guidelines Committee, Clause 39 of the 1999 JORC Code has been deleted. The revised Coal Guidelines will not refer to 'recoverable coal reserves'. **This is a significant Change.**
40. Reports of 'Marketable Coal Reserves', representing beneficiated or otherwise enhanced coal product, may be used in Public Reports in conjunction with, but not instead of, reports of Ore (Coal) Reserves. The basis of the predicted yield to achieve Marketable Coal Reserves should be stated.	41. Marketable Coal Reserves', representing beneficiated or otherwise enhanced coal product where losses due to mining, dilution and processing have been considered, may be publicly reported in conjunction with, but not instead of, reports of Ore (Coal) Reserves. The basis of the predicted yield to achieve Marketable Coal Reserves should be stated.	
TABLE 1 CHECK LIST OF ASSESSMENT AND REPORTING CRITERIA	**TABLE 1 CHECK LIST OF ASSESSMENT AND REPORTING CRITERIA**	
Table 1 is a check list and guideline which those	*Table 1 is a check list and guideline which those*	

preparing reports on exploration results Mineral Resources and Ore Reserves should use as a reference. The check list 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 Ore Reserves. *The order and grouping of criteria in Table 1 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 table, criteria listed in preceding groups would often apply to succeeding groups and should be considered when estimating and reporting.*	*preparing reports on Exploration Results, Mineral Resources and Ore Reserves should use as a reference. The check list 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 Ore Reserves.* *The order and grouping of criteria in Table 1 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 table, criteria listed in preceding groups would often apply to succeeding groups and should be considered when estimating and reporting.*	

Table 1	Table 1	TABLE 1 IS INCLUDED IN A DIFFERENT FORMAT

The information in red in Table 1 is commentary and will be removed from the final 2003 JORC Code

CRITERIA	EXPLANATION (1999 Code)	EXPLANATION (Draft 2003 Code)
Section 1 SAMPLING TECHNIQUES AND DATA (criteria in this section apply to all succeeding sections)		
Sampling techniques.	*Nature and quality of sampling (eg. cut channels, random chips etc.) and measures taken to ensure sample representivity.*	▪ *Nature and quality of sampling (eg. cut channels, random chips etc.) and measures taken to ensure sample representivity.*
Drilling techniques.	*Drill type (eg. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka etc.) and details (eg. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, etc.). Measures taken to maximise sample recovery and ensure representative nature of the samples.*	▪ *Drill type (eg. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka etc.) and details (eg. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*
Drill sample recovery.	*Whether core and chip sample recoveries have been properly recorded and results assessed. In particular whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	▪ *Whether core and chip sample recoveries have been properly recorded and results assessed.* ▪ *Measures taken to maximise sample recovery and ensure representative nature of the samples.* ▪ *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*
Logging.	*Whether core and chip 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 costean, channel etc.) photography.*	▪ *Whether core and chip 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 costean, channel etc.) photography.*
Sub-sampling techniques and sample preparation.	*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 representivity 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.*	▪ *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 representivity 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*
Quality of assay data and laboratory tests.	*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 (eg. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie. lack of bias) and precision have been established .*	▪ *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 (eg. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie. lack of bias) and precision have been established*
Verification of sampling and assaying.	*The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes.*	▪ *The verification of significant intersections by either independent or alternative company personnel.* ▪ *The use of twinned holes.*
Location of data points.	*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.*	▪ *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.*
Data density and distribution.	*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 Ore Reserve estimation procedure(s) and classifications applied. Whether sample compositing has been applied.*	▪ *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 Ore Reserve estimation procedure(s) and classifications applied.* ▪ *Whether sample compositing has been applied.*
Audits or reviews.	*The results of any audits or reviews of sampling techniques and data.*	▪ *The results of any audits or reviews of sampling techniques and data.*
Section 2 REPORTING OF EXPLORATION RESULTS ***(criteria listed in the preceding section apply also to this section)***		
Mineral tenement and land tenure status.	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, 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 licence to operate in the area.*	▪ *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* ▪ *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*
Exploration done by other parties.	*Acknowledgement and appraisal of exploration by other parties.*	▪ *Acknowledgment and appraisal of exploration by other parties.*
Geology.	*Deposit type, geological setting and style of mineralisation.*	▪ *Deposit type, geological setting and style of mineralisation.*
Data aggregation methods.	*In reporting exploration results, weighting averaging techniques, maximum and/or minimum grade truncations (eg. cutting of high grades) and cut-off*	▪ *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations*

	grades are usually material and should be stated. Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. The assumptions used for any reporting of metal equivalent values should be clearly stated.	*(eg. cutting of high grades) and cut-off grades are usually material and should be stated.* ▪ *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* ▪ *The assumptions used for any reporting of metal equivalent values should be clearly stated.*
Relationship between mineralisation widths and intercept lengths.	*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 (eg. 'downhole length, true width not known').*	▪ *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 (eg. 'downhole length, true width not known').*
Diagrams.	*Where possible, maps and sections (with scales) and tabulations of intercepts should be included for any material discovery being reported if such diagrams significantly clarify the report.*	▪ *Where possible, maps and sections (with scales) and tabulations of intercepts should be included for any material discovery being reported if such diagrams significantly clarify the report.*
Balanced reporting.	*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.*	▪ *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*
Other substantive exploration data.	*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.*	▪ *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.*
Further work.	*The nature and scale of planned further work (eg. tests for lateral extensions or depth extensions or large-scale step-out drilling).*	▪ *The nature and scale of planned further work (eg. tests for lateral extensions or depth extensions or large-scale step-out drilling).*
Section 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES ***(criteria listed in the first section, and where relevant in the second section, apply also to this section)***		
Database integrity.	*Measures taken to ensure that data has not been corrupted by, for example,*	▪ *Measures taken to ensure that data has not been*

	transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. Data validation procedures used.	*corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* ▪ *Data validation procedures used.*
Geological interpretation.	*Nature of the data used and of any assumptions made. The effect, if any, of alternative interpretations on Mineral Resource estimation. The use of geology in guiding and controlling Mineral Resource estimation. The factors affecting continuity both of grade and geology.*	▪ *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* ▪ *Nature of the data used and of any assumptions made.* ▪ *The effect, if any, of alternative interpretations on Mineral Resource estimation.* ▪ *The use of geology in guiding and controlling Mineral Resource estimation.* ▪ *The factors affecting continuity both of grade and geology.*
Dimensions		▪ *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource*
Estimation and modelling techniques.	*The nature and appropriateness of the estimation technique(s) 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 modelling of selective mining units (eg. 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.*	▪ *The nature and appropriateness of the estimation technique(s) 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.* ▪ *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation)* ▪ *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* ▪ *Any assumptions behind modelling of selective mining units.* ▪ *Any assumptions about correlation between variables.* ▪ *The process of validation, the checking process used, the comparison of model data to drillhole data, and use of*

		reconciliation data if available.
Cut-off parameters.	*The basis of the cut-off grade(s) or quality parameters applied, including the basis, if appropriate, of equivalent metal formulae.*	▪ *The basis of the adopted cut-off grade(s) or quality parameters applied.* A reference to equivalent metal values appears under "Reporting of Exploration Results – Data aggregation methods"
Mining factors or assumptions.	*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 reported.*	▪ *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 reported.*
Metallurgical factors or assumptions.	*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 reported.*	▪ *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 reported.*
Tonnage factors (in situ bulk densities).	*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.*	▪ *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.*
Classification.	*The basis for the classification of the Mineral Resources into varying confidence categories. Whether appropriate account has been taken of all relevant factors. ie. 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.*	▪ *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.*
Audits or reviews.	*The results of any audits or reviews of Mineral Resource estimates.*	▪ *The results of any audits or reviews of Mineral Resource estimates.*

Discussion of relative accuracy/confidence	**This is a significant Change.**	▪ *Where appropriate a statement of the relative accuracy and/or confidence in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits (e.g., +/- 15% with 90% probability), or, if such an approach is not deemed appropriate, a qualitative discussion of risk.* ▪ *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages or volumes, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* ▪ *Risk assessment statements should be reconciled with production data, where available.*
Section 4 ESTIMATION AND REPORTING OF ORE RESERVES ***(criteria listed in the first section, and where relevant in other preceding sections, apply also to this section)***		
Mineral Resource estimate for conversion to Ore Reserves.	*Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	▪ *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* ▪ *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*
Planning Status		▪ *Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors.*
Cut-off parameters.	*The basis of the cut-off grade(s) 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 metal grade.*	▪ *The basis of the cut-off grade(s) or quality parameters applied.* A reference to equivalent metal values appears under "Reporting of Exploration Results – Data aggregation methods"
Mining factors or assumptions.	*The method and assumptions used to convert the Mineral Resource to an Ore Reserve (ie 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 method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. The assumptions made regarding geotechnical parameters (eg. pit slopes,*	▪ *The method and assumptions used to convert the Mineral Resource to an Ore Reserve (ie 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 method(s) and other mining parameters*

	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.	*including associated design issues such as pre-strip, access, etc.* ▪ *The assumptions made regarding geotechnical parameters (eg. 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.* ▪ *The infrastructure requirements of the selected mining methods.*
Metallurgical factors or assumptions.	*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 testwork undertaken and the metallurgical recovery factors applied. Any assumptions or allowances made for deleterious elements. The existence of any bulk sample or pilot scale testwork and the degree to which such samples are representative of the orebody as a whole.*	▪ *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 testwork undertaken and the metallurgical recovery factors applied.* ▪ *Any assumptions or allowances made for deleterious elements.* ▪ *The existence of any bulk sample or pilot scale testwork and the degree to which such samples are representative of the orebody as a whole.*
Cost and revenue factors.	*The derivation of, or assumptions made, regarding projected capital and operating costs. The assumptions made regarding revenue including head grade, metal or commodity price(s), exchange rates, transportation and treatment charges, penalties, etc. The allowances made for royalties payable, both Government and private.*	▪ *The derivation of, or assumptions made, regarding projected capital and operating costs.* ▪ *The assumptions made regarding revenue including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, etc.* ▪ *The allowances made for royalties payable, both Government and private.*
Market assessment.	*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. For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	▪ *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. ▪ *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*
Other.	*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 Ore Reserves. The status of titles and approvals critical to the viability of the project, such as mining leases, discharge permits, government and statutory approvals.*	▪ *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 Ore Reserves.* ▪ *The status of titles and approvals critical to the viability of the project, such as mining leases, discharge permits, government and statutory approvals.*
Classification.	*The basis for the classification of the Ore Reserves into varying confidence categories. Whether the result appropriately reflects the Competent Person(s)' view of the deposit. The proportion of Probable Ore Reserves which have been derived from Measured Mineral Resources (if any).*	▪ *The basis for the classification of the Ore Reserves into varying confidence categories.* ▪ *Whether the result appropriately reflects the Competent Person(s)' view of the deposit.* ▪ *The proportion of Probable Ore Reserves which have been derived from Measured Mineral Resources (if any).*
Audits or reviews.	*The results of any audits or reviews of Ore Reserve estimates.*	▪ *The results of any audits or reviews of Ore Reserve estimates.*

Discussion of relative accuracy/confidence	**This is a significant Change.**	▪ *Where appropriate a statement of the relative accuracy and/or confidence in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits (e.g., +/- 15% with 90% probability), or, if such an approach is not deemed appropriate, a qualitative discussion of risk.* ▪ *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages or volumes, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* ▪ *Risk assessment statements should be reconciled with production data, where available.*
Section 5 ESTIMATION AND REPORTING OF DIAMONDS ***(criteria listed in the first section of this table, SAMPLING TECHNIQUES AND DATA, and where relevant in other sections, apply also to this section)***		
Primary rock source.	*Primary sources of diamonds in nature are variable and complex. Accordingly, information relating to primary sources should contain details of the nature of the rock type together with its form, shape and size*	See Sources of Diamonds
Secondary rock source.	*Secondary sources of diamonds in nature, including alluvial deposits, are variable and complex. Accordingly, information relating to secondary sources should contain details of the nature of the geological environment together with its form, age and size.*	See Sources of Diamonds
Source of diamonds		▪ *Details of the nature of the source of diamonds (primary or secondary) including the rock type and geological environment together with their form, shape and size.*
Microdiamonds.	*Current practice in Australia defines microdiamonds as diamonds which will pass through a screen with 0.4 mm aperture, ie. diamonds weighing less than 0.001 carats. Reports of microdiamond recoveries should specify both the number of stones recovered and the top and bottom screen or crushing sizes used in the recovery process.*	Already defined see Clause 19
Macrodiamonds.	*Macrodiamonds are defined as diamonds larger than 0.4 mm in size. Reports of macrodiamond recoveries should specify both the number of stones and the total carat weight recovered above a specified screen size.*	Already defined see Clause 19
Indicator minerals.	*Conventional indicator minerals include garnet, ilmenite, chrome spinel and chrome diopside having the requisite chemical and physical attributes that distinguish them from otherwise similar minerals found in non-diamond associated rock types. Reports of indicator minerals should be prepared by a*	▪ *Reports of indicator minerals, such as chemically/physically distinctive garnet, ilmenite, chrome spinel and chrome diopside, should be prepared by a suitably qualified laboratory. .*

	suitably qualified laboratory.	
Sampling Parameters Becomes *Sample Collection.*	*Reported discoveries of diamonds or indicator minerals from all samples must be accompanied by details of the sampling parameters and sampling equipment used. Type of sample (stream sediment, soil, bulk, rock etc.) as well as sample size, sample density and screening or jigging parameters are required.*	Refer to Clause 19 for information required when reporting diamond sample collection.
Sample Treatment.		▪ *Type of facility, treatment rate, and accreditation* ▪ *Sample size reduction. Bottom screen size, top screen size and re-crush.* ▪ *Processes (dense media separation, grease, X-ray, hand-sorting etc.).* ▪ *Process efficiency, tailings auditing and granulometry* ▪ *Laboratory used, type of process for micro diamonds and accreditation.*
Grade Estimation		▪ *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 head feed and tailings particle granulometry.* ▪ *Sample density determination.* ▪ *Percent concentrate and undersize per sample.* ▪ *Grade with change in Bottom Cut-off Screen Size.* ▪ *Adjustments made to size distribution for sample plant performance and performance on a commercial scale.* ▪ *If appropriate or employed, geostatistical techniques applied to model stone size, distribution or frequency from micro- or macro-diamond sampling.* ▪ *In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive grade (carats per tonne)*
Cut-off grades.	*Assumptions regarding cut-off grades should specify minimum screen size.*	
Carat.	*One fifth (0.2) of a gram (often defined as a metric carat or MC).*	▪ *One fifth (0.2) of a gram (often defined as a metric carat or MC).*

Value Estimation	*Diamond valuation is a highly specialised process and is only possible on parcels containing appropriate numbers of macrodiamonds. It is not possible to evaluate diamond quality from microdiamonds. Classification of diamonds as, for example, gem, near gem and industrial should be made by recognised experts who should be identified in the valuation report and their independence stated. The number of stones, the total carat weight and size range for the parcel valued should be stated.*	▪ *Diamonds qauntities per facies or depth.* ▪ *Details of parcel valued, number of stones, carats, size distribution and bottom size cut-off per facies or depth.* ▪ *Average $/carat and $/tonne value at the selected bottom cut-off. The value per carat is of critical importance in demonstrating project value* ▪ *Assessment of diamond breakage.*
Grades	*Internationally, diamond grades for primary deposits are stated both in carats per tonne and carats per 100 tonnes. The Joint Ore Reserves Committee recommends the use of carats per tonne. In the case of alluvial deposits, industry practice is to quote grades in carats per tonne or carats per cubic metre. Volumes: state bank or loose cubic metres and basis of volume to tonnage conversions.*	
Security and integrity .		▪ *Accredited process audit.* ▪ *Whether samples were sealed after excavation* ▪ *Valuer location, escort, delivery, cleaning losses, reconciliation with recorded sample carats 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.*
Classification		▪ *Consider the elements of uncertainty in estimates and develop classification accordingly.*

1999 JORC Code	***Suggested Revision*** **Exposure Draft 2003 JORC Code**	***Comments***
APPENDIX 1 **THE JORC CODE AND AUSTRALASIAN STOCK EXCHANGES**	**APPENDIX 1** **THE JORC CODE AND AUSTRALASIAN STOCK EXCHANGES**	
The Australian and New Zealand Stock Exchanges ('ASX' and 'NZSX') have, since 1989 and 1992 respectively, incorporated the Code into their listing rules. Under these listing rules, a Public Report must be prepared in accordance with the Code if it includes a statement on exploration results, Mineral Resources or Ore Reserves. The incorporation of the Code imposes certain specific requirements on mining or exploration companies reporting to the ASX and NZSX. The guidelines in this section of the Code which paraphrase these requirements should not be used as a replacement for the relevant listing rules, and it is strongly recommended that users of the Code familiarise themselves with those listing rules which relate to Public Reporting of exploration results, Mineral Resources and Ore Reserves.	*The Australian and New Zealand Stock Exchanges ('ASX' and 'NZSX') have, since 1989 and 1992 respectively, incorporated the Code into their listing rules. Under these listing rules, a Public Report must be prepared in accordance with the Code if it includes a statement on Exploration Results, Mineral Resources or Ore Reserves. The incorporation of the Code imposes certain specific requirements on mining or exploration companies reporting to the ASX and NZSX. The 2003 edition of the Code has included much of the relevant material previously found only in the listing rules concerning the reporting of Exploration Results and the naming of the Competent Person. Despite the inclusion of this material in the Code it is strongly recommended that users of the Code familiarise themselves with those listing rules which relate to Public Reporting of Exploration Results, Mineral Resources and Ore Reserves.*	Covers the changes resulting from including material previously in the ASX listing rules.
ASX listing rules require the Competent Person(s), on whose work the Public Report of Mineral Resources or Ore Reserves is based, to be named in the report. The report or attached statement must say that the person consents to the inclusion in the report of the matters based on their information in the form and context in which it	*The JORC Code requires the Competent Person(s), on whose work the Public Report of Mineral Resources or Ore Reserves is based, to be named in the report. The report or attached statement must say that the person consents to the inclusion in the report of the matters based on their information in*	Changed as a result of including the requirement to name the Competent Person in the JORC Code.

information in the form and context in which it appears, and must include the name of the person's firm or employer. Refer also to Clause 8 of the Code. *Appropriate forms of compliance statements may be as follows (delete bullet points which do not apply):* • *If the required information is in the report:* *"The information in this report that relates to Mineral Resources or Ore Reserves is based on information compiled by (insert name of Competent Person), who is a Fellow or Member of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists (select as appropriate)": or* • *If the required information is included in an attached statement:* *"The Information in the report to which this statement is attached that relates to Mineral Resources or Ore Reserves is based on information compiled by (insert name of Competent Person), who is a Fellow or Member of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists (select as appropriate)".* • *If the Competent Person is a full-time*	*the form and context in which it appears, and must include the name of the person's firm or employer. Refer to Clause 8 of the Code.* *Appropriate forms of compliance statements may be as follows (delete bullet points which do not apply):* • *If the required information is in the report:* *"The information in this report that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by (insert name of Competent Person), who is a Fellow or Member of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a 'Recognised Overseas Professional Organisation' ('ROPO') included in a list promulgated by the ASX from time to time (select as appropriate)": or* • *If the required information is included in an attached statement:* *"The Information in the report to which this statement is attached that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by (insert name of Competent Person), who is a Fellow or Member of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a 'Recognised Overseas Professional Organisation' ('ROPO') included in a list promulgated by the ASX from time to time (select as appropriate)".* • *If the Competent Person is a full-time employee of the company:*	

employee of the company: *"(Insert name of Competent Person) is a full-time employee of the company".* • *If the Competent Person is not a full-time employee of the company:* *"(Insert name of Competent Person) is employed by (insert name of Competent Person's employer)".* • *For all reports:* *"(Insert name of Competent Person) has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he (or she) is undertaking to qualify as a Competent Person as defined in the 1999 Edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves". (Insert name of Competent Person) consents to the inclusion in the report of the matters based on their information in the form and context in which it appears".*	*of the company:* *"(Insert name of Competent Person) is a full-time employee of the company".* • *If the Competent Person is not a full-time employee of the company:* *"(Insert name of Competent Person) is employed by (insert name of Competent Person's employer)".* • *For all reports:* *"(Insert name of Competent Person) has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he (or she) is undertaking to qualify as a Competent Person as defined in the 2003 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". (Insert name of Competent Person) consents to the inclusion in the report of the matters based on their information in the form and context in which it appears".*	

	APPENDIX 2 **GENERIC TERMS AND EQUIVALENTS**	Added from the Reporting Code to assist in understanding variations in terminology. **This is a significant Change.**
	Throughout the Code, certain words are used in a general sense when a more specific meaning might be attached to them by particular commodity groups within the industry. In order to avoid unnecessary duplication, a non-exclusive list of generic terms is tabulated below together with other terms that may be regarded as synonymous for the purposes of this document.	

Generic Term	Synonyms and similar terms	Intended generalised meaning
Mining	*Quarrying*	*All activities related to extraction of metals, minerals and gemstones from the earth whether surface or underground, and by any method (e.g. quarries, open cast, open cut, solution mining, dredging etc.)*
Tonnage	*Quantity, Volume*	*An expression of the amount of dry material of interest irrespective of the units of measurement (which should be stated when figures are reported)*
Grade	*Quality, Assay, Analysis (Value)*	*Any physical or chemical measurement of the characteristics of the material of interest in samples or product. Note that the term quality has special meaning for diamonds and other gemstones. The units of measurement should be stated when figures are reported.*
Metallurgy	*Processing, Beneficiation, Preparation Concentration*	*Physical and/or chemical separation of constituents of interest from a larger mass of material. Methods employed to prepare a final marketable product from material as mined. Examples include screening, flotation, magnetic separation, leaching, washing, roasting etc.*
Recovery	*Yield*	*The percentage of material of initial interest that is extracted during mining and/or processing. A measure of mining or processing efficiency.*

Mineralisation	*Type of deposit, orebody, style of mineralisation.*	*Any single mineral or combination of minerals occurring in a mass, or deposit, of economic interest. The term is intended to cover all forms in which mineralisation might occur, whether by class of deposit, mode of occurrence, genesis or composition.*
Ore Reserves	*Mineral Reserves*	*'Ore Reserves' is preferred under the JORC Code but 'Mineral Reserves' is in common use in other countries and is generally acceptable. Other descriptors can be used to clarify the meaning e.g. coal reserves, diamond reserves etc.*
Cut off grade	*Product specifications*	*The lowest grade, or quality, of mineralised material that qualifies as economically mineable and available in a given deposit. May be defined on the basis of economic evaluation, or on physical or chemical attributes that define an acceptable product specification.*
Diamond	*Gemstones*	*Diamonds and other gemstones with the same characteristics.*