CCRR
Colombian Commission of
Mineral Resources and Reserves

Colombian Standard for the Public Reporting of Exploration Results, Mineral Resources and Reserves -ECRR-

Colombian Commission of Mineral Resources and Reserves
-CCRR-

Colombian Commission of Mineral Resources and Reserves

COLOMBIA – JULIO 2018

Contents

GLOSSARY

Throughout the Standard, 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 Generalized Meaning
Dilution	Contamination	Low or zero grade (waste) material that is mined during the course of mining operations and thereby forms part of the Mineral Reserve.
Mineable	Exploitable	Those parts of the orebody, both economic and uneconomic, that can be extracted during the normal course of mining.
Waste	Residue, low grade stockpile, tailings	Material resulting from mining or processing operations.
Effective date	-	The date of the most recent scientific or technical information included in the technical report.
Parcel	Set	Set of precious or semiprecious stones with similar physical and chemical characteristics.
Morralla	Beryl	Low quality emerald crystals; usually contain impurities, inclusions and fissures that made them inadequate for cutting.
Significant project	-	An exploration or mineral development project that has or could have a significant influence on the market value or operations of the listed company, and/or has specific prominence in Public Reports and announcements.
Assumptions	Value judgements	The Competent Person in general makes value judgements when making assumptions regarding information not fully supported by test work.
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.
Cut-off grade	Product specifications	The lowest grade, or quality, of mineralized 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.
Tonnage	Volume, quantity	An expression of the amount of material of interest irrespective of the units of measurement (which should be stated when figures are reported).

FOREWORD

1. The Colombian Standard for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves (further referred as ECRR or the Standard) sets out the minimum requirements, recommendations and guidelines for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves in Colombia. The definitions contained in the ECRR are either identical to, or not materially different from those definitions used in the countries represented on CRIRSCO (Committee for Mineral Reserves International Reporting Standards).

Since 1994, CRIRSCO has worked to create a set of standard international definitions for reporting Mineral Resources and Mineral Reserves, based on the definitions of the Australasian Code or JORC Code (Joint Ore Reserves Committee). CRIRSCO was initially a committee of the Council of Mining and Metallurgical Institutions (CMMI).

CMMI was disbanded in 2002 but CRIRSCO remained as a separate entity and now has a relationship with the International Council on Mining and Metals (ICMM). CRIRSCO's members are National Reporting Organizations (NROs) who are responsible for developing mineral reporting codes or standards and guidelines, currently the NROs are: Australasia (JORC), Brazil (CBRR), Canada (CIM Standing Committee on Reserve Definitions), Chile (Mining Commission), Europe (PERC), Indonesia (KCMI), Kazakhstan (KAZRC), Mongolia (MPIGM), Russia (NAEN), South Africa (SAMCODES) and USA (SME).

As a result of the CRIRSCO/CMMI initiative, considerable progress has been made towards widespread adoption of consistent reporting standards throughout the world.

Having a Colombian Standard for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves, not only guarantees investors' trust and accountability in the capital and value markets dedicated to the mining industry, but also integrates other aspects and contexts such as socioeconomic, juridical, environmental and financial, which regulate, certify and validate Exploration Results, Mineral Resources and Mineral Reserves. All of this grants viability and feasibility to a mining project, now backed by the Extractive Industries Transparency Initiative (EITI), Corporate Social Responsibility and Shared Value.

INTRODUCTION

2. In the ECRR, definitions are provided in bold text inside highlight colored boxes; Guidelines are placed after the respective clauses using indented italics, and they are intended to provide assistance and guidance to readers and should be considered persuasive when interpreting the ECRR. The definitions (when are mentioned in other clauses) are underlined.

3. For Public Reports of initial or materially changed Exploration Results, Mineral Resources or Mineral Reserves the ECRR requires the Competent Person, on whose documentation the Public Report is based, to be named in the Public Report. The Public Report or attached statement must say that the Competent Person consents to the inclusion in the Public Report of the matters based on their information in the form and context in which it appears, and must include the name of the Competent Person's firm or employer.

SCOPE

4. The principles governing the operation and application of the ECRR are Transparency, Materiality, Competence and Impartiality.

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 not be 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 a Public Report, for the purpose of making a reasoned and balanced judgment regarding the Exploration Results, Mineral Resources or Mineral Reserves being reported. Where relevant information is not supplied an explanation must be provided to justify its exclusion.

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 (the Competent Person).

Impartiality requires that the author of the Public Report is satisfied and able to state without any qualifications that his work has not been unduly influenced by the organization, company or person commissioning a Public Report or a report that may become a Public Report; that all assumptions are documented; and that adequate disclosure is made of all material aspects, including any relevant direct or indirect relationship (such as employment or ownership of shares) between the Competent Person and the owners of the project on which he or she is reporting, that the informed reader may require to make a reasonable and balanced judgment thereof.

Transparency and Materiality are guiding principles of the ECRR, and the Competent Person must provide explanatory commentary on the material assumptions underlying the declaration of Exploration Results, Mineral Resources or Mineral Reserves.

The Competent Person must not remain silent on any material aspect for which the presence or absence of comment could affect the public perception or value of the mineral occurrence.

5. Table 1 provides a checklist or reference of criteria to be considered by the Competent Person in developing their documentation and in preparing the Public Report.

In the context of complying with the principles of the ECRR, comments relating to the items in the relevant sections of Table 1 should be provided on an 'if not, why not' basis within the Competent Person's documentation. Additionally, comments related to the relevant sections of Table 1 must be complied with on an 'if not, why not' basis within Public Reporting for significant projects when reporting Exploration Results, Mineral Resources or Mineral Reserves for the first time. Table 1 also applies in instances where these items have materially changed from when they were last publicly reported.

A material change could be a change in the estimated tonnage or grade or in the classification of the Mineral Resources or Mineral Reserves. Whether there has been a material change in relation to a significant project must be considered by taking into account all of the relevant circumstances, including the style of mineralization. This includes considering whether the change in estimates is likely to have a material effect on the price or value of the company's securities.

It is essential to discuss any matters which might materially affect the reader's understanding or interpretation of the results or estimates being reported. This is particularly important where inadequate or uncertain data affect the reliability of, or confidence in, a statement of Exploration Results or an estimate of Mineral Resources and/or Mineral Reserves; for example, poor sample recovery, poor repeatability of assay or laboratory results, limited information on bulk densities 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 overstatement of resources should be disclosed.

6.

Definition	**Public Reports are reports prepared for the purpose of informing investors or potential investors and their advisers on Exploration Results, Mineral Resources or Mineral Reserves. They include, but are not limited to, annual and quarterly company reports, press releases, information memoranda, technical papers, website postings and public presentations.**

The ECRR is a required minimum standard for Public Reporting. The Commission also recommends its adoption as a minimum standard for other reporting. Companies are encouraged to provide information in their Public Reports that is as comprehensive as possible.

Public Reports include but are not limited to: company annual reports, quarterly reports and other reports to regulatory authorities, or as required by law. The ECRR applies to other publicly released company information in the form of postings on company web sites, press releases and briefings for shareholders, stockbrokers and investment analysts. The ECRR also applies to any reports that have been prepared for the purposes described in Clause 6, such as environmental statements; information memoranda; expert reports, and technical papers referring to Exploration Results, Mineral Resources or Mineral Reserves. They may also be for the purpose of satisfying regulatory requirements.

For companies issuing concise annual reports, inclusion of all material information relating to Exploration Results, Mineral Resources and Mineral Reserves is recommended. In cases where summary information is presented it should be clearly stated that it is a summary, and a reference attached giving the location of the standard-compliant Public Reports or Public Reporting on which the summary is based.

It is recognized that companies can be required to issue reports into more than one regulatory jurisdiction, with compliance standards that may differ from the ECRR. It is recommended that such reports include a statement alerting the reader to this situation.

Reference in the ECRR to 'documentation' is to internal company documents prepared as a basis for, or to support, a Public Report.

It is recognized that situations may arise where documentation prepared by a Competent Person for internal company or similar non-public purposes does not comply with the ECRR. 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 9 requires Public Reports to fairly reflect Exploration Results, Mineral Resource and/or Mineral Reserve estimates, and supporting documentation, prepared by a Competent Person.

While every effort has been made within the ECRR (including Table 1) 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 ECRR and those compiling reports to comply with the ECRR 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 that 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 judgment regarding the Exploration Results, Mineral Resources or Mineral Reserves being reported.

Estimation of Mineral Resources and Mineral Reserves is inherently subject to some level of uncertainty and inaccuracy. Considerable skill and experience may be needed to interpret pieces of information, such as geological maps and analytical results based on samples that commonly only represent a small part of a mineral deposit. The uncertainty in the estimates should be discussed in documentation and, where material, in Public Reports, and reflected in the appropriate choice of Mineral Reserve and Mineral Resource categories.

The ECRR is a standard for Public Reporting, not regulates the manner in which a Competent Person estimates Mineral Resources or Mineral Reserves.

7. The ECRR is applicable to all solid minerals, including emeralds and other gemstones, coal, industrial minerals, stone and aggregates, for which Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves is required by the regulatory authorities.

8. It is recognized that further review of the ECRR will be required from time to time.

COMPETENCE AND RESPONSABILITY

9. A Public Report concerning a company's Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves is the responsibility of the company acting through its Board of Directors. Any such report must be based on, and fairly reflect, the information and supporting documentation prepared by a Competent Person.

A company issuing a Public Report shall the name of the Competent Person, qualifications, professional and corporative affiliation(s), relevant experience, and state whether the Competent Person is a full-time employee of the company, and, if not, name the Competent Person's employer.

Any potential for a conflict of interest by the Competent Person or a related party must be disclosed in accordance with the Transparency principle. Any other relationship of the Competent Person with the Company making the report must also be disclosed in the Public Report. The report must be issued with the prior written consent of the Competent Person as to the form and context in which it appears.

Where a company is re-issuing information previously issued with the written consent of the Competent Person, it must state the original report name, the name(s) of the Competent Person responsible for the original report, and state the date and reference the location of the original source public report for public access. In these circumstances the Company is not required to obtain the Competent Person's prior written consent as to the form and context in which the information appears, provided:

• The company confirms in the subsequent public presentation that it is not aware of any new information or data that materially affects the information included in the relevant market announcement. In the case of estimates of Mineral Resources or Mineral Reserves, the company confirms that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

• The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified. Note that for the subsequent public presentation it is the responsibility of the company acting through its board of directors to ensure the form and context has not been materially altered.

This relaxation of the requirement to obtain the Competent Person's prior written consent does not apply to the requirements for annual reporting of Mineral Resources and Mineral Reserves contained in Clause 16.

> *All such public disclosure should be specifically reviewed by the company to ensure that the form and context in which the Competent Person's findings are presented have not been materially modified, and to ensure that the previously issued Exploration Results, Mineral Resources or Mineral Reserves remain valid in the light of any more recently-acquired data.*

Examples of appropriate forms of compliance statements are provided in Appendix 2.

> *In order to assist Competent Persons and companies to comply with these requirements a Competent Person's Consent Form has been devised that incorporates the*

requirements of the Standard. The Competent Person's Consent Form is provided in Appendix 1.

The completion of a consent form, whether in the format provided or in an equivalent form, is recommended as good practice and provides readily available evidence that the required prior consent has been obtained.

The Competent Person's Consent Form(s), or other evidence of the Competent Person's written consent, should be retained by the company and the Competent Person to ensure that the written consent can be promptly provided if required.

10. Documentation detailing Exploration Results, Mineral Resource and Mineral Reserve estimates, on which a Public Report on Exploration Results, Mineral Resources and Mineral Reserves is based, must be prepared by, or under the direction of, and signed by, a Competent Person. If an Exploration Target is included in a Public Report, documentation must also be prepared by, or under the direction of, and signed by, a Competent Person. The documentation must provide a fair representation of the matters being reported.

11.

Definition	**A Competent Person is a minerals industry professional (geologist, engineering geologist, mining engineer or mining and extractive metallurgy engineer) registered in the Colombian Commission of Mineral Resources and Reserves.** **A Competent Person must have a minimum of ten (10) years of professional experience in the mining industry, and a minimum of five (5) years of relevant experience in the style of mineralization or type of deposit under consideration and in the activity which that person is undertaking.**

If the Competent Person is preparing documentation 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 Mineral Reserves, the relevant experience must be in the estimation, assessment, evaluation and economic extraction of Mineral Reserves.

The key qualifier in the definition of a Competent Person is the word 'relevant'. Determination of what constitutes relevant experience can be a difficult area and common sense has to be exercised. For example, in estimating Mineral Resources for vein gold mineralization, experience in a high-nugget, vein-type mineralization (such as tin, uranium, etc.) may 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 Mineral Reserves for alluvial gold deposits, considerable (at least five years) experience in the evaluation and economic extraction of this type of mineralization may be needed. This is due to the properties 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 necessarily provide appropriate relevant experience.

The key word 'relevant' also means that it is not always necessary for a person to have five years of experience in each and every type of deposit to act as a Competent Person if that person has relevant experience in other deposit types. For example, a person with (say) 20 years of 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 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 mineralization, a Competent Person taking responsibility for the compilation of 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 that 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, a person being called upon to act as Competent Person should be clearly satisfied in their own mind 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 peers or should decline to act as a Competent Person.

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 Mineral Reserves is very commonly a team effort involving several technical disciplines. 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. If only one Competent Person signs the Mineral Resource or Mineral Reserve documentation, that person is responsible and accountable for the whole of the documentation under the Code. It is important in this situation that the Competent Person accepting overall responsibility for a Mineral Resource or Mineral 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 with respect to the professional work of a Competent Person will be dealt under the code of ethics and disciplinary procedures of the Colombian Commission of Mineral Resources and Reserves, not meaning that the responsibilities may or may not be investigated and/or sanctioned by other authorities, including professional associations in charge of overseeing the exercise of the respective profession.

REPORTING TERMINOLOGY

12. Public Reports dealing with Exploration Results, Mineral Resources or Mineral Reserves must only use the terms set out in Figure 1.

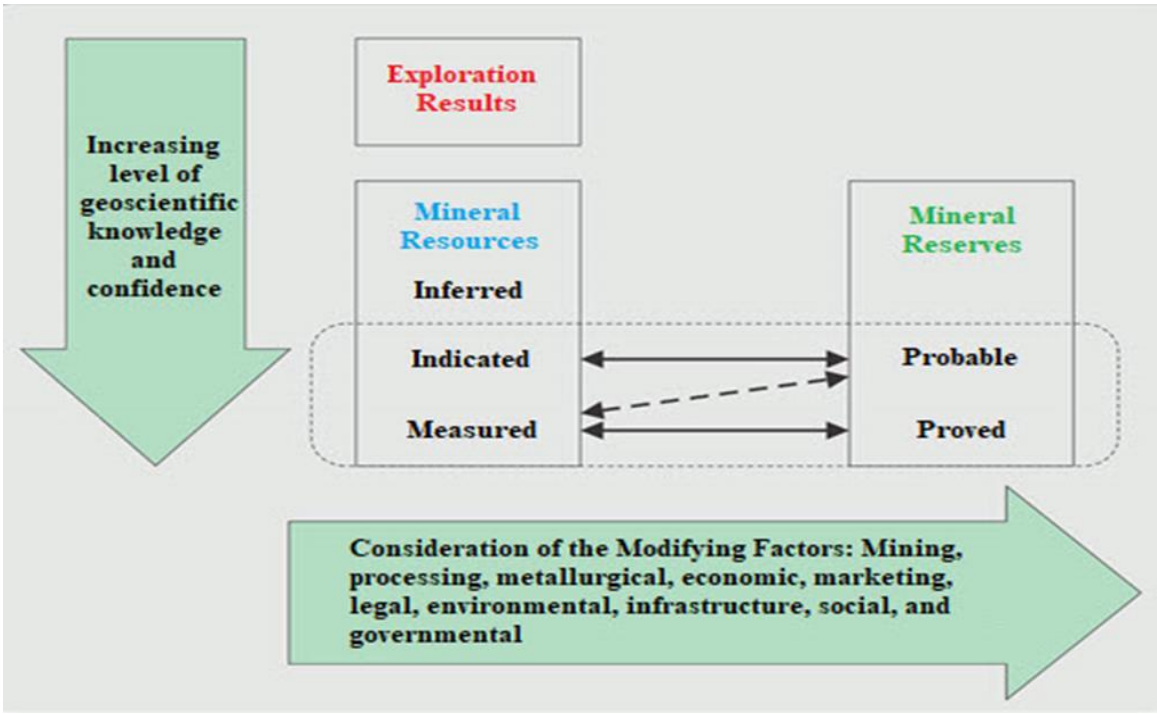

Figure 1. General relationship between Exploration Results, Mineral Resources and Mineral Reserves.

Modify, look at SME graphs

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 on the basis of geoscientific information with some input from other disciplines. Mineral 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.

13.

Definition	**Modifying Factors are considerations used to convert Mineral Resources to Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.**

Measured Mineral Resources may be converted to either Proved Mineral Reserves or Probable Mineral Reserves. The Competent Person may convert Measured Mineral Resources to Probable Mineral Reserves because of uncertainties associated with some or all of the Modifying Factors which are taken into account in the conversion from Mineral Resources to Mineral Reserves. This relationship is shown by the broken arrow in Figure 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 geoscience knowledge and confidence. In such a situation these Modifying Factors should be fully explained.

REPORTING GENERAL

14. Public Reports concerning a company's Exploration Results, Mineral Resources or Mineral Reserves must include a description of the style and nature of the mineralization.

15. A company must disclose all relevant information concerning Exploration Results, Mineral Resources or Mineral Reserves that could materially influence the economic value of those Exploration Results, Mineral Resources or Mineral Reserves to the company. A company must promptly report any material changes in its Mineral Resources or Mineral Reserves.

16. Companies must review and publically report their Mineral Resources and Mineral Reserves annually. The annual review date must be nominated by the Company in its Public

Reports of Mineral Resources and Mineral Reserves and the effective date of each Mineral Resource and Mineral Reserve statement must be shown. Companies are encouraged to provide information in their Public Reports, which is as comprehensive as possible. A company's economic interest in the project must be declared. The Company must discuss any material changes to previously reported Mineral Resources and Mineral Reserves at the time of publishing updated Mineral Resources and Mineral Reserves.

17. Throughout the ECRR, 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, the generic terms are listed in the Glossary, together with other terms that may be regarded as synonymous for the purposes of this document.

For example, 'quality' may be substituted for 'grade' and 'volume' may be substituted for 'tonnage'.

> *The use of a particular term throughout this document does not signify that it is preferred or necessarily the ideal term in all circumstances. Competent Persons would be expected to select and use the most appropriate terminology for the commodity or activity being reported.*

18. It is recognized that it is common practice for a company to comment on and discuss its exploration in terms of target size and type. However, any such comment in a Public Report must comply with the following requirements.

Definition	**An Exploration Target is a statement or estimate of the exploration potential of a mineral deposit in a defined geological setting where the statement or estimate, quoted as a range of tonnes (or volume) and a range of grade (or quality), relates to mineralization for which there has been insufficient exploration to estimate a Mineral Resource.**

Any such information relating to an Exploration Target must be expressed so that it cannot be misrepresented or misconstrued as an estimate of a Mineral Resource or Mineral Reserve. The terms Resource or Reserve must not be used in this context. In any statement referring to potential quantity and grade of the target, these must both be expressed as ranges and must include:

• A detailed explanation of the basis for the statement, including specific description of the level of exploration activity already completed, and

• A clarification statement within the same paragraph as the first reference of the Exploration Target in the Public Report, stating that the potential quantity and grade is conceptual in nature, that there has been insufficient exploration to estimate a Mineral Resource and that it is uncertain if further exploration will result in the estimation of a Mineral Resource.

Given the level of uncertainty surrounding the supporting data, an Exploration Target tonnage or grade must not be reported as a 'headline statement' in a Public Report.

If a Public Report includes an Exploration Target the proposed exploration activities designed to test the validity of the exploration target must be detailed and the timeframe within which those activities are expected to be completed must be specified.

A Public Report that includes an Exploration Target must be accompanied by a Competent Person statement taking responsibility for the form and context in which the Exploration Target appears.

> *The detailed explanation of the basis for the statement of a Exploration Target must specifically discuss the geological setting and exploration strategy, exploration activity already completed and the presence of or lack of the following attributes:*
>
> *• Mineralized outcrops and assays,*
> *• Surface geochemical and physical sampling results,*
> *• Surface and subsurface geophysical survey results, and*
> *• Drill holes, test pits, and underground workings.*

REPORTING OF EXPLORATION RESULTS

19.

Definition	**Exploration Results include data and information generated by mineral exploration programs that might be of use to investors but which do not form part of a declaration of Mineral Resources or Mineral Reserves.**

The reporting of such information is common in the early stages of exploration when the quantity of data available is generally not sufficient to allow any reasonable estimates of Mineral Resources.

Examples of Exploration Results include results of outcrop sampling, assays of drill hole intersections, geochemical results and geophysical survey results.

It should be made clear in public reports that contain mineral Exploration Results that it is inappropriate to use such information to derive estimates of tonnage and grade.

It is recommended that such reports carry a continuing statement along the following lines: "The information provided in this report/statement/release constitutes mineral Exploration Results as defined in the International Reporting Template, Clause 19. It is inappropriate to use such information for deriving estimates of tonnage and grade".

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

21. Public Reports of Exploration Results relating to mineralization not classified as a Mineral Resource or Mineral Reserve must contain sufficient information to allow a considered and balanced judgment of the significance of the results. Public Reports of Exploration Results must not be presented so as to unreasonably imply that potentially economic mineralization has been discovered. Public Reports of Exploration Results must include, at least, the listed information on Table 1, Part 3.

REPORTING OF MINERAL RESOURCES

22.

Definition	**A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.**

Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

All reports of Mineral Resources must satisfy the requirement that there are reasonable prospects for eventual economic extraction, regardless of the classification of the resource.

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

The term 'Mineral Resource' covers mineralization, including dumps and tailings, which has been identified and estimated through exploration and sampling and within which Mineral Reserves may be defined by the consideration and application of the Modifying Factors.

The term 'reasonable prospects for eventual economic extraction' implies an assessment (albeit preliminary) by the Competent Person in respect of all matters 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 mineralization drilled or sampled, regardless of cut-off grade, likely mining dimensions location or continuity. It is a realistic inventory of mineralization which, under assumed and justifiable technical, economic and development conditions, might, in whole or in part, become economically extractable.

Any material assumptions made in determining the 'reasonable prospects for eventual economic extraction' should be clearly stated in the Public Report.

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 many gold deposits, application of the concept would normally be restricted to perhaps 10 to 15 years, and frequently to much shorter periods of time.

Any adjustment made to the data for the purpose of making the Mineral Resource estimate, (e.g. cutting or factoring grades), should be clearly stated and described in the Public Report.

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

23.

Definition	**An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity.** **An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.**

Where the Mineral Resource being reported is predominantly an Inferred Mineral Resource, sufficient supporting information must be provided to enable the reader to evaluate and assess the risk associated with the reported Mineral Resource.

In circumstances where the estimation of the Inferred Mineral Resource is presented on the basis of extrapolation beyond the nominal sampling spacing and taking into account the style of mineralization, the report must contain sufficient information to inform the reader of:

• The maximum distance that the resource is extrapolated beyond the sample points
• The proportion of the resource that is based on extrapolated data
• The basis on which the resource is extrapolated to these limits
• A diagrammatic representation of the Inferred Mineral Resource showing clearly the extrapolated part of the estimated resource.

> *The Inferred 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 grade continuity to be confidently interpreted. While it would be reasonable to expect that the majority of Inferred Mineral Resources would upgrade to Indicated Mineral Resources with continued exploration, due to the uncertainty of Inferred Mineral Resources, it should not be assumed that such upgrading will always occur.*

Confidence in the estimate of Inferred Mineral Resources is not sufficient to allow the results of the application of technical and economic parameters to be used for detailed planning in Pre-Feasibility or Feasibility Studies. For this reason, there is no direct link from an Inferred Mineral Resource to any category of Mineral Reserves (see Figure 1).

Caution should be exercised if Inferred Mineral Resources are used to support technical and economic studies such as Scoping Studies.

24.

Definition	**An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.** **Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered.** **An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.**

Mineralization 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 and to assume continuity of mineralization.

25.

Definition	**A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.**

	Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade (or quality) continuity between points of observation where data and samples are gathered. **A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Mineral Reserve or under certain circumstances to a Probable Mineral Reserve.**

Mineralization 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 mineralization can be estimated to within close limits, and that any variation from the estimate would be unlikely to significantly affect potential economic viability.

This category requires a high level of confidence in, and understanding of, the geological properties and controls of the mineral deposit.

Depending upon the level of confidence in the various Modifying Factors it may be converted to a Proved Mineral Reserve (high confidence in Modifying Factors), Probable Mineral Reserve (some uncertainty in Modifying Factors) or may not be converted at all (low or no confidence in some of the Modifying Factors; or no plan to mine, e.g. pillars in an underground mine or outside economic pit limits).

26. 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.

Mineral Resource classification is a matter for skilled judgment and a Competent Person should take into account those items in Table 1 that 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 24 and 25, the phrase

in the guideline to the definition for Measured Mineral Resources: '....any variation from the estimate would be unlikely to 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 23 and 24 relating to geological and grade continuity, that part of the definition for Indicated Mineral Resources: 'sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit', which contrasts with the guideline to the definition for Inferred Mineral Resources: 'Confidence in the estimate of Inferred Mineral Resources is not sufficient to allow the results of the application of technical and economic parameters to be used for detailed planning in Pre-Feasibility or Feasibility Studies' and 'Caution should be exercised if Inferred Mineral Resources are used to support technical and economic studies such as Scoping Studies'.

The Competent Person should take into consideration issues of the style of mineralization and cut-off grade when assessing geological and grade continuity for the purposes of classifying the resource.

Cut-off grades chosen for the estimation should be realistic in relation to the style of mineralization and the anticipated mining and processing development options.

27. 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'. To emphasize the imprecise nature of a Mineral Resource, the final result should always be referred to as an estimate not a calculation.

In most situations, rounding to the second significant figure should be sufficient. For example 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.

Competent Persons are encouraged, where appropriate, to discuss the relative accuracy and confidence level of the Mineral Resource estimates with consideration of at least sampling, analytical and estimation errors. The statement should specify whether it relates to global (whole of resource) or local estimates (a subset of the resource for

which the accuracy and/or confidence might differ from the whole of the resource), and, if local, state the relevant tonnage. Where a statement of the relative accuracy and confidence level is not possible, a qualitative discussion of the uncertainties should be provided in its place (refer to Table 1).

28. Public Reports of Mineral Resources 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 Mineral Reserves.

Public Reporting of tonnages and grades outside the categories covered by the ECRR is not permitted unless the situation is covered by Clause 18, and then only in strict accordance with the requirements of that Clause.

Estimates of tonnage and grade outside of the categories covered by the ECRR may be useful for a company in its internal calculations and evaluation processes, but their inclusion in Public Reports is not permitted.

29. In a Public Report of a Mineral Resource for a significant project for the first time, or when those estimates have materially changed from when they were last reported, a brief summary of the information in relevant sections of Table 1 must be provided or, if a particular criterion is not relevant or material, a disclosure that it is not relevant or material and a brief explanation of why this is the case must be provided.

For a significant project, when Mineral Resource estimates are first Publicly Reported or when a material change occurs (including classification changes), there is an increased need for transparent discussion of the basis for the new Mineral Resource estimate in order that investors are appropriately informed of the basis for the changes. As noted in Clauses 4 and 5 the benchmark of Materiality is that which an investor or their advisers would reasonably expect to see explicit comment on from the Competent Person, thus the reporting of all relevant criteria in Table 1 is required.

The technical summary based against Table 1 criteria should be presented as an appendix to the Public Report.

Where there are as yet unresolved issues potentially impacting the reliability of, or confidence in, a statement of Mineral Resources (for example, poor sample recovery, poor repeatability of assay or laboratory results, limited information on bulk densities, etc.) those unresolved issues should also be reported.

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 Mineral Resources should be disclosed.

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.

REPORTING OF MINERAL RESERVES

30.

Definition	**A Mineral 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 or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.** **The reference point at which Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.**

Mineral Reserves are sub-divided in order of increasing confidence into Probable Mineral Reserves and Proved Mineral Reserves.

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

Mineral Reserves are those portions of Mineral Resources that, after the application of all Modifying Factors, result in an estimated tonnage and grade which, in the opinion of

the Competent Person making the estimates, can be the basis of a technically and economically viable project, after taking account of material relevant Modifying Factors.

The term 'economically mineable' implies that extraction of the Mineral Reserves has been demonstrated to be viable under reasonable financial assumptions. This 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'. However, it is expected that companies will attempt to achieve an acceptable return on capital invested, and that returns to investors in the project will be competitive with alternative investments of comparable risk.

In order to achieve the required level of confidence in the Modifying Factors, appropriate Feasibility or Pre-Feasibility level studies will have been carried out prior to determination of the Mineral Reserves. The studies will have determined a mine plan and production schedule that is technically achievable and economically viable and from which the Mineral Reserves can be derived.

The term 'Mineral Reserves' need not necessarily signify that extraction facilities are in place or operative, or that all necessary approvals or sales contracts have been received. It does signify that there are reasonable grounds to expect that such approvals or contracts will eventuate within the anticipated time frame required by the mine plans. There must be reasonable grounds to expect that all necessary Government approvals will be received. The Competent Person should highlight and discuss any material 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 Mineral Reserve estimate, for example by cutting or factoring grades, should be clearly stated and described in the Public Report.

It should be noted that application of the ECRR does not imply that an economic operation should have Proved Mineral Reserves. Situations may arise where Probable Mineral Reserves alone may be sufficient to justify extraction, as for example with some alluvial gold or platinum deposits. This is a matter for judgment by the Competent Person.

31.

Definition	**A Probable Mineral Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proved Mineral Reserve.**

A Probable Mineral Reserve has a lower level of confidence than a Proved Mineral Reserve but is of sufficient quality to serve as the basis for a decision on the development of the deposit.

32.

Definition	**A Proved Mineral Reserve is the economically mineable part of a Measured Mineral Resource. A Proved Mineral Reserve implies a high degree of confidence in the Modifying Factors.**

A Proved Mineral Reserve represents the highest confidence category of reserve estimate and implies a high degree of confidence in geological and grade continuity, and the consideration of the Modifying Factors.

> *The style of mineralization or other factors could mean that Proved Mineral Reserves are not achievable in some deposits. Competent Persons should be aware of the consequences of declaring material of the highest confidence category before satisfying themselves that all of the relevant Resource parameters and Modifying Factors have been established at a similarly high level of confidence.*

33. The choice of the appropriate category of Mineral Reserve is determined primarily by the relevant level of confidence in the Mineral Resource and after considering any uncertainties in the consideration of the Modifying Factors. Allocation of the appropriate category must be made by a Competent Person.

> *The ECRR provides for a direct two-way relationship between Indicated Mineral Resources and Probable Mineral Reserves and between Measured Mineral Resources and Proved Mineral Reserves. In other words, the level of geological confidence for Probable Mineral Reserves is similar to that required for the determination of Indicated*

Mineral Resources, and the level of geological confidence for Proved Mineral Reserves is similar to that required for the determination of Measured Mineral Resources. Inferred Mineral Resources are always additional to Mineral Reserves.

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

A Probable Mineral Reserve derived from a Measured Mineral Resource may be converted to a Proved Mineral Reserve if the uncertainties in the Modifying Factors are removed. No amount of confidence in the Modifying Factors for conversion of a Mineral Resource to a Mineral Reserve can override the upper level of confidence that exists in the Mineral Resource. Under no circumstances can an Indicated Mineral Resource be converted directly to a Proved Mineral Reserve (see Figure 1).

Application of the category of Proved Mineral Reserve implies the highest degree of geological, technical and economic confidence in the estimate at the level of production increments used to support mine planning and production scheduling, with consequent expectations in the minds of the readers of the report. These expectations should be considered when categorizing a Mineral Resource as Measured.

Refer also to the guidelines in Clause 27 regarding categorization of Mineral Resources.

34. Mineral Reserve estimates are not precise calculations. Reporting of tonnage and grade estimates should reflect the relative uncertainty of the estimate by rounding off to appropriately significant figures. Refer also to Clause 28.

To emphasize the imprecise nature of a Mineral Reserve, the final result should always be referred to as an estimate and not a calculation.

Competent Persons are encouraged, where appropriate, to discuss the relative accuracy and confidence level of the Mineral Reserve estimates with consideration of both underlying estimation and Modifying Factor uncertainties. The statement should specify whether it relates to global (whole of reserve) or local estimates (a subset of the reserve for which the accuracy and/or confidence might differ from the whole of the reserve), and, if local, state the relevant tonnage. Where a statement of the relative accuracy and

confidence level is not possible, a qualitative discussion of the uncertainties should be provided in its place (refer to Table 1 and Clause 27 guidelines).

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

Public Reporting of tonnage and grade outside the categories covered by the ECRR is not permitted unless the situation is covered by Clause 18, and then only in strict accordance with the requirements of that Clause.

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

When revised Mineral 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.

36. In situations where figures for both Mineral Resources and Mineral 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 Mineral Reserves.

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

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

In the former case, if any Measured and Indicated Mineral Resources have not been modified to produce Mineral Reserves for economic or other reasons, the relevant

details of these unmodified Mineral Resources should be included in the report. This is to assist the reader of the report in making a judgment of the likelihood of the unmodified Measured and Indicated Mineral Resources eventually being converted to Mineral Reserves.

Inferred Mineral Resources are by definition always additional to Mineral Reserves.

For reasons stated in the guidelines to Clause 33 and in this paragraph, the reported Mineral 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.

37. When preparing the Mineral Reserves statement, the Mineral Resources statement on which these Mineral Reserves are based should be prepared first. When a new report or statement of Mineral Resources and/or Mineral Reserves is published, it should include a reconciliation of the previously published figures, identifying the differences between both sets of figures and stating the reasons for these differences, such as, for example, productive aspects, explorations, changes in category, or others. It is not necessary for the reconciliation to detail the differences, but it should allow the reader to have a clear knowledge of what happened. The application of cut-off grades and other criteria to the Mineral Resources may then be performed, in order to develop the Mineral Reserves statement, which may be reconciled with previous statements.

Companies must reconcile the estimations in their Mineral Resources and Mineral Reserves reports every time the figures are different from the information previously published. It is not essential to provide a detailed explanation on the differences between estimations, but an adequate comment should be made so that the reader may be familiar with significant deviations.

Table 1 provides a synthesis of the main criteria that should be considered when preparing reports on the results of Exploration Results, Mineral Resources and Mineral Reserves. These criteria need to be discussed in the Public Reports, especially if they materially affect the estimation and classification of Mineral Reserves. Changes in the economic, governmental and other factors may constitute, in and of themselves, the cause for significant changes in the Mineral Reserves and should be reported accordingly.

TECHNICAL STUDIES

38.

Definition	**A Scoping Study is an order of magnitude technical and economic study of the potential viability of Mineral Resources. It includes appropriate assessments of realistically assumed Modifying Factors together with any other relevant operational factors that are necessary to demonstrate at the time of reporting that progress to a Pre-Feasibility Study can be reasonably justified.**

A Scoping Study must not be used as the basis for estimation of Mineral Reserves.

Scoping Studies are commonly the first economic evaluation of a project undertaken and may be based on a combination of directly gathered project data together with assumptions borrowed from similar deposits or operations to the case envisaged. They are also commonly used internally by companies for comparative and planning purposes. Reporting the general results of a Scoping Study needs to be undertaken with care to ensure there is no implication that Mineral Reserves have been established or that economic development is assured. In this regard it may be appropriate to indicate the Mineral Resource inputs to the Scoping Study and the processes applied. If a Scoping Study is partially or totally supported by Inferred Mineral Resources, the report must include a cautionary statement with the proportion and relative sequencing of the Inferred Mineral Resources within the Scoping Study.

39.

Definition	**A Pre-Feasibility Study is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors which are sufficient for a Competent Person, acting reasonably, to determine if all or part of the Mineral Resources may be converted to an Mineral Reserve at**

	the time of reporting. A Pre-Feasibility Study is at a lower confidence level than a Feasibility Study.

As noted in Clause 30, formal assessment of all Modifying Factors is required in order to determine how much available Measured and Indicated Mineral Resources can be converted to Mineral Reserves.

A Pre-Feasibility Study will consider the application and description of all Modifying factors to demonstrate economic viability and to support a Mineral Reserve Public Report. The Pre-Feasibility Study will identify the preferred mining, processing, and infrastructure requirements and capacities, but will not yet have finalized these matters. Detailed assessments of environmental and socio-economic impacts and requirements will also be well advanced. The Pre-Feasibility Study will highlight areas that require further refinement within the final study stage.

40.

Definition	**A Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study.**

The ECRR does not require that a full Feasibility Study has been undertaken to convert Mineral Resources to Mineral Reserves, but it does require that at least a Pre-Feasibility Study will have been carried out that will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.

A Feasibility Study is of a higher level of confidence than a Pre-Feasibility Study and would normally contain mining, infrastructure and process designs completed with sufficient rigor to serve as the basis for an investment decision or to support project financing. The Feasibility Study will contain the application and description of all

Modifying factors in a more detailed form than in the Pre-Feasibility Study, and may address implementation issues such as detailed mining schedules, construction ramp up, and project execution plans.

REPORTING OF MINERALISED FILL, REMNANTS, PILLARS, LOW GRADE MINERALIZATION, STOCKPILES, DUMPS AND TAILINGS

41. The ECRR applies to the reporting of all potentially economic mineralized material. This can include mineralized fill, remnants, pillars, low grade mineralization, stockpiles, dumps and tailings 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 Mineral Reserves. Unless otherwise stated, all other Clauses of the Code (including Figure 1) apply.

Any mineralized material as described in this Clause can be considered to be similar to in situ mineralization for the purposes of reporting Mineral Resources and Mineral Reserves. Judgments about the mineability of such mineralized material should be made by professionals with relevant experience.

If there are no reasonable prospects for the eventual economic extraction of all or part of the mineralized material as described in this Clause, then this material cannot be classified as either Mineral Resources or Mineral Reserves. If some portion of the mineralized 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 Mineral Reserve.

The above guidelines apply equally to low-grade in situ mineralization, sometimes referred to as 'mineralized 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 itemized separately in Public Reports, although they may be aggregated with total Mineral Resource and Mineral Reserve figures.

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

REPORTING OF EXPLORATION RESULTS, RESOURCES AND RESERVES FOR COAL

42. Clauses 42 to 44 of the Code address matters that relate specifically to the Public Reporting of Exploration Results, Resources and Reserves for Coal. Unless otherwise stated, Clauses 1 to 40 of the ECRR (including Figure 1) apply. Table 1 must be considered 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'.

43. The terms 'Mineral Resource(s)' and 'Mineral 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 the appropriate subdivisions may be substituted.

44. 'Marketable Coal Reserves', representing beneficiated or otherwise enhanced coal product where modifications due to mining, dilution and processing have been considered, must be publicly reported in conjunction with, but not instead of, reports of Coal Reserves. The basis of the predicted yield to achieve Marketable Coal Reserves must be stated.

> *Reference to the terms 'coking coal' or 'metallurgical coal', or any reference to coking properties, should not be made until specific coking properties are demonstrated by analytical results for samples from a deposit.*

REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES FOR EMERALDS AND OTHER GEMSTONES

45. Clauses 45 to 48 of the ECRR address matters that relate specifically to the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves for emeralds and other gemstones. Unless otherwise stated, Clauses 1 to 40 of the ECRR (including Figure 1) apply. Table 1 must be considered when reporting Exploration Results, Mineral Resources and Mineral Reserves for emeralds and other gemstones.

> *For the purposes of Public Reporting, the requirements for emeralds and other gemstones are generally similar to those for other commodities with the replacement*

of terms such as 'mineral' by 'emerald' and 'grade' by 'grade and average emerald value'. The term 'quality' should not be substituted for 'grade,' since in emerald deposits these have distinctly separate meanings.

A number of characteristics of emerald deposits are different from those of, for example, typical metalliferous and coal deposits and therefore require special consideration. These include the generally low mineral content and variability of primary and placer deposits, the particulate nature of emeralds, the specialized requirement for emerald valuation and the inherent difficulties and uncertainties in the estimation of emerald Resources and Reserves.

46. Reports of emeralds recovered from sampling programs must provide material information relating to the basis on which the sample is taken, the method of recovery and the recovery of the emeralds. The weight of emeralds recovered may only be omitted from the report when the emeralds are considered to be too small to be of commercial significance. This lower cut-off size should be stated.

The stone size distribution and price of emeralds and other gemstones are critical components of the Resource and Reserve estimates. At an early exploration stage, sampling and delineation drilling will not usually provide this information, which relies on large diameter drilling and, in particular, bulk sampling.

In order to demonstrate that a resource has reasonable prospects for economic extraction, some description of the likely stone size distribution and price is necessary, however preliminary the analysis of these may be. To determine an Inferred Mineral Resource in simple, single-facies or single-phase deposits, such information may be obtainable by representative large diameter drilling. More often, some form of bulk sampling, such as pitting and trenching, would be employed to provide larger sample parcels.

In order to progress to an Indicated Mineral Resource, and from there to a Probable Mineral Reserve, it is likely that much more extensive bulk sampling would be needed to fully determine the stone size distribution and value. Commonly such bulk samples would be obtained by underground development designed to obtain sufficient emeralds to enable a confident estimate of price.

In complex deposits, it may be very difficult to ensure that the bulk samples taken are truly representative of the whole deposit. The lack of direct bulk sampling, and the uncertainty in demonstrating spatial continuity of size and price relationships should be persuasive in determining the appropriate resource category.

47. Where emerald Mineral Resource or Mineral Reserve grades (carats per tonne) are based on correlations between the frequency of occurrence of micro-emeralds and of commercial size stones, this must be stated, the reliability of the procedure must be explained and the cut-off sieve size for micro-emeralds reported.

48. For Public Reports dealing with emerald or other gemstone mineralization, it is a requirement that any reported valuation of a parcel of emeralds or gemstones be accompanied by a statement verifying the independence of the valuation. The valuation must be based on a report from a demonstrably reputable and qualified expert.

If a valuation of a parcel of emeralds is reported, the weight in carats and the lower cut-off size of the contained emeralds must be stated and the value of the emeralds must be given in US dollars per carat. Where the valuation is used in the estimation of emerald Mineral Resources or Mineral Reserves, the valuation must be based on a parcel representative of the size, shape and color distributions of the emerald population in the deposit.

Table 1 provides in summary form, a list of the main criteria which should be considered when preparing reports on Exploration Results, Mineral Resources and Mineral Reserves for emeralds and other gemstones.

REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES FOR INDUSTRIAL MINERALS AND CONSTRUCTION RAW MATERIALS

49. Clause 49 of the ECRR address matters which relate to the public reporting of industrial minerals, stone and aggregates of all forms and other bulk commodities such as phosphates, talc, kaolin etc. that are generally sold on the basis of their product specifications and market acceptance. Unless otherwise stated, Clauses 1 to 40 of the ECRR (including Figure 1) apply. Table 1, as part of the guidelines, must be considered when reporting on Exploration Results, Resources and Reserves for industrial minerals and construction raw materials.

When reporting information and estimates for industrial minerals, the key principles and purpose of the ECRR apply and should be borne in mind. Assays may not always be relevant, and other quality criteria may be more applicable. If criteria such as deleterious minerals or physical properties are of more relevance than the composition of the bulk mineral itself, then they should be reported accordingly.

The factors underpinning the estimation of Mineral Resources and Mineral Reserves for industrial minerals are the same as those for other deposit types covered by the ECRR. It may be necessary, prior to the reporting of a Mineral Resource or Mineral Reserve, to take particular account of certain key characteristics or qualities such as likely product specifications, proximity to markets and general product marketability.

For some industrial minerals, it is common practice to report the saleable product rather than the 'as mined' product, which is traditionally regarded as the Mineral Reserve. ECRR's preference is that, if the saleable product is reported, it should be in conjunction with, not instead of, reporting of the Mineral Reserve. However, it is recognized that commercial sensitivities may not always permit this preferred style of reporting. It is important that, in all situations where the saleable product is reported, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

Some industrial mineral deposits may be capable of yielding products suitable for more than one application and/or specification. If considered material by the reporting company, such multiple products should be quantified either separately or as a percentage of the bulk deposit.

REPORTING OF METAL EQUIVALENTS

50. The public reporting of Exploration Results, Mineral Resources or Mineral Reserves for polymetallic deposits in terms of metal equivalents (a single equivalent grade of one major metal) must show details of all material factors contributing to the net value derived from each constituent.

The following minimum information must accompany any Public Report that includes reference to metal equivalents, in order to conform to the principles of Transparency, Materiality and Competence, as set out in Clause 4:

- Individual grades for all metals included in the metal equivalent calculation,
- Assumed commodity prices for all metals (Companies should disclose the actual assumed prices. It is not sufficient to refer to a spot price without disclosing the price used in calculating the metal equivalent. However where the actual prices used are commercially sensitive, the company must disclose sufficient information, perhaps in narrative rather than numerical form, for investors to understand the methodology it has used to determine these prices),

- Assumed metallurgical recoveries for all metals and discussion of the basis on which the assumed recoveries are derived (metallurgical test work, detailed mineralogy, similar deposits, etc.),
- A clear statement that it is the company's opinion that all the elements included in the metal equivalents calculation have a reasonable potential to be recovered and sold, and
- The calculation formula used.

In most circumstances, the metal chosen for reporting on an equivalent basis should be the one that contributes most to the metal equivalent calculation. If this is not the case, a clear explanation of the logic of choosing another metal must be included in the report.

Estimates of metallurgical recoveries for each metal must be used to calculate meaningful metal equivalents.

Reporting on the basis of metal equivalents is not appropriate if metallurgical recovery information is not available or able to be estimated with reasonable confidence.

> *For many projects at the Exploration Results stage, metallurgical recovery information may not be available or able to be estimated with reasonable confidence. In such cases reporting of metal equivalents may be misleading.*

REPORTING OF SOLID UNCONVENTIONAL ENERGY RESOURCES

51. Clause 51 of the ECRR address matters which relate to the public reporting of Solid Unconventional Energy Resources. Unless otherwise stated, Clauses 1 to 40 of the ECRR (including Figure 1) apply. Table 1, as part of the guidelines, must be considered when reporting on Exploration Results, Resources and Reserves for Solid Unconventional Energy Resources.

TABLE 1.

Table 1 is a high level checklist of assessment criteria and a guideline to be used as a reference by those Competent Persons preparing reports on Exploration Results, Mineral Resources and Mineral Reserves.

It is important to report all matters that might materially affect a reader's understanding or interpretation of the results or estimates being reported. In the context of complying with the principles of the ECRR, comments relating to the items in the relevant sections of Table 1 should be provided on an 'if not, why not' basis within the Competent Person's documentation, and must be provided where required according to the specific requirements of Clauses 21, 29 and 37 for significant projects in the Public Report.

It is the responsibility of the Competent Person to consider and discuss all the criteria listed in Table 1 and which additional criteria should apply to the study of a particular project or operation. The relative importance of the criteria will vary with the particular project and the legal and economic conditions pertaining at the time of determination.

The order and grouping of criteria in Table 1 reflect the normal systematic approach to exploration and evaluation. The table should be approached from left to right. Criteria in the first column, Exploration Results, should be considered to apply also when reporting Mineral Resources and Mineral Reserves. Similarly, additional criteria in the Mineral Resources column apply also to Mineral Reserves reporting.

The evaluation and reporting of mineral projects and forward looking mine plans or statements from ongoing operations are expressions of judgment predicated on knowledge and experience. Such evaluations and reports are more than arbitrary determinations; they seek to facilitate valuations as a consequence of method. The methods employed should be scientifically valid, tested, use accepted scientific definitions of terms and procedures and best suited to the making of reliable estimates for the project in question.

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 1: General information			
Purpose of the report	The report should include a title page and table of contents, including figures and tables. The Competent Person should state for whom the report was prepared, whether it was intended as a full or partial evaluation or other purpose, what work was conducted, effective date of report, and what work remains to be done. The Competent Person should state whether the document is ECRR compliant. If a reporting standard or code, other than ECRR has been used, the Competent Person should include an explanation of the difference. The full nature of the relationship between the Competent Person and the reporting Company must be declared.		
Project outline	Brief description of scope of project (i.e. whether in preliminary sampling, advanced exploration, conceptual, pre-feasibility, or feasibility phase, Life of Mine plan for an ongoing mining operation or closure). This should include a description of the geological setting (regional and local), deposit type, commodity, project area, background, and business arrangement.	Brief description of key technical factors that have been considered.	Brief description of mining, processing and other key technical factors.
History	State previous exploration and/or mining activities (type, quantity, quality, and development work), prior ownership and changes thereto.	Discuss known or existing historical Mineral Resource estimates and how they relate to the current estimates. Previous successes or failures should be referred transparently with reasons why the project should now be considered potentially economic.	Discuss known or existing historical Mineral Reserve estimates and performance statistics to actual production for past and current operations, including the reliability of these and how they relate to the current estimates.

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 1: General information			
	Reference all information used from other sources. Description of ownership changes.		
Project location	Description of project location (country, province, and closest town/city, coordinate systems with datum MAGNA SIRGAS). Project location map with coordinates and proper scale (always state north, east and height), showing current access and infrastructure.	Include and reference a location or index map and more detailed maps showing all important features described in the text, including all relevant cadastral and other infrastructure features. Maps of storage areas, waste disposal areas, production and mineral processing areas, potential natural hazards. Reference all information used from other sources. All maps, plans and sections noted in this checklist, should be legible, and include a legend, coordinates, coordinate system, scale bar and north arrow. Diagrams or illustrations should be legible, annotated and explained where necessary.	
Adjacent properties	Discuss details of relevant adjacent properties. If adjacent or nearby properties have an important bearing in the report, then their location and common mineralized structures should be included in the maps. Reference all information used from other sources.		
Geology and mineralogy	Description of the nature, detail, and reliability of geological information (rock types, structure, alteration, mineralization, etc.). Description of the mineralogy of the deposit including the distribution, quantity and other characteristics of the important minerals. Includes minor and gangue minerals where these will have an effect on the processing steps. Description of the geochemistry and geophysics information. Description of the drilling programs. Reliable geological maps and cross sections should exist to support interpretations.		

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 1: General information			
Legal aspects and tenure	The legal tenure should be verified to the satisfaction of the Competent Person, including a description of: The nature of the issuer's rights (e.g. prospecting and/or mining) and the right to use the surface of the properties to which these rights relate; The principal terms and conditions of all existing agreements, and details of those still to be obtained, (such as, but not limited to, concessions, partnerships, joint ventures, access rights, leases, historical and cultural sites, wilderness or national park and environmental settings, royalties, consents, permission, permits or authorizations); The security of the tenure held at the time of reporting along with any known impediments to obtaining the right to operate in the area; and A statement of any legal proceedings that may have an influence on the rights to prospect for minerals, or an appropriate negative statement.		Description of the taxes and royalties that are payable for each property. Description of any patrimonial liability, including rehabilitation warranties, legislative requirements, assumptions and limitations.
Data verification	Date of visit(s) Meetings with key persons responsible for the project which is being reported upon, defining their responsible fields and experience relevant to the project. Visit to project area resulting in a report itemizing significant observations. Specify what parts of the project were available for personal verification. List of data used or cited in preparation of the Public Report.		

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 2: Sampling Techniques			
Sample localization	Maps, cross sections and other two- or three-dimensional representation of results should exist, showing location of samples, drill holes, exploration pits, underground workings, geological data, etc. If more than one coordinate system is in use on the project, the relationship between the systems needs to be established and verified.		
Types of sampling	Types of sampling include stream sediment, soil and heavy mineral concentrate samples, trenching and pitting, rock chip and channel sampling, drilling, auger etc. Examples of locations include old workings, mine dumps etc. Include reference to measures taken to ensure sample representativity and the appropriate calibration of any measurement tools or systems used. Discussion of sample quality, size, and representativeness (sample recovery, high grading, selective losses or contamination, and any other factors that may have resulted in sample biases, etc.).		
Drilling techniques	Drilling type description (e.g. core, reverse circulation, open-hole hammer, rotary air blast, etc.). Drilling hole description (coordinates, azimuth, core orientation, etc.).		
Sample recovery	Whether sample recoveries have been properly recorded and results assessed should be disclosed. In particular the report should state whether a relationship exists between sample recovery and grade or quality and sample bias (e.g. preferential loss/gain of fine/coarse material).		
Chain of custody	Measures taken to ensure sample security and chain of custody should be documented. Retention of sample rejects, pulps and remaining cores.		
Sub-sampling techniques and sample preparation	For sampling from core, whether cut or sawn or whether quarter, half or all core has been taken in the course of sampling should be stated. If non-core, whether riffled, tube sampled, rotary split etc. and whether split wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation technique should be described, together with quality control procedures adopted for all sub-sampling stages to maximize representativity of samples.		

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 2: Sampling Techniques			
	Measures taken to ensure that the sampling is representative of the in situ material collected should be stated. Whether sample sizes are appropriate to the grain size of the material being sampled should be described. A statement as to the security measures taken to ensure sample integrity is recommended.		
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Logging methodology of geological and geotechnical characteristics (scales, quantitative and qualitative variables, geological description, hydrothermal processes, mineralization zones, faults and fractures, structural and mineralogical domain maps, photographs, etc.).		
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 should be stated. Attention should also be given to how presented assay results express the assumed extractable content of the element. Sample preparation and assaying may be carried out by internal or independent laboratories. The laboratories actually used for this work should be identified in any report. In any case, there should be consideration given to the accreditation of the laboratory (e.g. ISO standards awarded such as ISO 9000:2001 and ISO 17025) and to the actual procedures used at all stages of sample preparation and analysis, including the use of randomization, internal and external standard samples, and blanks, as well as monitoring procedures for systematic bias. In particular, it should be noted whether analyses of samples within the set used to support the resource estimate have been replicated independently in other laboratories.		
Verification of results	The verification of selected intersections by either independent or alternative personnel is recommended as is the use of twinned holes (a hole as near as possible to a pre-existing hole to make sure that it has the correct position and geological interpretation), deflections or duplicate samples. Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.		
Data location	A statement is required regarding the accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations. Quality and adequacy of topographic control should be described and locality plans provided. Specify the coordinate system; the sampling grids must be georeferenced.		

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 2: Sampling Techniques			
Data density and distribution	Data density for reporting of Exploration Results should be described.	A statement should be included as to whether the data density and distribution are sufficient to establish the degree of geological and grade or quality continuity appropriate for the Mineral Resource and Mineral Reserve estimation procedure and classifications applied, and whether sample compositing has been applied.	
Reporting Archives	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) for preparing the report should be provided. Description of storage conditions of metallurgical and geotechnical samples, preparation of sample rejects and pulps that assure information reproducibility and possible execution of additional studies.		
Audits	The results of any audits or reviews of sampling techniques and data should be presented and discussed.		

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 3: Reporting of Exploration Results			
Exploration work carried out by other parties	Acknowledgement and appraisal of exploration by other parties.		
Data compositing (aggregation) methods	The weighted averaging techniques, maximum and/or minimum grade truncations and cut-off grades are material information and should be stated. Where composite intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such compositing should be stated and some typical examples of such composites should be shown in detail. The assumptions used for any reporting of metal equivalent values should be clearly stated.		
Relationship between mineralization widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralization 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.		

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 3: Reporting of Exploration Results			
Diagrams	Where possible, maps, plans and sections (with scales) and tabulations of intercepts should be included for any material discovery being reported in order to increase the clarity of the reports.		
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, the summary description must include representative reporting of both low and high grades and intersections in order to avoid creating unrealistic expectations.		
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical and geochemical survey results; metallurgical test results; bulk density, groundwater, geotechnical characteristics; moisture content; potential contaminating substances.		
Further work	The nature and scale of planned further work (e.g. additional exploration).		

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 4: - Estimation and Reporting of Mineral Resources and Mineral Reserves			
Database integrity		Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. Data verification and/or validation procedures used.	
Geological interpretation		Description of geological model and inferences made from this model. Discussion of sufficiency of data density to assure continuity of mineralization and provide an adequate database for the estimation procedure used. Discussion of alternative interpretations and their potential impact on the estimation.	
Estimation and modelling techniques		The nature and appropriateness of the estimation techniques applied and key assumptions, including treatment of extreme grade values, domaining, compositing (including by length and/or density), interpolation parameters, maximum distance of projection from data points, and the proportion of the estimate that is extrapolated. Interpolation means estimation which is supported by surrounding sample data. Extrapolation means estimation which extends beyond the spatial limits of the sample data. . 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 and other minerals that will affect processing of the ore. 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 (e.g. non-linear kriging). The process of validation, the checking process	

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 4: - Estimation and Reporting of Mineral Resources and Mineral Reserves			
		used, the comparison of model data to drill hole data, and use of reconciliation data if available. Detailed description of the method used and the assumptions made to estimate tonnages and grades (section, polygon, inverse distance, geostatistical, or other method). Description of how the geological interpretation was used to control the resource estimates. Discussion of basis for using or not using grade cutting or capping. If a computer method was chosen, description of programs and parameters used. Geostatistical methods are extremely varied and should be described in detail. The method chosen should be justified. The geostatistical parameters, including the variogram, and their compatibility with the geological interpretation should be discussed. Experience gained in applying geostatistics to similar deposits should be taken into account. 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. All metals (or other components) to be treated should be shown, even those rejected as waste. A statement that there are no other deleterious elements requiring removal should be included.	
Metal equivalents or other combined representation of multiple components		The following minimum information should accompany any report which includes reference to metal equivalents (or other component equivalents) in order to conform to these principles. It is necessary to identify:	

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 4: - Estimation and Reporting of Mineral Resources and Mineral Reserves			
		• Individual assays for all metals included in the metal equivalent calculation; • Assumed commodity prices for all metals. (Companies should disclose the actual assumed prices. It is not sufficient to refer to a spot price without disclosing the price used in calculating the metal equivalent); • Assumed metallurgical recoveries for all metals and the basis on which the assumed recoveries are derived (metallurgical test work, detailed mineralogy, similar deposits, etc.); • A clear statement that it is the company's opinion that all the elements included in the metal equivalents calculation have a reasonable potential to be recovered; and, • The calculation formula. In most circumstances the metal chosen for reporting on an equivalent basis should be the one that contributes most to the metal equivalent calculation. If this is not the case, a clear explanation of the logic of choosing another metal must be included in the report. Estimates of metallurgical recoveries for each metal are particularly important. For many projects at the Exploration Results stage, metallurgical recovery information may not be available or able to be estimated with reasonable confidence. Overall metal recoveries are usually calculated from a mass balance based on the flow sheet. This should have been demonstrated by the test work and shown to be relevant to the ore body under consideration and not just the sample treated.	

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 4: - Estimation and Reporting of Mineral Resources and Mineral Reserves			
Cut-off grades		The basis of the cut-off grades or quality parameters applied, including the basis, if appropriate, of equivalent metal formulae. The cut-off parameter may be economic value per block rather than grade.	
Density		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.	
Mining factors		The mining method proposed and its suitability for the style of mineralization, including minimum mining dimensions and internal (or, if applicable, external) mining dilution by waste rock. It may not always be possible to make detailed assumptions regarding mining factors when estimating Mineral Resources. In order to demonstrate realistic prospects for eventual economic extraction, basic assumptions are necessary. Examples include access issues (shafts, declines etc.), geotechnical parameters (pit slopes, stope dimensions etc.), infrastructure requirements and estimated mining costs.	The method and assumptions used to convert the Mineral Resource to a Mineral Reserve (i.e. either by application of appropriate factors by optimization or by preliminary or detailed design). The choice of, the nature and the appropriateness of the selected mining methods and other mining parameters including associated design issues such as pre-strip, access, etc. The assumptions made regarding geotechnical parameters and hydrogeological regime (e.g. pit slopes, stope sizes, dewatering methods and requirements, etc.), grade control and pre-production drilling. The major assumptions made and

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 4: - Estimation and Reporting of Mineral Resources and Mineral Reserves			
		All assumptions should be clearly stated.	Mineral Resource model used for pit optimization (if appropriate). The mining dilution factors, mining recovery factors, and minimum mining widths used and the infrastructure requirements of the selected mining methods. Where available, the historic reliability of the performance parameters.
Metallurgical factors		The metallurgical process proposed and the appropriateness of that process to the style of mineralization. It may not always be possible to make detailed assumptions regarding metallurgical treatment processes when reporting Mineral Resources. In order to demonstrate realistic prospects for eventual economic extraction, basic assumptions are necessary. Examples include the extent of metallurgical test work, recovery factors, and allowances for by-product credits or deleterious elements, infrastructure	The flow sheet proposed and the appropriateness of these processes to the mineralization of the deposit. Whether the process is well-tested technology used on minerals of this type before or novel in nature. The nature, amount and representativeness of test work undertaken. The existence of any bulk sample or pilot scale test work and the degree to which such samples and test results are representative of the ore body as a whole. The metallurgical recovery and upgrading factors used and how

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 4: - Estimation and Reporting of Mineral Resources and Mineral Reserves			
		requirements and estimated processing costs. All assumptions should be clearly stated. A full definition of the minerals or at least the assays is required to ensure that the process is suitable and that any contaminants / pollutants / possible byproducts are recognized and suitable process steps included in the flow sheet.	these relate to those determined in the test work. Any assumptions or allowances made for deleterious elements or variability in the ore feed to the process should be stated. The environmental and health and safety risks associated with each section of the flow sheet should be noted with those sections dealing with hazardous materials or operations covered in more detail. The tonnages and grades reported for Mineral Reserves should state clearly whether these are in respect of material delivered to the plant or after recovery. Comment on suitability of existing plant and equipment for use in the proposed process.
Mineral Resource estimate for conversion to Mineral Reserves			Description of the Mineral Resource estimate used as a basis for the conversion to an Mineral Reserve. Clear statement as to whether the

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 4: - Estimation and Reporting of Mineral Resources and Mineral Reserves			
			Mineral Resources are reported additional to, or inclusive of, the Mineral Reserves. Explain the type and level of study to be undertaken to enable Mineral Resources to be converted to Mineral Reserves. The ECRR require studies to at least a 'pre-feasibility' level, including a mine plan that is technically achievable and that all the relevant parameters for an assessment of the project's financial viability have been considered. The conversion of mineral resources of operating mines to Mineral Reserves requires less complex calculations.
Costs and revenue factors			The derivation of assumptions made, regarding projected capital and operating costs. The assumptions made regarding revenue including head grade, metal or commodity prices, exchange rates, transportation and treatment charges, penalties, etc.

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 4: - Estimation and Reporting of Mineral Resources and Mineral Reserves			
			The allowances made for royalties payable, both Government and private. Basic cash flow inputs for a stated period.
Market assessment			The demand, supply and stock situation for the particular mineral, 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. The market assessment can indicate that minerals are not saleable in the proportions in which they are to be produced, and as a result the reserves estimates may need to be adjusted.
Others		Any potential impediments to mining such as land access, environmental or legal permitting. Location plans of mineral rights and titles.	The effect, if any, of natural risk, infrastructure, environmental, legal, marketing, social or governmental factors on the likely viability of a

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 4: - Estimation and Reporting of Mineral Resources and Mineral Reserves			
			project and/or on the estimation and classification of the Mineral Reserves. The status of titles and approvals critical to the viability of the project. Environmental descriptions of anticipated liabilities. Location plans of mineral rights and titles.
Classification		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.	The basis for the classification of the Mineral Reserves into varying confidence categories. Whether the result appropriately reflects the Competent Person's view of the deposit. The proportion of Probable Mineral Reserves which have been derived from Measured Mineral Resources (if any).
Audits		The results of any audits or reviews of Mineral Resources estimates.	The results of any audits or reviews of Mineral Reserves estimates.

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 4: - Estimation and Reporting of Mineral Resources and Mineral Reserves			
Discusión de la confianza relativa		If possible, there should be a statement of the relative accuracy and/or confidence in the Mineral Resource estimate. For example, the relative accuracy of the resource could be described within stated confidence limits, or, if this is not possible, the factors which could affect the relative accuracy and confidence of the estimate could be discussed.	Where appropriate a statement of the relative accuracy and/or confidence in the Mineral 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, or, if that is not possible, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. 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. These statements of relative accuracy and confidence of the estimate should be

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 4: - Estimation and Reporting of Mineral Resources and Mineral Reserves			
			compared with production data, where available.

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 5: Reporting of emeralds and other gemstones			
Exploration	Reports of collection and analysis of indicator minerals such as chemically/physically distinctive quartz, calcite, dolomite, albite, parisite, and *morralla*, which distinguish them as being sourced from potentially emeraldiferous rocks should be prepared by a suitably qualified and accredited laboratory.		
Sample collection	Type of sample e.g. surface, core drilling, or stream sediment, and their purpose, e.g. core drilling for geological description and emerald or mineralized zone sampling. Sample size, distribution and representativity.		
Sample treatment	Type of facility and accreditation. Processes (petrography, fluid inclusions, x ray diffraction, etc.). Sample density determination.		
Sample grade	Sample grade in this section is used in the context of carats per units of mass, area or volume. The sample grade should be reported as carats per dry metric tonne. The lower cutoff size should be stated.	Bulk sampling results, global sample grade per facies and local block estimates in the case of Indicated Resources. Spatial structure analysis and grade distribution.	Adjustments made to size distribution for sample plant performance and performance on a commercial scale (Reserve Modifying Factors).

ASSESSMENT CRITERIA	EXPLORATION RESULTS	MINERAL RESOURCES	MINERAL RESERVES
Table 1 - Part 5: Reporting of emeralds and other gemstones			
	(A carat is equal to one fifth of a gram).	Volume estimates are inherently inaccurate and are used primarily to assist with estimating mining rates and costs.	
Value estimation	Accreditation of the appraiser and date of the valuation. Details of parcel valued, number of stones, carats and size distribution using a standard progression of sieve sizes for each identified facies, domain or geological unit. Average valuation per sieve size. Estimation of value with size. Assessment of emerald breakage (insignificant, moderate, severe). Average $/carat and $/tonne value with change in bottom cut-off. Minimum parcel size for representative valuation. Has a strict bottom cut-off been applied or does the modelled value include incidental emeralds below the bottom cut-off?		
Security and integrity	Accredited process audit. Whether samples were sealed after excavation. Appraiser location, escort, delivery, cleaning losses, reconciliation with recorded sample carats and number of stones. Audit samples treated at alternative facility. Geophysical (logged) density and particle density. Cross validation of sample weights, wet and dry, with borehole volume and density, moisture factor.		
Classification		Consider the elements of uncertainty in estimates and classification of Mineral Resources an Mineral Reserves accordingly. Key elements to consider for Resource classification are the geology, drillings, spatial representativity and accuracy in the estimates of volume, density, and average emerald value.	

CCRR
Colombian Commission of
Mineral Resources and Reserves

APPENDIX 1

COMPETENT PERSON'S CONSENT FORM

Companies reporting Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves are reminded that while a public report is the responsibility of the company acting through its Board of Directors, Clause 9 requires that any such report 'must be based on, and fairly reflect the information and supporting documentation prepared by a Competent Person or Persons'. Clause 9 also requires that the 'report shall be issued with the prior written consent of the Competent Person or Persons as to the form and context in which it appears'.

In order to assist Competent Persons and companies to comply with these requirements, and to emphasize the need for companies to obtain the prior written consent of each Competent Person for their material to be included in the form and context in which it appears in the public report, the Colombian Commission of Mineral Resources and Reserves has developed a Competent Person's Consent Form that incorporates the requirements of the ECRR.

The completion of a consent form, whether in the format provided or in an equivalent form, is recommended as good practice and provides readily available evidence that the required prior written consent has been obtained.

Having the consent form witnessed by a peer professional society member is considered leading practice and is strongly encouraged.

The Competent Person's Consent Form(s), or other evidence of the Competent Person's written consent, should be retained by the company and the Competent Person to ensure that the written consent can be promptly provided if required.

[*Letterhead of Competent Person or Competent Person's employer*]

Competent Person's Consent Form

Pursuant to the requirements of the Clause 9 of the Colombian Standard for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves -ECRR-

Report name

(Insert name or heading of Report to be publicly released)

(Insert name of the company releasing the Report)

(Insert name of the deposit to which the Report refers)

If there is insufficient space, complete the following sheet and sign it in the same manner as this original sheet.

(Date of Report)

CCRR
Colombian Commission of
Mineral Resources and Reserves

Statement

I/We,

_____

(Insert full name)

Confirm that I am the Competent Person for the Report and:

- I have read and understood the requirements of the ECRR.
- I am a Competent Person as defined by ECRR, having ten years of professional experience in the mining industry and a minimum of five years of professional experience that is relevant to the style of mineralization and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am an Active Member of the Colombian Commission of Mineral Resources and Reserves.
- I have reviewed the Report to which this Consent Statement applies.

I/We am a full time employee of

_____

(Insert company name)

Or, I am a consultant working for

_____

(Insert company name)

And have been engaged by

_____

(Insert company name)

To prepare the documentation for

_____

(Insert deposit name)

On which the Report is based, for the period ended

_____

(Insert date of Resource/Reserve statement)

I have disclosed to the reporting company the full nature of the relationship between myself and the company, including any issue that could be perceived by investors as a conflict of interest. I verify that the Report is based on and fairly and accurately reflects in the form and

context in which it appears, the information in my supporting documentation relating to Exploration Targets, Exploration Results, Mineral Resources and/or Mineral Reserves (select as appropriate).

Consent

I consent to the release of the Report and this Consent Statement by the directors of:

(Insert company name)

Signature of Competent Person | Date

Membership number of the Colombian Commission of Mineral Resources and Reserves

Signature of witness | Witness name and residence

Additional deposits covered by the Report for which the Competent Person signing this form is accepting responsibility:

Additional Reports related to the deposit for which the Competent Person signing this form is accepting responsibility:

Signature of Competent Person Date

Membership number of the Colombian Commission of Mineral Resources and Reserves

Signature of witness Witness name and residence

CCRR
Colombian Commission of
Mineral Resources and Reserves

APPENDIX 2

COMPLIANCE STATEMENTS

Appropriate forms of compliance statements should be as follows (delete bullet points which do not apply).

For Public Reports of Exploration Targets, initial or materially changed reports of Exploration Results, Mineral Resources or Mineral Reserves or company annual reports:

- If the required information is in the report:
  'The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves is based on information compiled by (insert name of the Competent Person), a Competent Person who is a member of the Colombian Commission of Mineral Resources and Reserves'.

- 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 Targets, Exploration Results, Mineral Resources or Mineral Reserves is based on information compiled by (insert name of Competent Person), a Competent Person who is a member of the Colombian Commission of Mineral Resources and Reserves'.

- If the Competent Person is a full time 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).'

- The full nature of the relationship between the Competent Person and the reporting Company must be declared together with the Competent Person's details. This declaration must outline and clarify any issue that could be perceived by investors as a conflict of interest.

- For all reports:

'(Insert name of Competent Person) has sufficient experience that is relevant to the style of mineralization and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the Colombian Standard for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves -ECRR-. (Insert name of Competent Person) consents to the inclusion in the report of the matters based on his (or her) information in the form and context in which it appears.'

For any subsequent Public Report based on a previously issued Public Report that refers to those Exploration Results or estimates of Mineral Resources or Mineral Reserves:

- Where a Competent Person has previously issued the written consent to the inclusion of their findings in a report, a company re-issuing that information to the Public whether in the form of a presentation or a subsequent announcement must, state the report name, date and reference the location of the original source Public Report for public access.

  'The information is extracted from the report entitled (name report) created on (date) and is available to view on (website name). The company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of, estimates of Mineral Resources or Mineral Reserves that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.'

Companies should be aware this exemption does not apply to subsequent reporting of information in the company annual report.

Wilfredo Armando López Piedrahita
Presidente CCRR/Colombia