INTERNATIONAL REPORTING TEMPLATE

for the public reporting of

EXPLORATION TARGETS, EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES

June 2024

ICMM

FOREWORD

The International Reporting Template for the public reporting of Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves (the Template) integrates the minimum standards adopted in national/regional reporting codes and standards worldwide with recommendations and interpretive guidelines for the public reporting of Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves.

A trend towards tighter corporate governance and regulation demands the application of best practice in mineral resource management as well as high standards of public reporting by responsible, Competent Persons. The Template is provided to assist with the dissemination and promotion of effective, well-tried, best practice for public reporting of Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves already widely adopted through national and regional reporting codes and standards.

CRIRSCO has sixteen Standard Definitions. In their national/regional reporting codes and standards the members of the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) use definitions that are identical to, or not materially different from, the definitions used in this Template.

The Standard Definitions in the Template are:

The Template is reviewed and, if considered necessary, updated on a five-ten year cycle to incorporate best practice from updates or original versions of codes and standards published by National Reporting Organisations(NROs) since the previous version was published. The Standard Definitions are reviewed on a more regular basis.

Purpose and use of the Template

The purpose of the Template is to provide a minimum standard for adoption in national/regional reporting codes and standards for the public reporting of Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves. Such reporting must contain all information that investors and their professional advisers would reasonably require, and reasonably expect to find in a Public Report, for the purpose of making of a reasoned and balanced judgement regarding the Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves being reported. The Template is advisory only, and where a national or regional code or standard exists, the code or standard will take precedence.

The Template is intended to assist countries or regions that do not have a reporting code, or whose code is outdated, to produce a new code consistent with international best practice. It also provides a consolidated version of national and regional codes or standards that reflect compatible international components and may be used in comparisons with other international reporting systems.

The word 'Template' is used advisedly to indicate that this document is a model for code development and does not in itself constitute a 'code', a term which implies that it has legal or other regulatory status.

From this point forward, the Template includes words that imply a mandatory action, such as 'requires', 'applies', 'must' etc. This is to enable the Template to be adopted by countries and organisations wishing to do so and does not imply that the Template itself is a mandatory reporting standard.

Copyright

Important Note on the June 2024 Release

This release of the Template incorporates changes to the Standard Definitions which were agreed at the 2023 CRIRSCO AGM in Rio de Janeiro, Brazil in October 2023. In addition to minor changes in wording to several definitions, the defined term 'Mineral' was removed, and the term 'Life of Mine Plan' was added to the list of Standard Definitions. In addition, minor changes were made to the wording of other text in the Template to be consistent with the changes in wording of some of the definitions. In Section 8, where the definition for 'Life of Mine Plan' has been added as clause 8.5, some clauses were repositioned.

A full review of the entire Template was not carried out as part of this update.

Contents

1. INTRODUCTION

Format

Code

1.1 In this edition of the Template, definitions are provided as numbered clauses in **bold** typeface and clearly identified as definitions.

1.2 The definitions are a core element of the CRIRSCO Template and common to all national or regional codes and standards based on the Template.

1.3 Defined terms where referred to in other definitions are underlined.

1.4 Other mandatory elements of the Template ('Code'), in normal typeface and as numbered clauses, are similarly identified.

1.5 The guidelines and further interpretation of the definitions and mandatory clauses are placed after the respective Template items in *italic* typeface and are clearly identified. They provide assistance and guidance to readers for interpreting the application of the definitions and clauses in the Template.

Guidance

The CRIRSCO Template provides a framework for the development of new codes and standards and for the updating of existing codes and standards for CRIRSCO Members.

The definitions, instructions and guidelines in the Template may not necessarily be copied verbatim from the Template to any particular codes or standards. However, users of the Template should consider carefully any changes made when drafting codes and standards to ensure that compatibility is maintained and in particular that there are no material changes to the definitions and their interpretations/applications.

New codes and standards developed from the Template are subject to review and approval by the CRIRSCO members before they are adopted.

Code

1.6 Throughout the Template, 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. To avoid unnecessary duplication, the generic terms are listed in Appendix 1 together with other terms that may be regarded as synonymous for the purposes of this Template.

Guidance

The use of a particular term in this Template does not imply that it is preferred or necessarily the ideal term in all circumstances. Different terms may be used in particular countries or for particular industry sectors. A typical example is where 'mining' is referred to as 'quarrying' when stone and aggregates are involved. When developing national codes or standards, those drafting the document should use language that will be most familiar to the mining sector in that location.

Code	1.7	Appendices 3 to 7 provide further guidance on the application of the Template to the reporting of specific commodities or situations. In developing a national or regional code or standard, users of the Template may wish to add additional appendices that address more specifically particular mineral occurrences in the country or region to which the code or standard applies.
	1.8	Table 1 provides, in a summary form, a list of the criteria which must be considered when preparing reports on Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves. Some jurisdictions require that comment is given to all sections of Table 1 on an 'if not, why not' basis.
Guidance		*'If not, why not' means that each item listed in the relevant section of Table 1 must be discussed or the Competent Person must explain why it has been omitted.*
Code	1.9	Table 1 is included in the Template as an example of best practice. Requirements will differ from jurisdiction to jurisdiction, and as always Transparency, Materiality and Competence are overriding principles that determine what information should be publicly reported. The Competent Person must provide sufficient comment on all matters that may affect a reader's understanding or interpretation of the results or estimates being reported.
	1.10	Table 2 and Appendix 1 include additional guidance.

2. SCOPE

Application

Code

2.1 The Template applies to all mineral raw materials for which public reporting of Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves is required by any relevant regulatory authority.

2.2 The Template is applicable to a diverse range of commodities for which public reporting of Exploration Targets,Exploration Results, Mineral Resources and Mineral Reserves is required by a relevant regulatory authority, including but not limited to:

- Metalliferous minerals;
- Coal;
- Diamonds and other gemstones;
- Industrial Minerals;
- Cement feed materials and construction raw materials;
- Dimension Stone, Ornamental and Decorative Stone
- Other mineral raw materials; and
- Mineralised fill, remnants, pillars, low grade mineralisation, stockpiles, dumps and tailings (remnant materials).

2.3 In addition, the principles of the Template are applicable to:

- Oil shales, oil sands and other energy minerals extracted by mining;
- Metallic or non-metallic minerals extracted by solution mining methods; and
- Minerals extracted from liquid brines.

Principles

Code

2.4 The principles governing the operation and application of the Template are Transparency, Materiality and Competence.

2.5 ***Transparency*** requires that the reader of a Public Report is provided with sufficient information, the presentation of which is clear and unambiguous, so as to understand the report and not to be misled.

2.6 ***Materiality*** requires that a Public Report contain 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 judgement regarding the Exploration Targets, Exploration Results, Mineral Resources and/or Mineral Reserves being reported.

2.7 ***Competence*** requires that the Public Report be based on work that is the responsibility of a suitably qualified and experienced person (referred to herein as a Competent Person) who is a member of a Professional Organisation (PO) with an enforceable code of ethics and disciplinary process, which includes the powers to suspend or expel a member.

Public Reports

Definition

2.8 Public Reports are reports prepared to inform investors or potential investors and their professional advisers on Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves. They include but are not limited to company reports, media releases, information memoranda, technical papers, social media announcements, website postings and public presentations.

Code

2.9 Public Reports include but are not limited to company annual reports, quarterly reports and other reports to regulatory authorities, or as required by law.

2.10 The reporting and disclosure requirements addressed in the Template apply equally to all publicly released company information in the form of postings on company web sites, social media, press releases and briefings for shareholders, stockbrokers and investment analysts.

2.11 The Template also applies to any reporting of Exploration Targets, Exploration Results and/or Mineral Resources and Mineral Reserves and made publicly available for other purposes, such as those contained in:

- Environmental statements;
- Information memoranda,
- Expert Reports; and,
- Technical papers.

Guidance

Of particular concern should be postings made using social media where it may be inferred that the information being released comprises a Public Report.

Note that any or all such Public Reports may also be for the purpose of satisfying regulatory requirements.

Code

2.12 For companies issuing annual reports, or other periodic summary reports, all material information relating to Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves should be included.

2.13 In cases where summary information is presented, the Public Report must clearly state that the information is a summary, and a reference must be provided giving the source and location of the Template-compliant Public Reports or public reporting on which the summary is based.

2.14 The Public Report must include sufficient context and cautionary language to allow a reasonable investor to understand the nature, importance, and limitations of the data, interpretations, and conclusions summarised in the report.

Guidance

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

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

It is recognised that documentation prepared by Competent Persons (refer to Clause 3.6) for internal company or similar non-public purposes may not necessarily comply with the definitions, requirements and guidance contained in the Template. In such situations, it is recommended that the document include a prominent statement to this effect. This will make it less likely that non-compliant documentation will be used to compile Public Reports.

While every effort has been made within the Template 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 Template and those compiling reports to comply with the national/regional codes and standards based on the Template should be guided by its intent, which is to provide a minimum standard for public reporting.

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.

A Public Report should be adequately supported by legible text, figures, tables, sections, and maps to demonstrate competence by conveying material information in a transparent manner. Figures of any type should contain appropriate explanatory information in the form of titles and/or captions, and legends.

Code

2.15 The Template does not cover valuation or appraisal from a business perspective. It provides for the description of Exploration Targets, Exploration Results and estimates of Mineral Resources and Mineral Reserves that may be used by others to prepare subsequent valuations or appraisals.

Reporting General

Code

2.16 Public Reports concerning a company's Exploration Targets, Exploration Results, Mineral Resources and/or Mineral Reserves must include a description of the style and nature of mineralisation.

2.17 Any relevant information concerning a mineral deposit including material changes to the Mineral Resources or Mineral Reserves that could materially influence the economic value of the deposit must be disclosed.

2.18 Table 1 must be considered persuasive in determining and documenting relevant information that is material.

2.19 The effective date of a Mineral Resource and Mineral Reserve statement must be shown.

2.20 A company's economic interest in a project must be declared.

2.21 Where Mineral Resources and Mineral Reserves are estimated for multiple properties, they may be aggregated for reporting purposes, particularly if the properties are located in close proximity or their products are sent to common treatment plants or markets. The principles of transparency and materiality govern aggregation for reporting purposes.

2.22 Where multiple ownership is involved, it must be made clear what proportion of the reported Mineral Resources and Reserves in which the company has an interest.

3. COMPETENCE AND RESPONSIBILITY

Code

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

3.2 Documentation detailing Exploration Targets, Exploration Results, Mineral Resource and Mineral Reserve estimates, on which a Public Report on Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves is based, must be prepared by, or under the direction of, and signed by, a Competent Person or Persons. The documentation must provide a fair representation of the Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves being reported.

3.3 A company issuing a Public Report shall make publicly available the name(s) of the Competent Person(s). This information must include whether the Competent Person is a full-time employee of the company, and, if not, name the Competent Person's employer, and the relationship with the company. Any potential for a conflict of interest between the Competent Person or a related party must be disclosed. Any other relationship between the Competent Person and the company must be disclosed.

3.4 The issue of a Public Report requires the written consent of the Competent Person(s), prior to release of the report, as to the form and context in which it appears.

3.5 The company must provide to the Competent Person(s) the company's public disclosure of information prepared by the Competent Person(s) and seek approval for its context and the use of the Competent Person's name in connection with that disclosure. Reasonable time must be allowed for the Competent Person(s) to review the public disclosure prior to making their decision.

Definition

3.6 A Competent Person is a minerals industry professional, who is a *[National Reporting Organisation (NRO) to insert appropriate membership class and name of Professional Organisation (PO)]* or other Recognised Professional Organisations (RPOs) with enforceable disciplinary processes including the powers to suspend or expel a member.

A Competent Person must have a minimum of five years relevant experience in the style of mineralisation or type of deposit under consideration and in the activity which that person is undertaking.

Guidance

The definition of 'Competent Person' is subject to any additional restrictions or conditions that may be required by any relevant regulatory authority, NRO, PO, or RPO.

Competent Person's experience

Code

3.7 If the Competent Person is preparing a report on Exploration Targets or Exploration Results, the relevant experience must be in exploration.

3.8 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.

3.9 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.

Guidance

The key qualifier in the definition of a Competent Person is the word 'relevant'. Determination of what constitutes relevant experience can be a difficult area, and common sense has to be exercised. For example, in estimating Mineral Resources for vein gold mineralisation, experience in a high-nugget, vein-type mineralisation such as tin, uranium etc. will probably be relevant, whereas experience in 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 experience in the evaluation and economic extraction of this type of mineralisation would be needed. This is due to the characteristics of gold in alluvial systems, the particle sizing of the host sediment, and the low grades involved. Experience with placer deposits containing minerals other than gold may not necessarily provide appropriate relevant experience.

The key word 'relevant' also means that it is not always necessary for a person to have five years' experience in each and every type of deposit in order to act as a Competent Person if that person has relevant experience in other deposit types. For example, a person with (say) 20 years' experience in estimating Mineral Resources for a variety of metalliferous hard-rock deposit types may not require five years specific experience in (say) porphyry copper deposits to act as a Competent Person. Relevant experience in the other deposit types could count towards the required experience in relation to porphyry copper deposits.

In addition to experience in the style of mineralisation, a Competent Person taking responsibility for the compilation of Exploration Results and/or Mineral Resource estimates should have sufficient experience in the sampling and analytical techniques relevant to the deposit under consideration to be aware of problems, which could affect the reliability of data. Some appreciation of processing and beneficiation applicable to that deposit type is also important.

If the Competent Person is relying on a report, opinion, or statement of another expert who is not a Competent Person, then a disclosure of the date, title, and author of the report, opinion, or statement, the qualifications of the other expert, the reason for the Competent Person to rely on the other expert, and any significant risks and any steps the Competent Person took to verify the information provided, should be included in the Public Report.

Competent Person's responsibilities

Code

3.10 The Competent Person must provide explanatory comment on the material assumptions underlying the declaration of Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves.

3.11 In particular, the Competent Person, when considering Materiality as defined in Clause 2.7, must include explicit comment on all aspects that an investor or advisor would reasonably expect to be provided. This would include but not be limited to any aspect that would influence the public perception or value of the subject matter.

3.12 The Competent Person must be satisfied that:

- their work has not been unduly influenced by the organisation, company or person commissioning the report or a report that may become a Public Report;
- all assumptions are documented; and
- adequate disclosure is made of all material aspects that an informed reader may require to make a reasonable and balanced judgement thereof.

Guidance

As a general guide, persons being called upon to act as Competent Persons should be clearly satisfied in their own minds that they could face their peers and demonstrate competence in the commodity, type of deposit and situation under consideration. If doubt exists, the person either should seek opinions from appropriately experienced colleagues 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. Where there is a clear division of responsibility within a team, each Competent Person and their contribution should be identified, and responsibility accepted for that 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 Template. In this situation 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, should be satisfied that the work of the other contributors is acceptable.

Complaints made in respect of the professional work of a Competent Person will be dealt with under the disciplinary procedures of the Professional Organisation (PO) to which the Competent Person belongs. Such procedures may vary from country to country.

Mutual recognition agreements between NROs are encouraged. Agreements between POs and the relevant bodies (NROs, Securities Exchanges and/or regulatory authorities) may allow the PO to be a Recognised Professional Organisation (RPO) allowing a Competent Person who is a member of the organisation to submit a report to a specific stock exchange using the applicable code or standard, providing that the Competent Person meets the requirement of relevant experience as included in the definition at paragraph 3.6, or as specified by any relevant regulatory authority, or NRO.

4. REPORTING TERMINOLOGY

Defined terms

Code

4.1 The CRIRSCO Standard Definitions for the defined terms should be considered in conjunction with Figure 1.

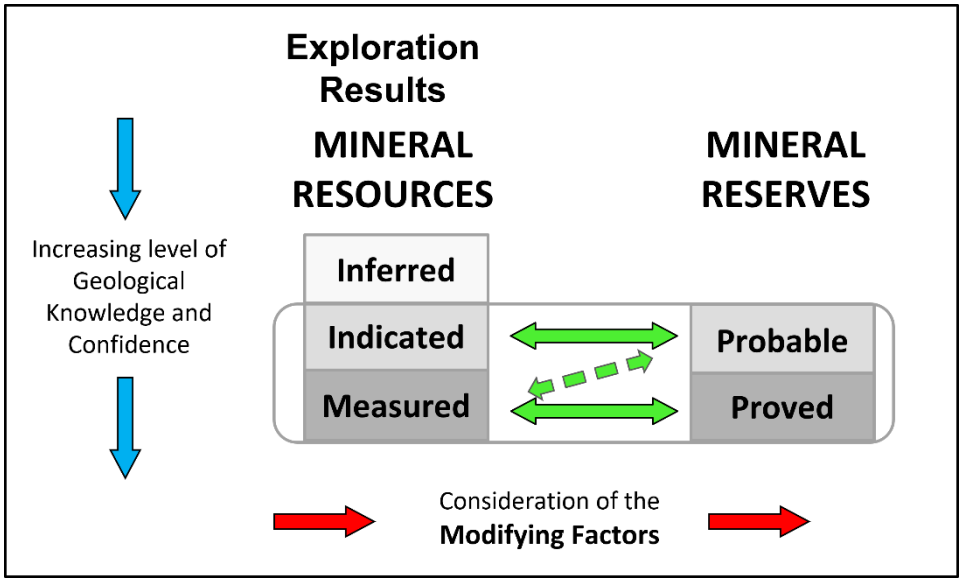

Figure 1. General relationship between Exploration Results, Mineral Resources and Mineral Reserves

4.2 In this Figure 1, the defined terms are:

- Modifying Factors
- Exploration Results
- Mineral Resources
- Inferred Mineral Resources
- Indicated Mineral Resources
- Measured Mineral Resources
- Mineral Reserves
- Probable Mineral Reserves
- Proved Mineral Reserves

4.3 The categories shown in Figure 1 must be used to report Exploration Results, Mineral Resources and Mineral Reserves.

4.4 The relationships between some of the defined terms are considered in the guidance below. The defined terms are described further in this and subsequent sections.

4.5 Mineral Resource estimates must have reasonable prospects for economic extraction.

4.6 Mineral Reserve estimates must be supported by studies at a Pre-Feasibility or Feasibility level that show their technical and economic viability.

Guidance

Measured Mineral Resources may convert 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.

Modifying Factors

Definition

4.7 **Modifying Factors are considerations used to assess and estimate Exploration Targets, Mineral Resources and/or Mineral Reserves. These include, but are not limited to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governance (ESG) and regulatory factors.**

Code

4.8 The effect of any of the Modifying Factors on the likely viability of a project and/oron the estimation and classification of the Mineral Reserves must be fully explained.

4.9 Refer also to the requirements for reporting Mineral Reserves contained in Clauses 8.1 to 8.23.

Guidance

Figure 1 sets out the framework for classifying tonnage and grade estimates to reflect different levels of geological confidence and different degrees of technical and economic evaluation.

Mineral Resources can be estimated mainly based on geological 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 dotted 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.

Although the trend of the broken arrow includes a vertical component, it does not, in this instance, imply a reduction in the level of geological knowledge or confidence. A Measured Mineral Resource may convert to a Probable Mineral Reserve when the confidence in any of the Modifying Factors is less than the level of geological knowledge or confidence. In such a situation these Modifying Factors should be fully explained.

5. REPORTING OF EXPLORATION TARGETS

Definition

5.1 **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 and a range of grade or quality, relates to mineralisation for which there has been insufficient exploration to estimate Mineral Resources.**

Guidance

Descriptions of Exploration Targets or exploration potential in Public Reports should be expressed so as not to misrepresent them as an estimate of Mineral Resources or Mineral Reserves.

Code

5.2 It is recognised that it is common practice for an entity to comment on and discuss its exploration strategy in terms of target size and type. Any such information relating to Exploration Target size must not be expressed in a way that could be confused as an estimate of Mineral Resources or Mineral Reserves.

5.3 Any statement referring to potential quantity and grade of the target must be expressed as a range and must include a detailed explanation of the basis for the assumptions made and procedures used to estimate the range of tonnage and grade or quality, and extent.

5.4 There must also be a proximate statement that the potential quantity and grade is conceptual in nature, that there has been insufficient exploration to define a Mineral Resource, and that it is uncertain if further exploration will result in the determination of a Mineral Resource.

5.5 The detailed explanation of the basis for the statement of a target must specifically discuss the geological setting and exploration strategy, exploration activity already completed and the presence of or lack of the following attributes:

- mineralised outcrops and assays;
- surface geochemical and physical sampling results;
- surface and subsurface geophysical survey results; and
- drill holes, test pits, and underground workings.

5.6 Proposed exploration activities designed to test the validity of an Exploration Target should be detailed and include the timeframe within which they are expected to be completed.

6. REPORTING OF EXPLORATION RESULTS

Definition

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

Code

6.2 Reporting of Exploration Results is common in the early stages of exploration when the quantity of data available is generally not sufficient to allow any reasonable estimates of tonnage and grade to be made. Examples include discovery outcrops, single drill hole intercepts or the result or geophysical surveys and results of metallurgical testwork.

6.3 Exploration Results may not be part of a formal declaration of Mineral Resources or Mineral Reserves and must not be presented in a way that unreasonably implies the discovery of potentially economic mineralisation.

Guidance

It should be made clear in Public Reports that contain Exploration Results that it is inappropriate to use such information to derive estimates of tonnage and grade or quality (because if there were sufficient information to do so, the resulting estimates would have been quoted).

It is recommended that such reports carry a continuing statement along the following lines:

> *"The information provided in this report/statement/release constitutes Exploration Results. It is inappropriate for the reader to use the information presented for deriving estimates of tonnage and grade or quality".*

Code

6.4 Public Reports of Exploration Results must contain sufficient information to allow a considered and balanced judgement of their significance.

6.5 Reports must include relevant information such as exploration context, type and method of sampling, relevant sample intervals and locations, distribution, dimensions and relative location of all relevant assay data, methods of analysis, data aggregation methods, land tenure status plus information on any of the other criteria listed in Table 1 that are material to an assessment.

6.6 Public Reports of Exploration Results must not be presented so as to unreasonably imply that potentially economic mineralisation has been discovered. If true widths of mineralisation are not reported, an appropriate qualification must be included in the Public Report.

6.7 Where assay and analytical results are reported, they must be reported using one of the following methods, selected as the most appropriate by the Competent Person, either:

- by listing all results, along with sample intervals (or size, in the case of bulk samples); or

- by reporting weighted average grades of mineralised zones, indicating clearly how the grades were calculated.

6.8 Clear diagrams and maps designed to represent the geological context must be included in the report. These must include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.

6.9 Reporting of selected information such as isolated assays, isolated drill holes, assays of panned concentrates or supergene enriched soils or surface samples, without placing them in perspective is unacceptable.

Guidance

While it is not necessary to report all assays or drill holes, it is a requirement that sufficient information about the omitted data is provided so that a considered and balanced judgement can be made by the reader of the report. Where reports of Exploration Results do not include all drill holes or all intersections of drill holes, the Competent Person must provide an explanation of why this information is not considered relevant or why it has not been provided.

As required under Clauses 3.10 and 3.11 the Competent Person must not 'remain silent' on any issue for which the presence or absence of comment could impact the public perception or value of the mineral occurrence. For significant projects the reporting of all criteria in the Exploration Results Columns of the relevant sections of Table 1 on an 'if not, why not' basis is required, preferably as an appendix to the Public Report.

Additional disclosure is particularly important where inadequate or uncertain data affect the reliability of, or confidence in, a statement of Exploration Results; for example, poor sample recovery, poor repeatability of assay or laboratory results, etc.

7. REPORTING OF MINERAL RESOURCES

Definition

7.1 **A Mineral Resource is a concentration or occurrence of 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 economic extraction.**

The location, quantity, grade or 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 subdivided, in order of increasing geological confidence into Inferred, Indicated and Measured categories.

Code

7.2 All reports of Mineral Resources must satisfy the requirement that there are reasonable prospects for economic extraction (i.e., more likely thannot), regardless of the classification of the Mineral Resource.

7.3 Estimates of non-economic mineralisation (where there are no reasonable prospects for economic extraction) do not qualify as Mineral Resources(or Mineral Reserves) under the definitions of this Template.

Guidance

The term 'reasonable prospects for economic extraction' implies a judgement (albeit preliminary) by the Competent Person in respect of all Modifying Factors. In other words, a Mineral Resource is not an inventory of all mineralisation drilled or sampled, regardless of cut-off grade, likely mining dimensions, location or continuity. It is a realistic inventory of mineralisation, which, under assumed and justifiable technical and economic conditions, may, in whole or in part, become economically extractable.

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

Interpretation of 'reasonable prospects' in this context may vary depending on the commodity or mineral involved.

Any adjustment made to the data for making the Mineral Resource estimate, for example by cutting or factoring grades, should be clearly stated and described in the Public Report.

The term 'Mineral Resource' covers mineralisation, 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 Modifying Factors.

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

Inferred Mineral Resources

Definition

7.4 **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 infer but not demonstrate 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.

Code

7.5 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.

7.6 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 mineralisation, 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; and
- a diagrammatic representation of the Inferred Mineral Resource showing clearly the extrapolated part of the estimated resource.

Guidance

The Inferred category is intended to cover situations where a mineral concentration or occurrence has been identified, and limited measurements and sampling have been completed, but where the data are insufficient to allow the geological and/or grade continuity to be interpreted with confidence.

Commonly, it would be reasonable to expect that the majority of Inferred Mineral Resources would upgrade to Indicated Mineral Resources with continued exploration. However, due to the uncertainty of Inferred Mineral Resources, it should not be assumed that such upgrading would always occur.

Code

7.7 Inferred Mineral Resources must not be converted to Mineral Reserves and must not be stated as part of the Mineral Reserve.

Guidance

Confidence in the estimate is usually not sufficient to allow the results of the application of technical and economic parameters to be used for planning. 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 this category is considered in technical and economic studies.

Indicated Mineral Resources

Definition

7.8 **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 demonstrate geologicaland grade or quality continuity between points of observation.

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.

Code

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

Guidance

Mineralisation may be classified as an Indicated Mineral Resource when the nature, quality, amount and distribution of data are such as to allow confident interpretation of the geological framework and to assume continuity of mineralisation.

Confidence in the estimate is sufficient to allow the application of technical and economic parameters, and to enable an evaluation of economic viability.

Measured Mineral Resources

Definition

7.10 **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.

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 to a Probable Mineral Reserve.

Code

7.11 A Measured Mineral Resource requires an understanding of, the geology, mineralogy, mineability and amenability to processing of the mineral deposit.

Guidance

Mineralisation may be classified as a Measured Mineral Resource when the nature, quality, amount and distribution of data are such as to leave no reasonable doubt, in the opinion of the Competent Person determining the Mineral Resource, that the tonnage and grade of the mineralisation can be estimated to within close limits, and that any variation from the estimate would be unlikely to significantly affect potential economic viability.

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

Confidence in the estimate is sufficient to allow the application of technical and economic parameters and to enable an evaluation of economic viability with a high level of confidence.

Selection of Mineral Resource reporting category

Code

7.12 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.

7.13 The appropriate Mineral Resource category must be determined by a Competent Person.

Guidance

Mineral Resource classification is a matter for skilled judgement, and Competent Persons should take into account those items in Table 1, which relate to confidence in Mineral Resource estimation.

In deciding between Measured Mineral Resources and Indicated Mineral Resources, Competent Persons may find it useful to consider, in addition to the phrases in the two definitions relating to geological and grade continuity in Clauses 7.8 and 7.10 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 7.4 and 7.8 relating to geological and grade continuity, the guideline to the definition for Indicated Mineral Resources:

"Confidence in the estimate is sufficient to allow the application of technical and economic parameters and to enable an evaluation of economic viability"

which contrasts with the guideline to the definition for Inferred Mineral Resources:

"Confidence in the estimate of Inferred Mineral Resources is usually not sufficient to allow the results of the application of technical and economic parameters to be used for planning."

and

"Caution should be exercised if this category is considered in technical and economic studies".

The Competent Person should take into consideration issues of the style of mineralisation, scale and cut-off grade when assessing geological and grade continuity.

Code

7.14 Public Reports of Mineral Resources must specify one or more of the categories of 'Inferred', 'Indicated' and 'Measured'.

7.15 Categories must not be reported in a combined form unless details for the individual categories are also provided.

7.16 Mineral Resources must not be reported in terms of contained metal or mineral content unless corresponding tonnages and grades are also presented.

7.17 Mineral Resources must not be aggregated with Mineral Reserves.

7.18 Public reporting of tonnage and grade outside the categories covered by the Template is not permitted.

7.19 The words 'ore' and 'reserves' must not be used in stating Mineral Resource estimates (except in the context of common usage such as 'iron ore', etc.) as the terms imply technical feasibility and economic viability and are only appropriate when all relevant modifying factors have been considered.

7.20 Reports and statements should continue to refer to the appropriate category or categories of Mineral Resources until technical feasibility and economic viability have been established.

7.21 In a Public Report of a Mineral Resource for a project material to the company, when reporting 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. Alternatively, 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.

Accuracy of estimates

Code

7.22 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.

7.23 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'.

Guidance

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.

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

Competent Persons are encouraged, where appropriate, to discuss the relative accuracy and/or confidence of the Mineral Resource estimates. The statement should specify whether it relates to global (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 or volume. Where a statement of the relative accuracy and/or confidence is not possible, a qualitative discussion of the uncertainties should be provided (refer to Table 1).

8. REPORTING OF MINERAL RESERVES

Definition	**8.1**	**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 Mineral 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 can be sub-divided, in order of increasing levels of confidence, into Probable and Proved Categories.**
Code	**8.2**	Mineral Reserves are those portions of Indicated and Measured Mineral Resources which, after the application of all relevant 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 viable project.
	8.3	Studies to Pre-Feasibility or Feasibility level, as appropriate, will have been carried out prior to determination of the Mineral Reserves.
	8.4	The study will have determined a mine plan that is technically achievable and economically viable and from which the Mineral Reserves can be derived.
Definition	**8.5**	**A Life of Mine Plan (LoMP) is a design and financial/economic study of an existing operation in which appropriate assessments have been made of all Modifying Factors, which are considered in sufficient detail (to a minimum of Pre-Feasibility level) to demonstrate that continued extraction is reasonably justified.**
Guidance		*Guidance on the requirements for the different types of Technical Study is provided in Table 2.*
Code	**8.6**	A Life of Mine Plan (LoMP) of at least Pre-Feasibility level can be used in an operating mine in cases where no significant capital expenditure is required.
	8.7	In reporting Mineral Reserves, information on all Modifying Factors must be included in Public Reports.
Guidance		*The term 'economically mineable' implies that extraction of the Mineral Reserve has been demonstrated to be viable under reasonable financial assumptions. What constitutes 'reasonable financial assumptions' will vary with the type of deposit, the level of study that has been carried out and the financial criteria of the individual company.*

Guidance

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.

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 expectations of such approvals or contracts. The Competent Person should report any material or unresolved matter that is dependent on a third party on which extraction is contingent.

Code

8.8 It is accepted that mine design and planning in a LoMP may include a proportion of Inferred Mineral Resources. If this category is considered in mine design, mine planning or economic studies, the results of which are publicly reported, full disclosure must be made and the effect on the results of the studies must be stated.

Modifying Factors and assumptions applied to the Inferred Mineral Resources must reflect a risk analysis taking into account their lower geological knowledge and confidence.

A LoMP must be economically viable without Inferred Mineral Resources to support the declaration of Mineral Reserves.

Where a material amount of mining in the LoMP includes Inferred Mineral Resources, a comparison of the results with and without these Inferred Mineral Resources must be shown, and the rationale (including a risk assessment) behind their inclusion must be explained and the proportion of Inferred Resources included in the LoMP reported.

Guidance

Inferred Mineral Resources may be included in mine design, mine planning and economic studies only if a LoMP and a statement of Mineral Reserves that declares that Inferred Mineral Resources have been included exists, but a proximate statement should be provided:
"Only Probable and Proved Mineral Reserves have been used to establish the economic viability of the mine design in economic studies"

Code	**8.9**	In jurisdictions where the Mineral Rights are not held by the State, for a Mineral Reserve to be declared it is required that legally enforceable mineral title is controlled by the company at the time of determination. If the company is leasing or sub-leasing the mineral, the lease or sub-lease should be from an entity that has control of the necessary mineral title.
Guidance		*If there is doubt about what should be reported, it is better to err on the side of providing too much information 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 the Template does not imply that an economically viable project 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 tin, diamond or gold deposits. This is a matter for judgement by the Competent Person.*

Probable Mineral Reserves

Definition	**8.10**	**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.**
Code	**8.11**	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.

Proved Mineral Reserves

Definition	**8.12**	**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.**
Code	**8.13**	A Proved Mineral Reserve represents the highest confidence category of reserve estimate.
Guidance		*The style of mineralisation 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.

Selection of Mineral Reserve reporting category

Code

8.14 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 Modifying Factors.

8.15 Allocation of the appropriate category must be made by the Competent Person.

Guidance

The Template provides for a direct 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. 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 Template 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 Reserves implies the highest degree of confidence in the estimate, with consequent expectations in the minds of the readers of the report. These expectations should be borne in mind when categorising a Mineral Resource as Measured.

Refer also to the guidelines at Clauses 7.12 and 7.13 regarding classification of Mineral Resources.

Code

8.16 Public Reports of Mineral Reserves must specify one or both of the categories of 'Proved' and 'Probable'.

8.17 Categories must not be reported in a combined Proved and Probable Mineral Reserve unless the relevant figures for each of the categories are also provided.

8.18 Reports must not present metal or mineral content figures unless corresponding tonnage and grade figures are also given.

8.19 Mineral Reserves must not be aggregated with Mineral Resources.

8.20 Public reporting of tonnage and grade outside the categories covered by the Template is not permitted.

Guidance

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

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.

Code

8.21 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.

8.22 Mineral Reserve estimates must not be added to Mineral Resource estimates to report a single combined figure.

Guidance

In some situations, there are reasons for reporting Mineral Resources inclusive of Mineral Reserves, and in other situations for reporting Mineral Resources exclusive of 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 or exclusive of 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 the unmodified Mineral Resources should be included in the report. This is to assist the reader of the report in making a judgement of the likelihood of the unmodified Measured and Indicated Mineral Resources eventually being converted to Mineral Reserves.

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

For reasons stated in the guidelines to Clauses 8.11 and 8.12, and in this guideline, 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.
Code	**8.23**	If re-evaluation indicates that any part of the Mineral Reserves is no longer viable, such Mineral Reserves must be re-classified as Mineral Resources and be removed from the Mineral Reserve statements.
Guidance		*It is not intended that re-classification from Mineral Reserves to Mineral Resources or vice versa should be applied as a result of changes expected to be of a short term or temporary nature, or where company management has made a deliberate decision to operate on a non-economic basis. Examples of such situations might be commodity price fluctuations expected to be of short duration, mine emergency of a non- permanent nature, transport strike, etc.*
Code	**8.24**	In a Public Report of a Mineral Reserve for a project material to the company, when reporting for the first time, or when the 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. Alternatively, 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.

Accuracy of estimates

Code	**8.25**	Mineral Reserve estimates are not precise calculations. Reporting of tonnage and grade figures should reflect the relative uncertainty of the estimate by rounding off to appropriately significant figures. Refer also to the guidelines at Clause 7.23.
Guidance		*To emphasise the imprecise nature of a Mineral Reserve, the result should always be referred to as an estimate not a calculation.* *Competent Persons should, where appropriate, discuss the relative accuracy and/or confidence of the Mineral Reserve estimates.* *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 or volume.* *Where a statement of the relative accuracy and/or confidence is not possible, a qualitative discussion of the uncertainties should be provided (refer to Table 1, Table 2 and to the guidelines at Clauses 7.9 and 7.11).*

9. TECHNICAL STUDIES

Code

9.1 Public Reports may include, but not be limited to, information included in or supported by:

- Scoping studies
- Pre-Feasibility studies
- Feasibility studies

9.2 Guidelines on the requirements for a Scoping, Pre-Feasibility and a Feasibility Study are included in Table 2.

Scoping Study

Definition

9.3 **A Scoping Study is an order of magnitude technical and economic study of the potential viability of Mineral Resources that includes appropriate assessments of realistically assumed Modifying Factors together with any other relevant operational factors that are necessary to demonstrate and provide justification for further investigation and technical work, and more comprehensive technical studies.**

A Scoping Study is at a lower confidence level than a Pre-Feasibility Study.

Code

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

9.5 If the outcome of a Scoping Study is partially supported by Inferred Mineral Resources, the Public Report must state the proportion and relative sequencing of the Inferred Mineral Resources within the Scoping Study.

9.6 For all Scoping Studies, the company must include a cautionary statement in the same paragraph as or immediately following the disclosure of the Scoping Study.

Guidance

An example cautionary statement follows:

"The Scoping Study referred to in this report is based on low-level technical and economic assessments and is insufficient to support estimation of Mineral Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised."

In discussing 'reasonable prospects for economic extraction' at Clause 7.1, an assessment (albeit preliminary) is required of all matters likely to influence the prospect of economic extraction including the approximate Modifying Factors by the Competent Person. While a Scoping Study may providethe basis for that assessment, the Template does not require a Scoping Study tohave been completed to report a Mineral Resource.

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.

Scoping Studies are also commonly used by companies for comparative and planning purposes. Reporting the general results of a Scoping Study should 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 is appropriate to indicate the Mineral Resource inputs to the Scoping Study and the processes applied, but it is not appropriate to report the diluted tonnes and grade as if they were Mineral Reserves.

While initial mining and processing cases may have been developed during a Scoping Study, they must not be used to allow a Mineral Reserve to be declared.

Pre-Feasibility Study

Definition

9.7 **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 the preferred methods of extraction and beneficiation have been determined. It includes a financial analysis based on reasonable and demonstrated 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 Resource may be converted to a Mineral Reserve at the time of reporting. A Pre-Feasibility Study is at a lower confidence level than a Feasibility Study.**

Guidance

As required in Clause 8.1, 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 (as outlined in Table 1, section 5) to demonstrate economic viability and to support a Mineral Reserve in a Public Report.

The Pre-Feasibility Study will identify the preferred mining, processing, and infrastructure requirements and capacities, but will not yet have finalised 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.

Feasibility Study

Definition

9.8 **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 economic extraction is reasonably justified.**

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.

Code

9.9 It is not required that a full Feasibility Study has been undertaken to convert Mineral Resources to Mineral Reserves. It is however, necessary that at least a Pre-Feasibility Study has 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.

Guidance

Terms such as 'Bankable Feasibility Study' and 'Definitive Feasibility Study' are noted as being equivalent to a Feasibility Study as defined in this Clause.

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. Social, environmental and governmental approvals, permits, and agreements will be in place or will be approaching finalisation within the expected development timeframe.

The Feasibility Study will contain the application and description of all Modifying factors (as outlined in Table 1, section 5) 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.

10. REPORTING OF METAL EQUIVALENTS

Code

10.1 The reporting of Exploration Results, Mineral Resources and/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.

10.2 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 Clauses 2.6 to 2.8:

- individual grades for all metals included in the metal equivalent calculation;
- assumed commodity prices for all metals. The actual assumed prices should be disclosed. 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, sufficient information must be disclosed, perhaps in narrative rather than numerical form, for investors to understand the methodology used to determine these prices;
- assumed beneficiation 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.

10.3 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.

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

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

11. COMMODITY PRICING AND MARKETING

Code	**11.1**	Commodity prices and sales volume expectations used for the determination of Mineral Resources and Mineral Reserves must be based on forward-looking estimates reflecting the company's reasonable and supportable short- and long-term expectations as supported by available evidence, which may include consensus forecasts, three-year trailing averages, sales contracts, or other price analyses (see Clauses 11.4 and 11.5 below for cases where public disclosure is not appropriate).
Guidance		*The basis for the selected prices and sales volumes should be supported by appropriate documentation.* *The Competent Person should ascertain that these prices and volumes are consistent with sales agreements and marketing determinations or forecasts.* *Under certain circumstances, it may be appropriate to use different prices for estimating Mineral Resources and Mineral Reserves.* *For current mining operations, the price and volume profile used for Mineral Resources and Mineral Reserves estimation may reflect current market conditions for short-term forecasts, while trending with time upward or downward toward the long-term price and volume estimates based on the company's expectations.* *For Mineral Reserves that are expected to be produced beyond the validity of short-term forecasts, the company should use long-term price and volume expectations.* *For commodities sold under existing contracts, Mineral Reserves should be determined based on contract terms.* *For Mineral Reserves for which production would extend beyond the quantities specified in existing contracts, reasonable and supportable assumptions should be made to determine the likelihood of contract renewal and prices applicable for the estimation and reporting of these Mineral Resources and Mineral Reserves.*
Code	**11.2**	To demonstrate the economic feasibility of a Mineral Reserve, the estimated prices, combined with Modifying Factors, must be applied to only Measured and Indicated Mineral Resources.
Guidance		*Mineral Reserves are the economically mineable part of a Measured or Indicated Mineral Resource; hence, appropriate assessments should demonstrate at the time of reporting that extraction is reasonably justified. This requires that assumptions are made concerning the price of the commodity or product that will be sold when the mine is in production.*

Mineral Reserves are estimated and published to supply information concerning the value of the deposit and the risk which may be associated with its development.

Mineral Reserves are used by a company, in conjunction with Mineral Resources, for short-term, long-term, and strategic planning. They play a critical role in accounting, including impairment testing, fair value accounting, calculation of depreciation, depletion, and accumulated retirement obligation provision rates.

To supply information consistent with the company's plans and financial reporting, commodity prices used for the determination of Mineral Reserves should be based on forward-looking estimates reflecting the company's reasonable expectations as supported by all available evidence.

Most commodities, whether sold using publicly quoted prices (e.g. base metals and precious metals) or under long term contract (e.g., coal and iron ore), experience long-term price cycles. Price expectations should reflect current prices as well as long-term trends. Overly optimistic or pessimistic price and volumes expectations could result in significant over or underestimation of Mineral Reserves. It is the responsibility of the company and the Competent Person to determine whether the prices used for Mineral Reserve estimation are reasonable and supportable, given all available information.

During periods of low prices, a mining company may choose to temporarily curtail operations and conserve the mineral asset until prices recover. When such actions are taken, Public Reports should be updated to reflect the new information. In such circumstances, previously published Mineral Reserves may not have to be reclassified, provided that, in the opinion of company and the Competent Person, higher future prices can be reasonably and supportably assumed, and it can reasonably be expected that operations will resume.

The documentation supporting the company's expectations should include: comparison of prices with historical and current prices and forward curves, contracts and market considerations, currency exchange rates where applicable, third party sources, and supplemental information.

Code

11.3 Disclosure in Public Reports of the commodity prices and sometimes also the costs (including other Modifying Factors) used for Mineral Reserve estimation is generally required.

11.4 In the absence of applicable securities or other laws to disclose prices, there may be cases, such as when a product is sold under long-term contract, the terms of which are confidential, where there are valid commercial reasons for non-disclosure of prices.

11.5 Similarly, where disclosure of the long-term price and/or cost assumptions used in the estimation would be detrimental to the company's business, such as when bidding for sales contracts or property acquisitions or negotiating agreements with third parties, non-disclosure may be justifiable.

Guidance

Whenever prices and/or costs are not disclosed, the reasons should be documented, and the commodity price and/or cost information should nevertheless be available for review by auditors or regulators if required.

Even when commodity prices and/or costs are excluded from a Public Report, a description of the methodology used to determine the prices and/or costs should be disclosed. Such disclosure should be in a form which helps the audience of the Public Report to form an opinion that prices and/or costs used represent reasonable views of future prices and/or costs.

The exceptions to disclosure of commodity prices and/or costs are subject to, and overruled by, any obligations imposed by applicable securities or other laws.

12. PERMITTING AND LEGAL REQUIREMENTS

Code

12.1 For the declaration of Mineral Reserves, there must be no known material obstacles to mining, arising from the failure to obtain relevant permits.

12.2 There must be a reasonable expectation by the Competent Person, often through reliance on legal and permitting experts, that all permits, ancillary rights (including water or other property rights) and authorisations required for mining, and to the extent applicable, processing and marketing, can be obtained in a timely fashion, and maintained for ongoing operations.

12.3 The company must complete a review of all legal and permitting requirements and document the findings. Local environmental laws and processes must be taken into account.

12.4 To demonstrate reasonable expectation that all permits, ancillary rights and authorisations can be obtained, the company must show understanding of the procedures to be followed to obtain such permits, ancillary rights and authorisations. Demonstrating earlier success in obtaining the necessary permits can be used to document the likelihood of future success.

12.5 If permits are required, but there is no defined procedure to obtain such permits, reasonable expectation of success may be difficult to support. Information that materially increases or decreases the risk that the necessary legal rights or permits will be obtained must be disclosed.

12.6 It is recognised that the legal and permitting environment may change over time and that such changes could have an impact on Mineral Reserve estimation. If itis determined that obstacles arise or are eliminated, the Mineral Reserve estimates must be adjusted accordingly.

Guidance

It is recognised that some permits cannot be obtained until after a Mineral Reserve has been declared. There might be sound business reasons why obtaining some permits should be postponed.

It is also recognised that waiting for all permits to be on hand could result in critical information not being released to the investors in a timely fashion, and therefore it is recommended that disclosure of material information occur prior to obtaining permits as appropriate.

Documentation should include a brief description of the title, claim, lease or option under which the company has the right to hold or operate the property, indicating any conditions that the company must meet to obtain or retain the property.

If held by leases or options, the expiry dates of such leases or options should be stated. If extension of leases or options will be needed to mine the Mineral Reserves, there should be reasonable expectation that such extension will be granted.

Code

12.7 Royalty terms and clawback rights of former claim/land holders must be disclosed.

12.8 Information relating to the review of legal and permitting issues must be documented either in full or by reference. The information may remain confidential to the company. However, when required, it may be released to regulators or auditors on a confidential basis.

13. SUSTAINABILITY CONSIDERATIONS

Code

13.1 Public Reports should discuss environmental, social, and health and safety impacts that are expected during development, operation and after closure. These impacts will affect employees, contractors, neighbouring communities, and customers.

Guidance

Historical performance by the company should be used to engage all stakeholders and to plan for continued benefits for all parties concerned.

In the minerals industry, health and safety has traditionally received the most attention, with accident statistics reflecting these improvements.

Sustainability can refer to three principal themes: the ability of the environment to maintain itself with minimal impacts to the local flora and fauna; the ability of the surrounding community to continue its traditional economic and cultural activities; and the ability of newly created economic inputs to continue beyond the mine life.

Social issues and the social licence to operate (SLO) are a measure of the communication, transparency and level of trust with communities and society at large. Programs to create positive impacts in environmental, safety, and sustainability all contribute to winning the trust needed for the SLO.

The Competent Person should ensure the report discusses reasonably available information on environmental, permitting, and social or community factors related to the project.

The discussions should include, where relevant:

- *a summary of the results of any environmental studies and a discussion of any known environmental issues that could materially impact the issuer's ability to extract the Mineral Resources or Mineral Reserves;*
- *requirements and plans for waste and tailings disposal, site monitoring, and water management both during operations and post mine closure;*
- *project permitting requirements, the status of any permit applications, and any known requirements to post performance or reclamation bonds;*
- *a discussion of any potential social or community related requirements and plans for the project and the status of any negotiations or agreements with local communities;*
- *a discussion of mine closure (remediation and reclamation) requirements and costs;*
- *special capital or operating requirements for handling hazardous minerals or reagents, as well as other health and industrial hygiene risks;*
- *any savings in energy usage or other reduction of consumption reflecting directly in the economic outcome of the project; and*
- *Mineral Reserve estimates should acknowledge the likely environmental and social impact of development and ensure that appropriate allowances are made for mitigation and remediation.*

TABLE 1 - CHECK LIST OF ASSESSMENT AND REPORTING CRITERIA

Table 1 provides, in a summary form, a list of the criteria which should be considered when preparing reports on Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves. Some jurisdictions require that comment is given to all sections of Table 1 on an 'if not, why not' basis. The Table is included in the Template as an example of best practice. Requirements will differ from jurisdiction to jurisdiction, and as always Transparency, Materiality and Competence are overriding principles that determine what information should be publicly reported. The Competent Person must provide sufficient comment on all matters that may affect areader's understanding or interpretation of the results or estimates being reported.

Publicly reported information should be sufficient to enable an informed reader to make a reasonable and balanced assessment of the significance of this information. It is, however, important to report any matters that might materially affect a reader's understanding or interpretation of the results or estimates being reported. This is particularly important where inadequate or uncertain data affect the reliability of, or confidence in, a statement of Exploration Results or an estimate of Exploration Targets, Mineral Resources or Mineral Reserves.

In some cases, it will be appropriate for a Public Report to exclude some commercially sensitive information. A decision to exclude commercially sensitive information would be a decision for the company issuing the Public Report, and such a decision should be made in accordance with any relevant regulations in that jurisdiction. In cases where commercially sensitive information is excluded from a Public Report, the report should provide summary information (for example the methodology used to determine economic assumptions where the numerical value of those assumptions is commercially sensitive) and context for informing investors or potential investors and their advisors.

The order and grouping of criteria in Table 1 reflect the normal systematic approach to exploration and estimation of resources and reserves. The table should be approached from left to right. In other words, 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.

When compiling a Public Report dealing with coal, diamonds, industrial and construction minerals, and dimension stone, there are specific matters that must be considered. Appendices 4 to 7 of the Template address these specific commodities. Sections 10-13 of Table 1 include also items that may be specific to those commodities and therefore have been placed within Appendices 4 to 7 where relevant.

Table 1 should be expanded to provide detailed guidance on the particular commodities, if relevant to a particular NRO.

TABLE 1 – CHECK LIST OF ASSESSMENT AND REPORTING CRITERIA					
			Exploration Results	Mineral Resources	Mineral Reserves
Introduction					
Introduction	**General**	(i)	The terms of reference or scope of work.		
		(ii)	The Competent Person's relationship to the issuer of the report, if any.		
		(iii)	A statement for whom the report was prepared; whether it was intended as a full or partial evaluation or other purpose, work conducted, effective date of report, and remaining work.		
		(iv)	Sources of information and data contained in the report or used in its preparation, with citations if applicable, and a list of references.		
		(v)	A title page and a table of contents that includes figures and tables.		
		(vi)	An Executive Summary, which briefly summarises important information in the Public Report, including property description and ownership, geology and mineralisation, the status of exploration, development and operations, Mineral Resource and Mineral Reserve estimates, and the Competent Person's conclusions and recommendations. If Inferred Mineral Resources are used, a summary valuation with and if practical without inclusion of such Inferred Mineral Resources. The Executive Summary should have sufficient detail to allow the reader to understand the essentials of the project.		
		(vii)	A declaration from the Competent Person, stating whether "the declaration has been made in terms of the guidelines of the (state the NRO) Code". If a reporting code other than the code of the NRO having jurisdiction has been used, an explanation of the differences.		
		(viii)	Diagrams, maps, plans, sections and illustrations, which are dated, legible and prepared at an appropriate scale to distinguish important features. Maps including a legend, author or information source, coordinate system and datum, a scale in bar or grid form, and an arrow indicating north. Reference to 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.		
		(ix)	The units of measure, currency and relevant exchange rates.		
		(x)	The details of the personal inspection on the property by each Competent Person or, if applicable, the reason why a personal inspection has not been completed.		
		(xi)	If the Competent Person is relying on a report, opinion, or statement of another expert who is not a Competent Person, then a disclosure of the date, title, and author of the report, opinion, or statement, the qualifications of the other expert, the reason for the Competent Person to rely on the other expert, any significant risks and any steps the Competent Person took to verify the information provided.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 1: Project Outline					
1.1	**Location**	(i)	Description of location and map (country, province, and closest town/city, coordinate systems and ranges, etc.).		
		(ii)	Country Profile, with a description of information relating to the project host country that is pertinent to the project, including relevant applicable legislation, environmental and social context etc. An assessment, at a high level, of relevant technical, environmental, social, economic, political and other key risks.		
		(iii)	A general topo-cadastral map.	Topo-cadastral map in sufficient detail to support the assessment of economics. A statement of known associated climatic risks.	Detailed topo-cadastral map, with applicable aerial surveys checked with ground controls and surveys, particularly in areas of rugged terrain, dense vegetation or high altitude.
1.2	**Property Description**	(i)	Brief description of the scope of project (i.e., whether in preliminary sampling, advanced exploration, Scoping, Pre-Feasibility, or Feasibility Study, Life of Mine Plan for an ongoing mining operation or closure).		
		(ii)	Description of topography, elevation, drainage and vegetation, the means and ease of access to the property, the proximity of the property to a population centre, and the nature of transport, the climate, known associated climatic and seismic risks and the length of the operating season and to the extent relevant to the mineral project, the sufficiency of surface rights for mining operations including the availability and sources of power, water, mining personnel, potential tailings storage areas, potential waste disposal areas, heap leach pad areas, and potential processing plant sites (noting any conditions that may affect possible prospecting/mining activities).		
1.3	**Adjacent properties**	(i)	Details of relevant adjacent properties. The inclusion on the maps of the location and common mineralised structures in adjacent or nearby properties having an important bearing on the report. Reference to all information used from other sources.		
1.4	**History**	(i)	Historical background to the project and adjacent areas concerned, including known results of previous exploration and mining activities (type, amount, quantity and development work), previous ownership and changes thereto.		
		(ii)		Previous successes or failures referred to transparently with reasons why the project should now be considered potentially economic.	
		(iii)		Known or existing historical Mineral Resource estimates and performance statistics from actual production for past and current operations.	
		(iv)			Known or existing historical Mineral Reserve estimates and performance statistics to actual production for past and current operations.
1.5	**Legal Aspects and Permitting**		A statement from the Competent Person on the confirmation of the legal tenure, including a description of:		
		(i)	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 date of expiry and other relevant details.		
		(ii)	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 authorisations).		
		(iii)	The security of the tenure held at the time of reporting or that is reasonably expected to be granted in the future along with any known impediments to obtaining the right to operate in the area. Details of applications that have been made. See Clause 8.1 for declaration of a Mineral Reserve.		
		(iv)	A statement of any legal proceedings, for example: land claims that may have an influence on the rights to prospect or mine for minerals, or an appropriate negative statement.		
		(v)	A statement relating to governmental/statutory requirements and permits as may be required, have been applied for, approved or can be reasonably be expected to be obtained. A review of risks that permits will not be received as expected and impact of delays to the project.		
1.6	**Royalties**	(i)	The royalties or streaming agreements that are payable in respect of each property.		
1.7	**Liabilities**	(i)	Any liabilities, including rehabilitation guarantees that are pertinent to the project. A description of the rehabilitation liability, including, but not limited to, legislative requirements, assumptions and limitations.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 2: Geological Setting, Deposit, Mineralisation					
2.1	**Geological Setting, Deposit, Mineralisation**	(i)	The regional geology.		
		(ii)	The project geology including deposit type, geological setting and style of mineralisation.		
		(iii)	The geological model or concepts being applied in the investigation and on the basis of which the exploration program is planned, along with a description of the inferences and assumptions made from this model.		
		(iv)	Data density, distribution and reliability and whether the quality and quantity of information are sufficient to support statements, made or inferred, concerning the deposit.		
		(v)	Significant minerals present in the deposit, their frequency, size and other characteristics, including a discussion of minor and gangue minerals where these will have an effect on the processing steps and the variability of each important mineral within the deposit.		
		(vi)	Significant mineralised zones encountered on the property, including a summary of the surrounding rock types, relevant geological controls, and the length, width, depth, and continuity of the mineralisation, together with a description of the type, character, and distribution of the mineralisation.		
		(vii)	The existence of reliable geological models and / or maps and cross sections that support interpretations.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 3: Exploration and Drilling, Sampling Techniques and Data					
3.1	**Exploration**	(i)	Data acquisition or exploration techniques and the nature, level of detail, and confidence in the geological data used (i.e., geological observations, remote sensing results, stratigraphy, lithology, structure, alteration, mineralisation, hydrology, geophysical, geochemical, petrography, mineralogy, geochronology, bulk density, potential deleterious or contaminating substances, geotechnical and rock characteristics, moisture content, bulk samples etc.). Data sets with all relevant metadata, such as unique sample number, sample mass, collection date, spatial location etc.		
		(ii)	The primary data elements (observation and measurements) used for the project and a description of the management and verification of these data or the database. Description of the following relevant processes: acquisition (capture or transfer), validation, integration, control, storage, retrieval and backup processes. If data are not stored digitally, presentation of hand-printed tables with well-organised data and information.		
		(iii)	Acknowledgement and appraisal of data from other parties, and reference to all data and information used from other sources.		
		(iv)	Distinction between data / information from the property under discussion and that derived from surrounding properties.		
		(v)	The methods for collar and down-hole survey, techniques and expected accuracies of data as well as the grid system used.		
		(vi)	Discussion on the sufficiency of the data spacing and distribution to establish the degree of geological and grade continuity appropriate for the estimation procedure(s) and classifications applied.		
		(vii)	Presentation of representative models and / or maps and cross sections or other two or three-dimensional illustrations of results showing location of samples, accurate drill hole collar positions, down-hole surveys, exploration pits, underground workings, relevant geological data, etc.		
		(viii)	The geometry of the mineralisation with respect to the drill hole angle because of the importance of the relationships between mineralisation widths and intercept lengths. Justification if only down-hole lengths are reported.		
3.2	**Drilling Techniques**	(i)	Type of drilling undertaken (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Banka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).		
		(ii)	The geological and geotechnical logging of core and chip samples relative to the level of detail required to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.		
		(iii)	The nature of logging (qualitative or quantitative) and the use of core photography (or costean, channel, etc.).		
		(iv)	The total length and percentage of the relevant intersections logged.		
		(v)	Results of any downhole surveys of the drill hole.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 3: Exploration and Drilling, Sampling Techniques and Data (continued)					
3.3	**Sample method, collection, capture and storage**	(i)	A description of the nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down-hole gamma sondes, or handheld or fixed-position XRF instruments, etc.), without these examples limiting the broad meaning of sampling.		
		(ii)	A description of the sampling processes, including sub-sampling stages to maximise representivity of samples, whether sample sizes are appropriate to the grain size of the material being sampled and any sample compositing.		
		(iii)	A description of each data set (e.g., geology, grade, density, quality, geo-metallurgical characteristics etc.), sample type, sample-size selection and collection methods.		
		(iv)	The nature of the geometry of the mineralisation with respect to the drill hole angle (if known). The orientation of sampling to achieve unbiased sampling of possible structures, considering the deposit type. The intersection angle. The down-hole lengths if the intersection angle is not known.		
		(v)	A description of retention policy and storage of physical samples (e.g., core, sample reject, etc.).		
		(vi)	A description of the method of recording and assessing core and chip sample recoveries and the results assessed, measures taken to maximise sample recovery and ensure representative nature of the samples, whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.		
		(vii)	The cutting of a drill-core sample, e.g., whether it was split or sawn and whether quarter, half or full core was submitted for analysis. Non-core sampling, e.g., whether the sample was riffled, tube sampled, rotary split etc.; whether it was sampled wet or dry; the impact of water table or flow rates on recovery and introduction of sampling biases or contamination from above. The impact of variable hole diameters, e.g., by the use of a calliper tool.		
3.4	**Sample Preparation and Analysis**	(i)	The identity of the laboratory(s) and its accreditation status and Registration Number. The steps taken by the Competent Person to ensure the results from a non-accredited laboratory are of an acceptable quality.		
		(ii)	The analytical method, its nature, the quality and appropriateness of the assaying and laboratory processes and procedures used and whether the technique is considered partial or total.		
		(iii)	A description of the process and method used for sample preparation, sub-sampling and size reduction, and the likelihood of inadequate or non-representative samples (i.e., improper size reduction, contamination, screen sizes, granulometry, mass balance, etc.).		
3.5	**Sampling Governance**	(i)	The governance of the sampling campaign and process, to ensure quality and representivity of samples and data, such as sample recovery, high grading, selective losses or contamination, core/hole diameter, internal and external QA/QC, and any other factors that may have resulted in or identified sample bias.		
		(ii)	The measures taken to ensure sample security and the Chain of Custody.		
		(iii)	The validation procedures used to ensure the integrity of the data, e.g., transcription, input or other errors, between its initial collection and its future use for modelling (e.g., geology, grade, density, etc.).		
		(iv)	The audit process and frequency (including dates of these audits) and disclose any material risks identified.		
3.6	**Quality Control/ Quality Assurance**	(i)	The verification techniques (QA/QC) for field sampling process, e.g., the level of duplicates, blanks, reference material standards, process audits, analysis, etc. Indirect methods of measurement (e.g., geophysical methods), with attention given to the confidence of interpretation. Reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. QA/QC procedures used to check databases augmented with 'new' data have not disturbed previous versions containing 'old' data.		
3.7	**Bulk Density**	(i)	The method of bulk density determination with reference to the frequency of measurements, the size, nature and representativeness of the samples.		
		(ii)	Preliminary estimates or basis of assumptions made for bulk density.		
		(iii)	The representivity of bulk density samples.		
		(iv)	The measurement of bulk density for bulk material using methods that adequately account for void spaces (vugs, porosity etc.), moisture and differences between rock and alteration zones within the deposit.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 3: Exploration and Drilling, Sampling Techniques and Data (continued)					
3.8	**Bulk Sampling and/or trial-mining**	(i)	The location of individual samples (including map).		
		(ii)	The size of samples, spacing/density of samples recovered and whether sample sizes and distribution are appropriate to the grain size of the material being sampled.		
		(iii)	The method of mining and treatment.		
		(iv)	The degree to which the samples are representative of the various types and styles of mineralisation and the mineral deposit as a whole.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 4: Estimation and Reporting of Exploration Results and Mineral Resources and Mineral Reserves					
4.1	**Geological model and interpretation**	(i)	The nature, detail and reliability of geological information with which lithological, structural, mineralogical, alteration or other geological, geotechnical and geo-metallurgical characteristics were recorded.		
		(ii)	The geological model, construction technique and assumptions that forms the basis for the Exploration Results or Mineral Resource estimate. The sufficiency of data density to assure continuity of mineralisation and geology and provision of an adequate basis for the estimation and classification procedures applied.		
		(iii)	Any obvious geological, mining, metallurgical, processing, environmental, social, infrastructural, legal and economic factors that could have a significant effect on the prospects of any possible Exploration Target or deposit.		
		(iv)		Geological data that could materially influence the estimated quantity and quality of the Mineral Resource.	
		(v)		Consideration given to alternative interpretations or models and their possible effect (or potential risk) if any, on the Mineral Resource estimate.	
		(vi)		Geological discounts (e.g., magnitude, per reef, domain, etc.), applied in the model, whether applied to mineralised and / or un-mineralised material (e.g., potholes, faults, dykes, etc.).	
4.2	**Estimation and modelling techniques**	(i)	A detailed description of the estimation techniques and assumptions used to determine the grade and tonnage ranges for Exploration Targets.		
		(ii)		The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values (cutting or capping), compositing (including by length and/or density), domaining, sample spacing, estimation unit size (block size), selective mining units, interpolation parameters and maximum distance of extrapolation from data points.	
		(iii)		Assumptions and justification of correlations made between variables.	
		(iv)		Any relevant specialised computer program (software) used (with the version number) together with the parameters used.	
		(v)		The processes of checking and validation, the comparison of model information to sample data and use of reconciliation data, and whether the Mineral Resource estimate takes account of such information.	
		(vi)		The assumptions made regarding the estimation of any co-products, by-products or deleterious elements.	

			Exploration Results	Mineral Resources	Mineral Reserves
Section 4: Estimation and Reporting of Exploration Results and Mineral Resources and Mineral Reserves (continued)					
4.3	**Reasonable prospects for economic extraction**	(i)		The geological parameters, including (but not be limited to) volume / tonnage, grade and value / quality estimates, cut-off grades, strip ratios, upper- and lower- screen sizes.	
		(ii)		The engineering parameters, including mining method, processing, geotechnical, hydrogeological and metallurgical) parameters, including assumptions made to mitigate the effect of deleterious elements. Dilution and mining recovery factors that might be applicable to convert in-situ Mineral Resources to Mineral Reserves.	
		(iii)		The infrastructure including, but not limited to, power, water, site-access.	
		(iv)		The legal, governmental, permitting, statutory parameters.	
		(v)		The environmental and social (or community) parameters.	
		(vi)		The marketing parameters.	
		(vii)		The economic assumptions and parameters, including, but not limited to, commodity prices, sales volumes and potential capital and operating costs.	
		(viii)		Material risks.	
		(ix)		The parameters used to support the concept of ‘reasonable prospects’ in the case of Mineral Resources.	
4.4	**Classification Criteria**	(i)		The criteria and methods used as the basis for the classification of the Mineral Resources into varying confidence categories.	
4.5	**Reporting**	(i)	Specific grades / qualities and widths.		
		(ii)	The reporting of low and high-grades and widths, together with their spatial location to avoid misleading reporting of Exploration Results.		
		(iii)	A statement on whether grades are regional averages or if they are selected individual samples taken from the property under discussion.		
		(iv)		The detail of open pit, underground, residue stockpile, remnants, tailings, and existing pillars or other sources in a Mineral Resource statement.	
		(v)		A comparison with the previous Mineral Resource estimates, with an explanation of the reason for material changes. A comment on any historic trends (e.g., global bias).	
		(vi)		The basis for the estimate and if not 100%, the attributable percentage relevant to the entity commissioning the report.	
		(vii)	The basis of equivalent metal formulae.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 5: Technical Studies					
5.1	**Introduction**	(i)	Not applicable to Exploration Results or Exploration Targets.	The level of study – Scoping, Pre-Feasibility, Feasibility or ongoing Life of Mine Plan.	The level of study – Pre-Feasibility, Feasibility or ongoing Life of Mine Plan.
		(ii)			A summary table of the Modifying Factors used to convert the Mineral Resource to Mineral Reserve.
5.2	**Mining Design**	(i)	Not applicable to Exploration Results or Exploration Targets.	Assumptions regarding mining methods and parameters when estimating Mineral Resources.	
		(ii)			All Modifying Factors and assumptions made regarding mining methods, minimum mining dimensions (or pit shell) and internal and, if applicable, external planned and unplanned mining dilution and mining losses used for the techno-economic study and signed-off, such as mining method, mine design criteria, infrastructure, capacities, production schedule, mining efficiencies, grade control, geotechnical and hydrological considerations, closure plans, and personnel requirements.
		(iii)		Mineral Resource models used in the study.	
		(iv)		The basis of the cut-off grade(s).	The basis of (the adopted) cut-off grade(s) or quality parameters applied, including metal equivalents if relevant.
		(v)			The mining method(s) to be used.
		(vi)			For open cut mines, a discussion of pit slopes, slope stability, and strip ratio.
		(vii)			For underground mines, a discussion of mining method, geotechnical considerations, mine design characteristics, and ventilation/cooling requirements.
		(viii)			Discussion of mining rate, equipment selected, grade control methods, geotechnical and hydrogeological considerations, health and safety of the workforce, staffing requirements, dilution, and recovery.
		(ix)			Optimisation methods and software used in planning, including a discussion of the constraints.

			Exploration Results	Mineral Resources	Mineral Reserves
Section 5: Technical Studies					
5.3	**Metallurgical and Testwork**	(i)	Not applicable to Exploration Results or Exploration Targets.		The source of the samples, the representivity of the potential feed and the techniques used to obtain the samples, laboratory and metallurgical testing techniques.
		(ii)			The basis for assumptions or predictions regarding metallurgical amenability and any preliminary mineralogical test work should already be carried out.
		(iii)		The possible processing methods and any processing factors that could have a material effect on the likelihood of reasonable prospects for economic extraction. The appropriateness of the processing methods to the style of mineralisation.	The processing method(s), equipment, plant capacity, efficiencies, and personnel requirements.
		(iv)			The nature, amount and representativeness of metallurgical test work undertaken and the recovery factors used. A detailed flow sheet / diagram and a mass balance, especially for multi-product operations from which the saleable materials are priced for different chemical and physical characteristics.
		(v)			Assumptions or allowances made for deleterious elements and the existence of any bulk-sample or pilot-scale test work and thedegree to which such samples are representative of the ore body as a whole.
		(vi)			Disclosure of whether metallurgical process is well-tested technology or novel in nature and if novel, justification of its use in Mineral Reserve estimation.
5.4	**Infrastructure**	(i)	Not applicable to Exploration Results or Exploration Targets.	Comment regarding the current state of infrastructure or the ease with which the infrastructure can be provided or accessed and its effect on reasonable prospects for economic extraction.	
		(ii)			Demonstration that the necessary facilities have been allowed for (which may include, but not be limited to, processing plant, tailings dam, leaching facilities, waste dumps, road, pipeline, rail or port facilities, water and power supply, offices, housing, security, resource sterilisation testing etc.). Provision of detailed maps showing locations of facilities.
		(iii)			Statement showing that all necessary logistics have been considered.

			Exploration Results	Mineral Resources	Mineral Reserves
Section 5: Technical Studies (continued)					
5.5	**Environmental and social**	(i)	Not applicable to Exploration Results or Exploration Targets.	Confirmation that the company holding the tenement has addressed the host country environmental legal compliance requirements and any mandatory and/or voluntary standards or guidelines to which the company subscribes.	
		(ii)		Identification of the necessary permits that will be required and their status, and where not yet obtained, and confirmation that there is a reasonable basis to believe that all permits required for the project will be obtained in a timely manner.	
		(iii)		Any sensitive areas that may affect the project as well as any other environmental factors including Interested and Affected Party (I&AP) and/or studies that could have a material effect on the likelihood of reasonable prospects for economic extraction. Possible means of mitigation.	
		(iv)		Legislated social management programmes that may be required and content and status of these.	
		(v)		Material socio-economic and cultural impacts that need to be managed, and where appropriate the associated costs.	
5.6	**Market Studies and Economic criteria**	(i)	Not applicable to Exploration Results or Exploration Targets.	Technical and economic factors likely to influence the prospect of economic extraction. Refer to Clauses 7.1 to 7.23.	Valuable and potentially valuable product(s) including suitability of products, co-products and by products to market.
		(ii)			Product to be sold, customer specifications, testing, and acceptance requirements. Existence of a ready market for the product and whether contracts for the sale of the product are in place or expected to be readily obtained. Price and volume forecasts and the basis for the forecast.
		(iii)			Economic criteria used for the study, such as capital and operating costs, exchange rates, revenue / price curves, royalties, and streaming agreements, cut-off grades, reserve pay limits.
		(iv)			Summary description, source and confidence of method used to estimate the commodity price/value profiles used for cut-off grade calculation, economic analysis and project valuation, including applicable taxes, inflation indices, discount rate and exchange rates.
		(v)			Assumptions made concerning production cost including transportation, treatment, penalties, exchange rates, marketing and other costs. Allowances should be made for the content of deleterious elements and the cost of penalties.
		(vi)			Allowances made for royalties and streaming agreements payable, both to Government and private entities.
		(vii)			Ownership, type, extent and condition of plant and equipment that is significant to the existing operation(s).
		(viii)			Environmental, social and labour costs.
5.7	**Risk Analysis**	(i)	Not applicable to Exploration Results or Exploration Targets.	An assessment of technical, environmental, social, economic, political and other key risks to the project.. Actions that will be taken to mitigate and/or manage the identified risks.	

			Exploration Results	Mineral Resources	Mineral Reserves
Section 5: Technical Studies (continued)					
5.8	**Economic Analysis**	(i)	Not applicable to Exploration Results or Exploration Targets.	The basis on which reasonable prospects for economic extraction has been determined. Any material assumptions made in determining the 'reasonable prospects for economic extraction'.	The inclusion of any Inferred Resources in the Pre-Feasibility and Feasibility Studies economic analysis. The sensitivity to the inclusion of any Inferred Resources.
		(ii)			An economic analysis for the project that includes after tax Cash Flow forecast on an annual basis using Mineral Reserves or Mineral Resources OR an annual production schedule for the life of the project, which has been used at the relevant level Pre- feasibility or Feasibility Study. Accounting for royalties and streaming agreements.
		(iii)			A discussion of net present value (NPV), internal rate of return (IRR) and payback period of capital.
		(iv)			Sensitivity or other analysis using variants in commodity price, grade, capital and operating costs, or other significant parameters, as appropriate and discuss the impact of the results.

			Exploration Results	Mineral Resources	Mineral Reserves
Section 6: Estimation and Reporting of Mineral Reserves					
6.1	**Estimation and modelling techniques**	(i)		A description of the Mineral Resource estimate used as a basis for the conversion to a Mineral Reserve.	
		(ii)			A comparison between the two possibilities, the one with inclusion of Inferred Mineral Resources and the one without inclusion, in such a way so as not to mislead the investors. The quantum of the Inferred Mineral Resources included and the sensitivity of the inclusion to the study.
		(iii)			A Mineral Reserve Statement in sufficient detail indicating if the mining is open pit or underground plus the source and type of mineralisation, domain or ore body, surface dumps, stockpiles and all other sources.
		(Iv)			Reconciliation of historic reliability and reconciliation of the performance parameters, assumptions and modifying factors. A comparison with the previous Reserve quantity and qualities, if available. Where appropriate, any historic trends (e.g., global bias).
6.2	**Classification Criteria**	(i)			Criteria and methods used as the basis for the classification of the Mineral Reserves into varying confidence categories, which should be based on the Mineral Resource category, and include consideration of the confidence in all the Modifying Factors.
6.3	**Reporting**	(i)			The proportion of Probable Mineral Reserves, which have been derived from Measured Mineral Resources (if any), including the reason(s) therefore.
		(ii)			The inclusion in a Mineral Reserve statement of the detail of open pit, underground, residue stockpile, remnants, tailings, and existing pillars or other sources.
		(iii)			A comparison with the previous Mineral Reserve estimates. Any historic trends (e.g., global bias).
		(iv)		The inclusion or exclusion of Mineral Resources in Mineral Reserves.	

			Exploration Results	Mineral Resources	Mineral Reserves
Section 7: Audits and Reviews					
7.1	**Audits and Reviews**	(i)	Type of review/audit (e.g., independent, external), area (e.g., laboratory, drilling, data, environmental compliance etc.), date and name of the reviewer(s) together with their recognised professional qualifications. The level of review/audit (desk-top, on-site comparison with standard procedures, or endorsement where auditor/reviewer has checked the work to the extent they stand behind it as if it were their own work).		
		(ii)	The level and conclusions of relevant audits or reviews. Significant deficiencies and remedial actions required.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 8: Other Relevant information					
8.1	**Other relevant information**	(i)	Other relevant and material information not discussed elsewhere.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 9: Competent Person					
9.1	**Qualification of Competent Person(s) and key technical staff**	(i)	The full name of the Competent Person, their registration number and the name of the professional organisation (PO or RPO), of which the Competent Person(s) is a member. The relevant experience of the Competent Person(s) and other key technical staff who prepared and are responsible for the Public Report.		
	Relationship to the issuer	(ii)	The Competent Person's relationship to the issuer of the report, if any.		
		(iii)	The inclusion of the Certificate of the Competent Person (see Appendix 2). Such Certificate should include the date of sign-off and the effective date of the report.		

TABLE 2 - GUIDELINE FOR TECHNICAL STUDIES

This guideline to Technical Studies is provided as a guide to the compilation of the various studies relating to Mineral Resources and Mineral Reserves. It is designed to be read in conjunction with Table 1.

Scoping Studies, Pre-Feasibility Studies, Feasibility Studies (and Life of Mine Plan studies) analyse and assess the same geological, engineering, and economic factors with increasing detail and precision. Therefore, the same criteria may be used as a framework for reporting the results of all these studies.

If considered appropriate, the Competent Person may use the Association for the Advancement of Cost Engineers (AACE) International Guide 47R-11 for the Mining and Mineral Processing Industries (as amended) or other internationally-recognised and accepted guidelines.

TABLE 2 – GUIDELINE FOR TECHNICAL STUDIES			
Item	**Scoping Study**	**Prefeasibility Study**	**Feasibility Study**
Resource categories	Mostly Inferred	Mostly Indicated	Measured and Indicated
Reserve categories	None	Mostly Probable	Proved and Probable
Mining method and geotechnical constraints	Conceptual	Preliminary Options	Detailed and Optimised
Mine design	None or high-level conceptual	Preliminary mine plan and schedule	Detailed mine plan and schedule
Scheduling	Annual approximation	3-monthly to annual	Monthly for much of payback period
Mineral Processing	Metallurgical test work	Preliminary Options	Detailed and Optimised
Permitting - (water, power, mining, prospecting & environmental)	Required permitting listed	Preliminary applications submitted	Authorities engaged, and applications submitted
Social licence to operate	Initial contact with local communities	Formal communication structures and engagement models in place	Contracts/agreements in place with local communities and municipalities (local government)
Risk tolerance	High	Medium	Low

Item	Scoping Study	Prefeasibility Study	Feasibility Study
Basis of Capital Estimate			
Civil/structural, architectural, piping/HVAC, electrical, instrumentation, construction labor, construction labor productivity, material volumes/amounts, material/equipment, pricing, infrastructure	Order-of-magnitude based on historic data or factoring. Engineering < 5% complete.	Estimated from historic factors or percentages and vendor quotes based on material volumes. Engineering at 5-25% complete.	Detailed from engineering at 20% to 50% complete, estimated material take-off quantities, and multiple vendor quotations
Contractors	Included in unit cost or as a percentage of total cost	Percentage of direct cost by area for contractors; historic for subcontractors	Written quotes from contractor and subcontractors
Engineering, procurement, and construction management (EPCM)	Percentage of estimated construction cost	Key parameters, Percentage of detailed construction cost	Detailed estimate
Owner's costs	Factored, benchmark, database or historic estimate	Budgeted quotes on key parameters and estimates from experience, factored from similar project	Detailed estimate
Environmental compliance / Closure Cost	Factored from historic estimate	Estimate from experience, factored from similar project	Estimate prepared from detailed zero-based budget for design engineering and specific permit requirements
Escalation	Not considered	Based on entity's current budget percentage	Based on cost area with risk
Accuracy Range (Order of magnitude)	± 25-50%	± 15-25%	± 10-15%
Contingency Range (Allowance for items not specified in scope that will be needed)	± 30%	15-30%	10% - 15% (actual to be determined based on risk analysis)

Item	Scoping Study	Prefeasibility Study	Feasibility Study
Basis of Operating Costs			
Operating Costs	Order-of-magnitude based on historic data or factoring	Estimated from historic factors or percentages and vendor quotes based on material volumes	Detailed estimate
Operating quantities	General	Specific estimates with some factoring	Detailed estimates
Unit costs	Based on historic data for factoring	Estimates for labor, power, and consumables, some factoring	Letter quotes from vendors; minimal factoring
Accuracy Range	± 25-50%	15% - 25%	10% - 15%
Contingency Range (Allowance for items not specified in scope that will be needed)	± 25%	± 15%	± 10% (actual to be determined based on risk analysis)

APPENDIX 1 – GENERIC TERMS AND EQUIVALENTS

Throughout the Template, 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 below together with other terms that may be regarded as synonymous for the purposes of this document.

Generic Term	Synonyms or similar terms	Intended generalised meaning
Beneficiation	Processing, Preparation, Concentration, Smelting and refining	Physical and/or chemical separation of constituents of interest from a larger mass of material. Methods employed to prepare a final marketable product from material as mined. Examples include screening, flotation, magnetic separation, leaching, washing, roasting, smelting and refining etc.
Clawback rights		A financial or other benefit that is given but is later taken back under defined circumstances.
Competent Person	Qualified Person (Canada) Qualified Competent Person (Chile)	Refer to Template Clause 3.6 for the definition of a Competent Person.
Cut-off grade	Product specifications	The lowest grade, or quality, of mineralised material that qualifies as economically mineable and available in a given deposit. May be defined on the basis of economic evaluation, or on physical or chemical attributes that define an acceptable product.
Diamond	Gemstones	Diamonds and other gemstones with the same characteristics.
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.
Mineral	Material of economic interest	Material of economic interest, when used in the context of Mineral Resource and Reserve determination, includes mineralisation, including dumps and tailings, mineral brines, and other resources extracted on or within the earth's crust. It does not include oil and gas resources resulting from oil and gas producing activities, gases (e.g., helium and carbon dioxide), geothermal fields, or water.
Mineral Reserves	Ore Reserves	'Mineral' is preferred under the Template but 'ore' is in common use and is generally acceptable. Other descriptors can be used to clarify the meaning e.g., coal reserves, diamond reserves etc.
Mineralisation	Type of deposit, orebody, style ofmineralisation.	Any single mineral or combination of minerals occurring in a mass, or deposit, of economic interest. The term is intended to cover all forms in which mineralisation might occur, whether by class of deposit, mode of occurrence, genesis or composition.
Mining	Quarrying	All activities related to extraction of metals, minerals and gemstones from the earth whether surface or underground, and by any method (e.g., quarries, open cast, open cut, solution mining, dredging etc.).

Generic Term	Synonyms or similar terms	Intended generalised meaning
Proved	Proven	Represents the Reserve estimate.
Recovery	Yield	The percentage of material of initial interest that is extracted during mining and/or processing. A measure of mining or processing efficiency.
Tonnage	Quantity, Volume	An expression of the amount of material of interest irrespective of the units of measurement (which should be stated when figures are reported).

APPENDIX 2 – CERTIFICATE OF COMPETENT PERSON

This Certificate of Competent Person is given only as a guide to the Competent Person. It is designed to incorporate all of the requirements of the [National Code or Standard].

Certificate of Competent Person

As the author of the report entitled [report title], I hereby state:

1. My name is [Competent Person's name] and [details – position in company, company name, address].
2. [Profession and details of registration body].
3. [Qualifications]
4. [Relevant experience].
5. I am a 'Competent Person' as defined in the [National Code or Standard].
6. [Work undertaken or services rendered].
7. [Site inspection details].
8. [Details of aspects of this report for which the Competent Person is responsible].
9. I am not aware of any material fact or material change with respect to the subject matter of the Report that is not reflected in the Report, the omission of which would make the Report misleading.
10. I declare that this Report appropriately reflects the Competent Person's/author's view.
11. I am independent/not independent of [name of issuer].
12. I have read the National Code or Standard and the Report has been prepared in accordance with the guidelines of the [National Code or Standard].
13. I do not have, nor do I expect to receive, a direct or indirect interest in the [project/mine details] or [name of issuer] **OR** I am an [employee/shareholder/director or other interested party] in respect of the issuer [name of issuer] or the project/mine. **OR** I have no conflicts of interest in respect of the issuer [name of issuer] or the project/mine.
14. At the effective date of the Report, to the best of my knowledge, information and belief, the Report contains all scientific and technical information that is required to be disclosed to make the Report not misleading.

Dated at [place] and [date].

[Signed]_____

[Name of Competent Person]

[Name of PO or RPO]

APPENDIX 3 – REPORTING OF MINERALISED FILL, PILLARS, LOW GRADE MINERALISATION, STOCKPILES, DUMPS AND TAILINGS

Code

A3-1 The Template applies to the reporting of all potentially economic mineralised material. This can include mineralised fill, remnants, pillars, low grade mineralisation, stockpiles, dumps and tailings (remnant materials) where there are reasonable prospects for economic extraction in the case of Mineral Resources, and where extraction is reasonably justifiable in the case of Mineral Reserves.

A3-2 Unless otherwise stated, all other Clauses of the Template (including Figure 1) apply.

A3-3 Table 1, as part of the Template, should be considered persuasive when reporting on mineralised fill, remnants, pillars, low grade mineralisation, stockpiles, dumps and tailings.

A3-4 Any mineralised material as described in this Appendix can be considered to be similar to in situ mineralisation for the purposes of reporting Mineral Resources and Mineral Reserves. Judgements about the mineability of such mineralised material should be made by professionals with relevant experience.

A3-5 If there are no reasonable prospects for the economic extraction of allor part of the mineralised material as described in this Appendix, then this material cannot be classified as either Mineral Resources or Mineral Reserves.

A3-6 If some portion of the mineralised material is currently sub-economic, but there is areasonable expectation that it will become economic, then this material may be classified as a Mineral Resource.

A3-7 If technical and economic studies have demonstrated that economic extraction could reasonably be justified under realistically assumed conditions, then the material may be classified as a Mineral Reserve.

Guidance

The above Clauses apply equally to low grade in situ mineralisation, sometimes referred to as 'mineralised waste' or 'marginal grade material', and often intended for stockpiling and treatment towards the end of mine life.

For clarity of understanding, it is recommended that tonnage and grade estimates of such material be itemised separately in Public Reports, although they may also 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.

Mineralised material in the course of being processed (including leaching), if reported, should be reported separately.

APPENDIX 4 – REPORTING OF COAL EXPLORATION RESULTS, RESOURCES AND RESERVES

Code	A4-1	The clauses in this appendix address matters that relate specifically to the public reporting of Coal Exploration Results, Coal Resources and Coal Reserves.
	A4-2	Unless otherwise stated, all other Clauses of the Template (including Figure 1) apply.
	A4-3	Table 1, as part of the Template, should be considered persuasive when reporting on Coal Resources and Reserves.
Guidance		*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'.*
Code	A4-4	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.
	A4-5	'Marketable Coal Reserves', representing beneficiated or otherwise enhanced coal product where modifications due to processing have been considered in addition to mining factors such as dilution, may be publicly reported in conjunction with, but not instead of, reports of Coal Reserves.
	A4-6	The basis of the predicted yield to achieve Marketable Coal Reserves should be stated.
	A4-7	Reference to all coal products and properties must not be made until specific properties are demonstrated by analytical results for samples from the deposit.

TABLE 1 – SECTION 10			Exploration Results	Mineral Resources	Mineral Reserves
Section 10: Reporting for Coal Resources and Coal Reserves					
10.1	**Specific Reporting for Coal**	(i)	Appendix 4 of the Template provides additional criteria for reporting on coal deposits.		
		(ii)	Guidance is available in relevant national standards for Coal Exploration Results, Coal Resources and Coal Reserves reporting		
10.2	**Geological Setting, Deposit, Mineralisation**	(i)	The project geology including coal deposit type, geological setting and coal seams / zones present.		
		(ii)	The structural complexity, physical continuity, coal rank, qualitative and quantitative properties of the significant coal seams or zones on the property.		
10.3	**Drilling Techniques**	(i)	Core recoveries and method of calculation. Core recoveries in cored boreholes should be in excess of 95% by length within the coal seam intersection.		
10.4	**Relative Density to replace Bulk Density**	(i)	The apparent relative density or true relative density of the coal seam(s) determined on coal samples from borehole cores using recognized standard laboratory methods or commonly used procedures. The moisture basis on which the relative density determination is based and the moisture basis on which the final density value is reported (in situ or air-dried basis), should be stated.		
10.5	**Bulk-Sampling and/or trial-mining**	(i)	The purpose or aim of the bulk sampling programme, the size of samples, and spacing/density of samples recovered. The applicability of bulk sampling or large diameter core samples to provide representative samples for tests. Comparison of results obtained from bulk sampling versus exploration sampling..		
10.6	**Reasonable prospects for economic extraction**	(i)	The basis on which reasonable prospects for economic extraction have been determined. Any material assumptions made in determining the 'reasonable prospects for economic extraction		
10.7	**Coal Resource and Reserve Reporting**	(i)		The appropriate coal quality for all Coal Resource and Reserve categories. The type of analysis (e.g., raw coal, washed coal at a specific cut-point density) and the basis of reporting of the coal quality parameters (e.g., air-dried basis, dry basis, etc.).	
		(ii)		A Coal Resource only includes the coal seam(s) above the minimum thickness cut-off and the coal quality cut-off(s).	The Reserves may be reported as ROM tonnages and coal quality, and also as Saleable product/s tonnages and coal quality.
		(iii)		The reporting basis with particular reference to moisture and relative density.	

APPENDIX 5 – REPORTING OF DIAMOND AND OTHER GEMSTONE EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES

Code	A5-1	Clauses in this Appendix address matters that relate specifically to the public reporting of Exploration Results, Mineral Resources and Mineral Reserves for diamonds and other gemstones.
	A5-2	Unless otherwise stated, Clauses 1 to 13 of the Template (including Figure 1) apply.
	A5-3	Table 1, as part of the Template, should be considered persuasive when reporting Exploration Results, Mineral Resources and Mineral Reserves for diamonds and other gemstones.
Guidance		*For the purposes of public reporting, the requirements for diamonds and other gemstones are generally similar to those for other commodities with the replacement of terms such as 'mineral' by 'diamond' and 'grade' by 'grade and average diamond value'. The term 'quality' should not be substituted for 'grade,' since in diamond deposits these have distinctly separate meanings.* *A number of characteristics of diamond deposits are different from those of, for example, typical metalliferous and coal deposits and require special consideration. These include the generally low mineral content and variability of primary and placer deposits, the particulate nature of diamonds, the specialised requirement for diamond valuation and the inherent difficulties and uncertainties in the estimation of diamond resources and reserves.*
Code	A5-4	Reports of diamonds 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 diamonds.
	A5-5	The weight of diamonds recovered may only be omitted from the report when the diamonds are considered to be too small to be of commercial significance. This lower cut-off size should be stated.
Guidance		*The stone size distribution and price of diamonds 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 appreciation of the likely stone size distribution and price is necessary, however preliminary. To determine an Inferred 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 Resource, and from there to a Probable 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 diamonds 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.

Code

A5-6 Where Diamond Resource or Diamond Reserve grades (carats per tonne) are based on correlations between the frequency of occurrence of micro-diamonds and of commercial size stones, this must be stated, the reliability of the procedure must be explained and the cut-off size sieve for micro-diamonds reported.

A5-7 Where sample results (size-frequency distributions for types of stones) have been adjusted or prices adjusted to produce a 'model' different from the actual distribution and value of a bulk sample, a comparison must be made of the actual and model size-frequency distributions and prices.

A5-8 For Public Reports dealing with diamond or other gemstone mineralisation, it is a requirement that any reported valuation of a parcel of diamonds or gemstones beaccompanied by a statement verifying the independence of the valuation.

A5-9 The valuation must be based on a report from a demonstrably reputable and qualified expert.

A5-10 If a valuation of a parcel of diamonds is reported, the weight in carats and the lower cut-off size of the contained diamonds must be stated and the value of the diamonds must be given in US dollars per carat.

A5-11 If a valuation of a parcel of diamonds is reported, the weight in carats and the lower cut-off size of the contained diamonds must be stated, and the value of the diamonds must be given in US dollars per carat.

A5-12 Where the valuation is used in the estimation of Diamond Resources or DiamondReserves, the valuation must be based on a parcel representative of the size, shape and colour distributions of the diamond population in the deposit.

A5-13 Diamond valuations should not be reported for samples of diamonds processed using total liberation methods.

TABLE 1 – SECTION 11			Exploration Results	Mineral Resources	Mineral Reserves
Section 11: Reporting of Diamonds and Gemstones					
11.1	**Specific Reporting for Diamonds and Gemstones**	(i)	Criteria applicable to diamond deposits are also applicable to other gemstone deposits.		
		(ii)	Appendix 5 provides additional criteria for reporting on diamonds and other gemstones.		
11.2	**Geological Setting, Deposit, Mineralisation**	(i)	The nature of the source of the diamonds, including the rock type and geological environment.		
11.3	**Sampling of Diamond Projects**	(i)	The type of sample (outcrop, boulder, drill-core, RC drill cuttings, gravel, stream sediment or soil) and purpose (for example: RC drilling to identify gravel thickness, large-diameter drilling to establish stones per unit of volume, bulk-sample, etc.).		
		(ii)	Sample size, distribution and representivity.		
		(iii)	The type of sample facility, treatment rate and accreditation.		
		(iv)	Sample size reduction, bottom and top screen sizes and any re-crush.		
		(v)	The sample processes (e.g., DMS, grease, X-Ray, hand-sorting, etc.).		
		(vi)	Process efficiency, tailings auditing and granulometry.		
		(vii)	The laboratory used, type of process for micro-diamonds and accreditation. Reports of microdiamond recoveries should specify both the number of stones recovered and the top and bottom screen or crushing sizes used in the recovery process.		
		(viii)	Reports of kimberlitic indicator minerals (KIM's), such as chemically/physically distinctive garnet, ilmenite, chrome spinel and chrome diopside, should be prepared by a suitably qualified laboratory which should be identified.		
		(ix)	Reports of recoveries of diamonds or KIM's from all samples accompanied by details of the sampling parameters used – type of sample (stream sediment, soil, bulk, rock, etc.) as well as sample size, sample frequency, representivity and screen parameters are required.		
		(x)	Relevance of major and trace element chemistry of any kimberlitic indicator minerals recovered. Relevant peer-reviewed published research articles referenced when reporting the interpretation of mineral chemistry data for diamond exploration projects. NOTE: Mineral chemistry does not provide direct grade or diamond value information, and may not be used to infer these parameters for Mineral Resource estimation purposes.		
		(xi)	Where diamonds have been recovered, details of the form, shape, colour and size of the diamonds and, where relevant, the nature of the source of the diamonds.		
11.4	**Bulk Sampling and/or trial-mining**	(i)	Relevant tabulated results, including (but not limited to) volume of sample, number of individual diamonds, total number of carats, sample grade, diamond value (it is not possible to evaluate diamond quality from microdiamonds).		
		(ii)	Micro and macro diamond sample results per geological domain.		
		(iii)	Stone-size and stone-number distribution.		
		(iv)	The lower cut-off size should be stated.		
		(v)	A carat (diamond) is defined as one fifth of a gram (0.2 g) – often described as a metric carat. Any deviation from this standard should be explained in detail. Sample grade is used in the context of carats per units of mass, area or volume. The sample grade above the specified lower cut-off sieve size should be reported as carats per dry metric tonne and/or carats per 100 dry metric tonnes. For placer deposits, sample grades quoted in carats per tonne or carats per m^3 are acceptable. In the marine placer environment Diamond Reserve grades are, typically, reconciled on a per m^2 basis.		

TABLE 1 – SECTION 11			Exploration Results	Mineral Resources	Mineral Reserves
Section 11: Reporting of Diamonds and Gemstones (continued)					
11.5	**Estimation and Modelling Techniques**	(i)	Estimation techniques (including geostatistical estimation, where relevant) used to determine the volume/tonnage, grade and value data applicable to the deposit type.		
		(ii)	Applicable volumes, grades and values expressed in ranges (with appropriate clarifiers to denote lack of reliability of data).		
		(iii)	If grades are reported then it should be stated clearly whether these are regional averages, based on microdiamond assessment, KIM analyses, or if they are selected individual samples taken from the property under discussion.	The basis for grade estimation for Diamond Resources should be from bulk-sampling or large diameter drilling (or extrapolated from microdiamond data) derived from the property itself.	The basis for grade estimation for Diamond Reserves should be from bulk-sampling and/or trial-mining.
		(iv)	If grades are reported then it should be stated clearly whether these are regional averages or if they are selected individual samples taken from the property under discussion.		
		(v)	The occurrence of individual diamonds or microdiamonds in surficial deposits or from inadequate samples (too small to be statistically valid) from a primary or secondary rock source would not typically qualify as an exploration target. This may not be true for marine deposits, in which case further explanation and discussion would be necessary.		
		(vi)	Volume, grade and value estimation (including geostatistical, where relevant) and interpolation techniques applied and their applicability to the deposit type.		
		(vii)	Reports of diamond properties should specify the number and total weight (in carats) of diamonds recovered. The weight of diamonds recovered may only be omitted from the report when the diamonds are less than 0.5 mm in size (i.e. when the diamonds recovered are microdiamonds).		
11.6	**Resource/ Reserve Classification Criteria**	(i)		A Diamond Resource / Reserve should not be reported in terms of contained diamond content unless corresponding tonnages / volumes, grades and values are also reported. The average diamond grade and value should not be reported without specifying the applicable Bottom Cut-off Screen Size.	
		(ii)		In addition to general requirements to assess volume and density there may be a need to relate stone frequency (stones per cubic metre, per tonne, or per square metre) to stone size (carats per stone) to derive grade (carats per cubic metre, per tonne or per square metre). The elements of uncertainty in these estimates should be considered, and Diamond Resource classification developed accordingly.	
		(iii)		Present aspects of: -micro and macro diamond sample results per domain; - global sample grade per geological domain and local block estimates in the case of Indicated Resources; - spatial structure analysis and grade distribution; - stone size and number distribution, and - effect on sample grade with change in bottom cut off screen size.	
		(iv)		<u>Sample grade</u> - the sample grade above the specified lower cut-off sieve size as carats per dry metric tonne and/or carats per 100 dry metric tonnes; - for alluvial deposits, sample grades quoted in carats per (100) square metre or carats per (100) cubic metre are acceptable be accompanied by a volume to weight basis for calculation, where relevant; - adjustments made to size distribution for sample plant performance and performance on a commercial scale;, - the total number of diamonds and the total weight of diamonds greater than the specified and reported bottom cut-off sieve size; - the weight of diamonds may only be omitted when the diamonds are considered too small to be of commercial significance, and - this lower cut-off size should be stated.	

TABLE 1 – SECTION 11			Exploration Results	Mineral Resources	Mineral Reserves
Section 11: Reporting of Diamonds and Gemstones (continued)					
11.6 ***(continued)***	**Resource/ Reserve Classification Criteria** ***(continued)***	(v)		Value - diamond valuation is a highly specialized process and is only possible on parcels containing appropriate numbers of macro-diamonds; - it is not possible to evaluate diamond quality from microdiamonds; - Classification of diamonds as, for example, gem, or near gem and industrial, should be made by recognized experts. - valuations should not be reported for samples of diamonds processed using total liberation method, which is commonly used for processing kimberlite exploration samples; - the number of stones and the total number of carats used in the grade and value estimation should be disclosed and accompanied by a discussion of the validity of this data; - the accreditation of the Valuer should be disclosed. Valuations of partial parcels of diamonds should not be used as a basis for the estimation of average revenue from a diamond deposit; - details of parcel valued, number of stones, carats and size distribution using a standard progression of sieve sizes for each identified geological domain; - average valuation per sieve size; - estimation of value with size; - assessment of diamond breakage; - average USD/carat and/or USD/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 diamonds below the bottom cut-off?, and - the basis for the price (e.g., dealer buying price, dealer selling price, etc.) should also be stated.
11.7	**Security and integrity of sampling**	(i)	Whether samples were sealed after excavation and the chain of custody from source to reporting of results.		
		(ii)	Security standards in sampling plant and recovery sections of bulk-sampling/trial-mining programmes for macro diamonds.		
		(iii)	Valuer location, escort, delivery, cleaning losses, reconciliation with recorded sample carats and number of stones.		
		(iv)	Core samples washed prior to treatment for micro-diamonds and use of diamond drill-bits.		
		(v)	Audit samples treated at alternative facilities.		
		(vi)	Results of tailings checks.		
		(vii)	Recovery of tracer monitors used in sampling and treatment.		
		(viii)	Geophysical (logged) density and particle density.		
		(ix)	Cross-validation of sample weights, wet and dry, with hole volume and density, moisture factor.		

APPENDIX 6 – REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES FOR INDUSTRIAL MINERALS, CEMENT FEED MATERIALS AND CONSTRUCTION RAW MATERIALS

Code

A6-1 Clauses in this Appendix address matters that relate to the public reporting of industrial minerals, cement feed materials and construction raw materials of all forms that are generally sold on the basis of their product specifications and market acceptance.

A6-2 Unless otherwise stated, Clauses 1 to 13 of the Template (including Figure 1) apply.

A6-3 Table 1, as part of the Template, should be considered persuasive when reporting Exploration Results, Mineral Resources and Mineral Reserves for industrial minerals, cement feed materials and construction raw materials.

A6-4 When reporting information and estimates for industrial minerals, cement feed materials and construction raw materials, all of the key principles and purpose of the Template apply. Chemical analyses may not always be relevant, and other quality and performance characteristics may be more applicable and acceptable as the basis of the reporting.

A6-5 Some industrial mineral, cement feed materials and construction raw material deposits may be capable of yielding products suitable for more than one application and/or specification. If considered material by the Competent Person, such multiple products should be quantified either separately or as a percentage of the bulk of the deposit.

A6-6 Unless it is a specific aspect of their instructions to reflect the range of product mixes and target markets for the deposit, the Competent Person should normally report the reserves and resources within the framework of an existing mining plan or established set of product and market assumptions and objectives.

A6-7 If there is potential for ancillary products, or mining or process waste, to be sold off-site for subsidiary uses in addition to the planned sales of primary products (i.e., other uses for non-saleable quarry production, such as secondary aggregate or engineering or other fill), the Competent Person should reflect this in their report and comment on any significant implications (e.g., reductions in the amount of non-saleable material that could otherwise be used as a restoration material).

A6-8 The factors underpinning the estimation of Mineral Resources and Mineral Reserves for industrial minerals, cement feed materials and construction raw materials are the same as those for other deposit types covered by the Template. 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.

A6-9 For industrial minerals, cement feed materials and construction raw materials, it is common practice to report the saleable (or useable) product rather than the 'as mined' product as it is recognised that commercial sensitivities may not permit the publication of Mineral Resources and Reserves in the latter format which is the preferred style of reporting within the Template.

A6-10 It is important that, in all situations where the saleable or usable product is reported, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

A6-11 Reports should make clear the 'permitted' or 'non-permitted' status of the resources and reserves, and, in addition, reserves particularly should only be quoted where the operator has legal control.

Guidance

It should be noted that many of the Modifying Factors are more relevant to industrial minerals, cement feed materials and construction raw materials than to metalliferous minerals. Specifically the legal control may be more important, as well as the permitting status, due to the local nature of the planning process for non - strategic and non - government owned minerals.

Code

A6-12 Mineral Reserves and Mineral Resources of industrial minerals, cement feed materials and construction raw materials serving localised or regional markets may be reported on an aggregated basis on an appropriately defined geographical basis to reflect the particular economic constraints of the deposits being reported without divulging commercially sensitive information.

A6-13 In certain cases, commercial sensitivity may prevent the publication of detailed information and data associated with Mineral Resources and Mineral Reserves of industrial minerals, cement feed materials and construction raw materials, and in such cases, this should be clearly justified in the report (either prepared for an individual site or on an aggregated basis).

TABLE 1 – SECTION 12			Exploration Results	Mineral Resources	Mineral Reserves
Section 12: Reporting of Industrial Minerals, Cement Feed Materials and Construction Raw Materials					
12.1	**Specific Reporting of Industrial Minerals, Cement Feed Materials and Construction Raw Materials**	(i)	Appendix 6 provides additional criteria for reporting on Industrial Mineral, Cement Feed Materials and Construction Raw Materials deposits.		
		(ii)	The exploration or geologically specific specialised industry techniques appropriate to the minerals under investigation.		
		(iii)	The nature and quality of sampling or specific specialised industry standard measurement tools appropriate to the minerals under investigation.		
		(iv)	Appropriate saleable product qualities. The basis for reporting (physical or chemical parameters, air-dried basis, dry basis, etc.). Deleterious chemical elements or physical parameters.		
		(v)	Assumptions regarding in particular: extraction methods, infrastructure, processing, environmental and social parameters. Where no mining related assumptions have been made, this should be explained.		
		(vi)	Marketing parameters, customer specifications, testing, and acceptance requirements.		
		(vii)	The nature, amount and representativeness of metallurgical/processing studies completed which form the basis for the various saleable materials which may be priced for different chemical and physical characteristics.		
		(viii)	Where the reference point is a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.		

APPENDIX 7 – REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES FOR DIMENSION STONE, ORNAMENTAL AND DECORATIVE STONE

Code	A7-1	Clauses in this Appendix address matters that relate to the public reporting of dimension stone, ornamental and decorative stone of all forms that are generally sold on the basis of their technical (geological/mining) product specifications, quality and market acceptance.
	A7-2	Unless otherwise stated, Clauses 1 to 13 of the Template (including Figure 1) apply.
	A7-3	Table 1, as part of the Template, should be considered persuasive when reporting Exploration Results, Mineral Resources and Mineral Reserves for dimension stone, ornamental and decorative stone.
Guidance		*'Dimension stone' is a technical/commercial term that includes all natural stones that can be quarried in blocks of different dimensions and processed by cutting or splitting, and that possess the technical and aesthetic properties required for their use in the building and construction industries.* *In both mining methods and fields of application, dimension stone is distinct from any other material derived from natural rocks (such as: aggregates, cement materials, crushed stone, etc.) Whilst other materials are almost exclusively used for load bearing and filling functions and are largely utilised in public works, dimension stone materials offer special qualitative features which mean they can be used for different purposes and they can perform both structural and decorative architectural functions.* *In general, dimension stones can be quarried in regular and/or unshaped blocks by using different mining methods (drilling & splitting, diamond wire and diamond chain-saw cutting) and processed (cut, polished, and subjected to other surface treatments) to produce semi-finished products (slabs) and finished products (tiles and cut-to-size products).*
Code	A7-4	Chemical analyses may not always be relevant for material evaluation, at least during the exploration-evaluation phases. Where necessary, chemical analysis is used to verify the presence of possible minerals and related alteration that could produce important quality defects on finished products.
	A7-5	Chemical/compositional analysis may also identify mineral components and/or assemblages and is used to predict the future technical requirements of the quarrying-processing equipment and related tools.

A7-6 Qualitative and aesthetic qualities (colour, grain, texture and their regularity in distribution) and/or their structural performance characteristics (compression and flexural strength, abrasion resistance, porosity, ability to be polished, radioactivity content, etc.) may be more important for the market and applicable and acceptable as the basis of the reporting.

A7-7 Many dimension stone deposits may be capable of yielding different products (different materials and/or different market grades within the same material), suitable for the production of more than one finished or semi-finished product, and for more than one final application and/or specification. They often are sold in the market with different prices.

A7-8 If considered material by the Competent Person, estimates for such multiple products should be included either separately or as percentages of the bulk of the deposit.

A7-9 Unless it is a specific aspect of their instructions to reflect the range of products mixes and target markets for the deposit, the Competent Person should normally report the Mineral Resources and Mineral Reserves within the framework of an existing mining plan and/or feasibility study or established set of products and market assumptions and objectives.

A7-10 If there is potential for ancillary products or by-products, or for quarrying or processing waste to be re-utilised or to be sold off-site for subsidiary uses, in addition to the planned sales of the primary products as described above (e.g., aggregate, sand and powder as industrial mineral, building and paving stone, etc.), the Competent Person should reflect this in the report and comment on any significant implications (e.g., reduction in the amount of non-saleable material, minimisation of waste and related lower waste management costs and environmental impact).

Guidance

The factors underpinning the estimation of Mineral Resources and Mineral Reserves for dimension stones are often not the same as those for other deposit types covered by the Template.

It may be necessary, prior to the reporting of Mineral Resources and Mineral Reserves, to take account of certain particular key characteristics/features of the target material specific to dimension stone.

These may include final product specifications, proximity to markets, type, structure and demand of the market (very different area by area and, excluding some very well- established materials, possible changes in market requirements, and general product marketability.

These may also depend mainly on the market quality of the target material (colour, grain, texture and their regularity in distribution). A correct professional evaluation of the Market Quality, made by the Competent Person in different ways, is the key to evaluating the final product marketability and is a key Modifying Factor in definition of Mineral Reserves for dimension stone.

The Competent Person should explain in detail in the report, the method utilised for the Market Quality evaluation of the target dimension stones, and in case of the market the references cited, together with documents referenced or used.

Sometimes, otherwise non-saleable materials are sent off-site as mining waste or as other materials of potential economic value.

Care should be taken to ensure that such materials are not 'double-counted' by being included as Mineral Resources and Mineral Reserves at both the site of production and at the site of reception where they are considered as useable products (with or without further processing to make them marketable).

Code

A7-11 In contrast with industrial minerals, cement feed materials and construction raw materials (Appendix 6), for which it is common practice to report the saleable (or useable) product rather than the 'as mined' product, for dimension stones production the raw block or 'as mined' product is usually reported in all its forms, shapes and dimensions. These are also factors that drive the market and the success of a dimension stone project.

A7-12 The Public Report may contain either the geological or commercial names of target dimension stones. In any case an explanation of these terms should be included in the report.

A7-13 Other industry guidelines on the estimation and reporting of dimension stones may be useful but will under no circumstances override the provisions and intention of this Template for public reporting.

A7-14 Many of the Modifying Factors are more relevant and specific to dimension stonesthan to metalliferous minerals. In particular, the legal control of Mineral Resources and Mineral Reserves may be very important, as well the permitting or consentingstatus, due to the local nature and often simple structure of the planning processfor non-strategic and non-government owned minerals.

Guidance

Reports should make clear the 'permitted' or 'non-permitted' status of the resources and reserves, and in addition reserves particularly should only be quoted where the operator has legal control.

Code

A7-15 Mineral Reserves and Mineral Resources of dimension stone deposits with the same material and owned by the same company, potentially serving localised/domestic or regional markets, may be reported on an aggregated basis on an appropriately defined geographical basis to reflect the particular economic constraints of the deposits being reported without divulging commercially sensitive information.

A7-16 In certain cases, commercial sensitivity may prevent the publication of detailed information and data associated with Mineral Resources and Mineral Reserves of dimension stone deposits, and in such cases this should be clearly justified in the report (either prepared for an individual site or on an aggregated basis).

TABLE 1 – SECTION 13			Exploration Results	Mineral Resources	Mineral Reserves
Section 13: Reporting of Dimension Stone, Ornamental and Decorative Stone					
13.1	**Specific Reporting of Dimension Stone, Ornamental and Decorative Stone**	(i)	Appendix 7 provides additional criteria for reporting on Dimension Stone, Ornamental and Decorative Stone.		
		(ii)	The exploration or geologically specific specialised industry techniques appropriate to the stone under investigation.		
		(iii)	The nature and quality of sampling or specific specialised industry standard measurement tools appropriate to the stone under investigation.		
		(iv)	The appropriate saleable product qualities reported, including colour, grain, texture and their regularity in distribution. The basis for reporting (physical or chemical parameters, compression and flexural strength, abrasion resistance, porosity, polishability etc.) should be reported. Reporting of deleterious chemical elements, radioactivity or physical parameters is required.		
		(v)	State assumptions regarding in particular extraction methods, infrastructure, processing, environmental and social parameters. Where no mining related assumptions have been made, this should be explained.		
		(vi)	Discuss and justify the marketing parameters, customer specifications, testing, and acceptance requirements.		
		(vii)	Discuss the nature, amount and representativeness of processing studies completed which form the basis for the various saleable materials which may be priced for different chemical and physical characteristics.		
		(viii)	Where the reference point is a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.		