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Application of the United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009 to solid minerals

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Changes to the CRIRSCO International Reporting Template July 2006 to November 2013

Note by the secretariat

I. Introduction

1. This report has been prepared based on the technical input of Mr. Roger Dixon, who is the representative of the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) on the Bureau of the Expert Group on Resource Classification. The report details the changes made to the CRIRSCO International Reporting Template (the Template) over the period July 2006[1] to November 2013[2]. The principal changes that were made were to the definitions. The revised definitions are subject to agreement and adoption by the National Reporting Organisations (NROs). The intent of CRIRSCO is to as far as possible have standard definitions, leading to common interpretation, across all participating NROs.

[1] http://www.crirsco.com/crirsco_template_v2.pdf
[2] http://www.crirsco.com/templates/crirsco_international_reporting_template_2013.pdf

2. The new and revised Standard Definitions were accepted for inclusion in the Template at the CRIRSCO Annual Meeting of 2013. The version of the Template dated November 2013 supersedes all previous versions of the Template.

II. Standards definitions

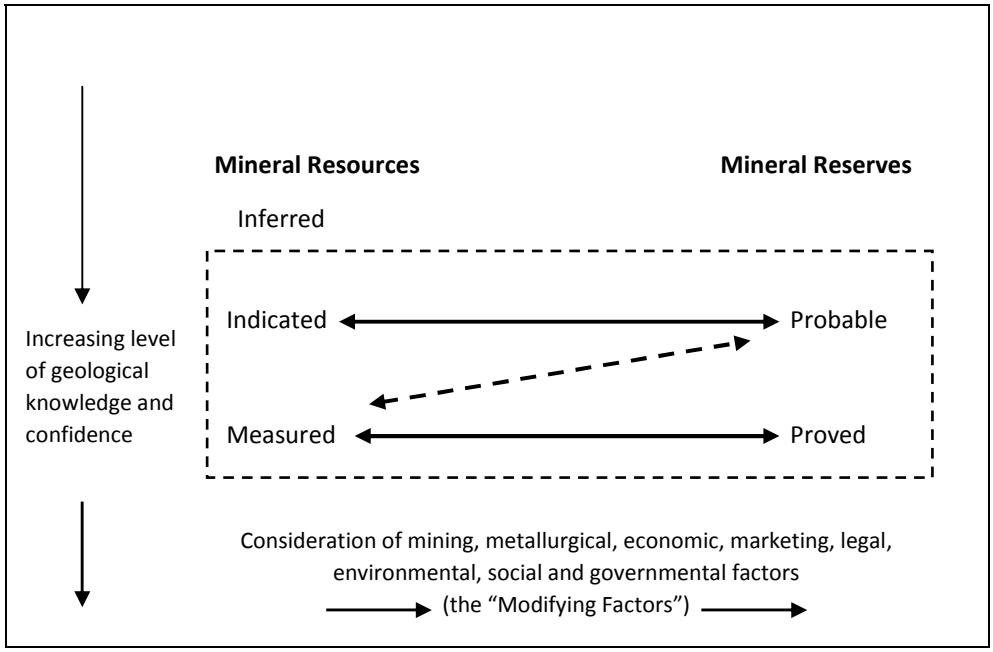
3. The following summarizes the outcome of discussions over the last three years reviewing a set of standard CRIRSCO definitions for inclusion in reporting standards of all CRIRSCO members subject to the agreement of the respective NROs.

4. The following definitions were revised. It is noted that Exploration Target and Scoping Study are new terms in the Template:

- Public reports
- Competent Person
- Modifying Factors
- Exploration Target
- Exploration Results
- Mineral Resource
- Inferred Resource
- Indicated Resource
- Measured Resource
- Mineral Reserve
- Probable Reserve
- Proved Reserve
- Scoping Study
- Pre-Feasibility Study
- Feasibility study

5. Defined terms (where referred to in the definitions) are underlined in the Template, however in this document those defined terms are emboldened (see paragraphs 6 to 34). The definitions should be considered in conjunction with Figure 1 in the CRIRSCO Template, which is shown as Figure 1 in this document.

Figure 1
General relationship between Exploration Results, Mineral Resources and Mineral Reserves, as set out in the CRIRSCO Template



A. Public Reports

6. Public Reports are reports prepared for the purpose of informing investors or potential investors and their advisers on Exploration Results, Mineral Resources or Mineral Reserves.

7. They include, but are not limited to annual and quarterly company reports, press releases, information memoranda, technical papers, website postings and public presentations.

B. Competent Person

8. A Competent Person[3] is a minerals industry professional (NRO to insert appropriate membership class and organization including Recognised Professional Organisations) with enforceable disciplinary processes including the powers to suspend or expel a member.

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

C. Modifying Factors

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

D. Exploration Target

11. 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 mineralization for which there has been insufficient exploration to estimate **Mineral Resources.**

E. Exploration Results

12. 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.**

F. Mineral Resource

13. A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.

[3] Note that various CRIRSCO members use a different term for the Competent Person, e.g. Canada (Qualified Person) and Chile (Qualified Competent Person). These alternative terms are considered to be directly equivalent to Competent Person.

14. 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.

G. Inferred Mineral Resource

15. 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.

16. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity.

17. An Inferred 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.

H. Indicated Mineral Resource

18. 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.

19. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

20. 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**.

I. Measured Mineral Resource

21. 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.

22. 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.

23. 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.**

J. Mineral Reserve

24. A Mineral Reserve is the economically mineable part of a **Measured** and/or **Indicated Mineral Resource**.

25. 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**.

26. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

27. The reference point at which Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

K. Probable Mineral Reserve

28. A Probable Mineral Reserve is the economically mineable part of an **Indicated**, and in some circumstances, a **Measured Mineral Resource**.

29. The confidence in the **Modifying Factors** applying to a Probable Mineral Reserve is lower than that applying to a **Proved Mineral Reserve**.

L. Proved Mineral Reserve

30. A Proved Mineral Reserve is the economically mineable part of a **Measured Mineral Resource**.

31. A Proved Mineral Reserve implies a high degree of confidence in the **Modifying Factors**.

M. Scoping Study

32. 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 at the time of reporting that progress to a

Pre-Feasibility Study can be reasonably justified.

N. Pre-Feasibility Study

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

O. Feasibility Study

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

III. Additional Changes to the Template over the period July 2006 to November 2013

35. Additional changes to the Template over the period were as follows:

A. Clause 15: Effective Date

36. A new Clause on "Effective Date" has been included:

- "Clause (15): Companies must review and publicly report on their Exploration Results, Mineral Resources and/or Mineral Reserves at least annually and the effective date of each Mineral Resource and Mineral Reserve statement must be shown. Companies are encouraged to provide information in their Public Reports, which is as comprehensive as possible. A company's economic interest in the project must be declared".

B. Clauses 30, 37, 38, 39: Technical studies

37. In the eighth paragraph of Clause 30 the wording "or Feasibility level" has been included:

- "Clause (30), paragraph 8: In order to achieve the required level of confidence in the Mineral Resources and all of the modifying factors studies to Pre-Feasibility or Feasibility level as appropriate will have been carried out prior to determination of the Mineral Reserves".

38. The definitions of Scoping Study, Pre-feasibility and Feasibility Study are provided in Clauses 37, 38 and 39 respectively and are part of the standard definitions previously provided (see paragraphs 32, 33 and 34 of this document respectively).

C. Clause 51: Reporting of Unconventional Energy resources

39. A new Clause on "Reporting of Unconventional Energy resources" has been included:

- "Clause (51): Where the "Unconventional Energy" resource is a solid mineral, then the CRIRSCO Template can be applied for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves".