

S-K 1300 Defined Terms

Stella Searston, RM SME¹ and Greg Gosson, P.Geo.²

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Introduction

The SEC's stated intention was to modernize their mining property disclosure requirements by closely aligning them with global standards, including those of the CRIRSCO-based reporting codes. However, the SEC did not want to be bound to current and future iterations and interpretations of CRIRSCO standards, including their definitions. Therefore, the SEC chose to provide their own set of definitions in Subpart 1300 of Regulation S-K, and they introduced a number of new terms. Thirty-one of these terms have formal definitions in § 229.1300 (Item 1300) Definitions, and five terms have no formal definition in that section, but are defined elsewhere within the rule.

The formal definitions are presented in alphabetical order in § 229.1300 (Item 1300) Definitions.

We have chosen to group the formal and informal term definitions by theme in this outline of the terms that registrants and QPs will need to understand. Where relevant, we have included guidance provided elsewhere in Regulation S-K 1300 to illustrate additional considerations that should be part of meeting the term as defined.

Material

The word “material” is defined in the Securities and the Exchange Acts, both of which use essentially the same principle in their definitions.

“Material *has the same meaning as under § 230.405 or § 240.12b–2.*”

§ 230.405: The term material, when used to qualify a requirement for the furnishing of information as to any subject, limits the information required to those matters to which there is a substantial likelihood that a reasonable investor would attach importance in determining whether to purchase the security registered;

§ 240.12b–2: The term “material,” when used to qualify a requirement for the furnishing of information as to any subject, limits the information required to those matters to which

¹ Mine Technical Services, 18124 Wedge Parkway, #924, Reno, Nevada 89511 USA; MTS contact: todd.wakefield@minetechnicalservices.com

² Wood plc, 111 Dunsmuir St, #400, Vancouver, BC V6B 5W3; Wood contact: greg.gosson@woodplc.com



there is a substantial likelihood that a reasonable investor would attach importance in determining whether to buy or sell the securities registered.”

[Authors’ Note: S-K 1300 qualifies many of the rules by the use of the term “material” such that certain rules only apply to material properties, material information, material changes, material activities, etc. The defined term “material” is used 14 times in the Technical Report Summary content description and 57 times in Regulation S-K 1300. However, be aware that many of the rules have no materiality test].

Exploration

Regulation S-K 1300 has two concepts that pertain to exploration: “exploration results” and “exploration target”.

Exploration Results

The defined term is as follows:

“Exploration results are data and information generated by mineral exploration programs (i.e., programs consisting of sampling, drilling, trenching, analytical testing, assaying, and other similar activities undertaken to locate, investigate, define or delineate a mineral prospect or mineral deposit) that are not part of a disclosure of mineral resources or reserves. A registrant must not use exploration results alone to derive estimates of tonnage, grade, and production rates, or in an assessment of economic viability.”

Exploration Target

The term definition is as follows:

“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 tonnage and a range of grade (or quality), relates to mineralization for which there has been insufficient exploration to estimate a mineral resource.

Regulation S-K 1300 provides additional guidance when reporting exploration targets.

“A registrant may disclose an exploration target, as defined, for one or more of its properties that is based upon and accurately reflects information and supporting documentation of a qualified person. The qualified person may include a discussion of an exploration target in a technical report summary.

Any disclosure of an exploration target must appear in a separate section of the Commission filing or technical report summary that is clearly captioned as a discussion of an exploration target. That section must include a clear and prominent statement that:

- *The ranges of potential tonnage and grade (or quality) of the exploration target are conceptual in nature;*
- *There has been insufficient exploration of the relevant property or properties to estimate a mineral resource;*
- *It is uncertain if further exploration will result in the estimation of a mineral resource; and*
- *The exploration target therefore does not represent, and should not be construed to be, an estimate of a mineral resource or mineral reserve.*

Any disclosure of an exploration target must also include:

- *A detailed explanation of the basis for the exploration target, such as the conceptual geological model used to develop the target;*
- *An explanation of the process used to determine the ranges of tonnage and grade, which must be expressed as approximations;*
- *A statement clarifying whether the exploration target is based on actual exploration results or on one or more proposed exploration programs, which should include a description of the level of exploration activity already completed, the proposed exploration activities designed to test the validity of the exploration target, and the time frame in which those activities are expected to be completed; and*
- *A statement that the ranges of tonnage and grade (or quality) of the exploration target could change as the proposed exploration activities are completed.”*

Historical Estimates

The concept of a historical mineral resource or mineral reserve estimate, or exploration results is considered in Regulation S-K 1300, but their disclosure is generally not allowed.

“A report containing one or more estimates of the quantity, grade, or metal or mineral content of a deposit or exploration results that a registrant has not verified as a current estimate of mineral resources, mineral reserves, or exploration results, and which was prepared before the registrant acquired, or entered into an agreement to acquire, an interest in the property that contains the deposit, is not considered current and cannot be filed in support of disclosure”.

The only allowance for reporting such an estimate is in the context of a merger, acquisition, or business combination, and even then, there are limitations as to when and what can be reported.

“Notwithstanding this prohibition, a registrant may include such an estimate in a Commission filing that pertains to a merger, acquisition, or business combination if the registrant is unable to update the estimate prior to the completion of the relevant transaction. In that event, when referring to the estimate, the registrant must disclose the source and date of the estimate, and state that a qualified person has not done sufficient work to classify the estimate as a current estimate of mineral resources, mineral reserves, or exploration results and that the registrant is not treating the estimate as a current estimate of mineral resources, mineral reserves, or exploration results”.

Mineral Resources

Within the definition of a mineral resource, are a number of different concepts, ranging from the sub-categorization of mineral resources, to the level of geological understanding to support these confidence classifications, and the expectation of usage of a cut-off. These are shown in the following table, where blue text indicates a formally-defined term, and green text a definition that is generally defined within the rule.

mineral resource	← —	material of economic interest			
inferred mineral resource	← —	limited geological evidence			
indicated mineral resource	← —	adequate geological evidence	— —	cut-off grade	— —
measured mineral resource	← —	conclusive geological evidence			prospect of economic extraction

Mineral Resource

The defined term is as follows:

“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. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.”

Regulation S-K 1300 provides additional guidance when reporting mineral resources.

“A registrant’s disclosure of mineral resources under this subpart must be based upon a qualified person’s initial assessment, as defined, which includes and supports the qualified person’s determination of mineral resources.

When determining the existence of a mineral resource, a qualified person must:

- *Be able to estimate or interpret the location, quantity, grade or quality continuity, and other geological characteristics of the mineral resource from specific geological evidence and knowledge, including sampling; and*
- *Conclude that there are reasonable prospects for economic extraction of the mineral resource based on his or her initial assessment. At a minimum, the initial assessment must include the qualified person's qualitative evaluation of relevant technical and economic factors likely to influence the prospect of economic extraction to establish the economic potential of the mining property or project.*

For a material property, the technical report summary submitted by the qualified person to support a determination of mineral resources must describe the procedures, findings and conclusions reached for the initial assessment, as required.

When determining mineral resources, a qualified person must subdivide mineral resources, in order of increasing geological confidence, into inferred, indicated, and measured mineral resources."

Material of Economic Interest

The defined term is as follows:

"Material of economic interest, when used in the context of mineral resource determination, includes mineralization, 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, as defined in § 210.4–10(a)(16)(i) of this chapter, gases (e.g., helium and carbon dioxide), geothermal fields, and water."

Cut-off Grade

The defined term is as follows:

"Cut-off grade is the grade (i.e., the concentration of metal or mineral in rock) that determines the destination of the material during mining. For purposes of establishing "prospects of economic extraction," the cut-off grade is the grade that distinguishes material deemed to have no economic value (it will not be mined in underground mining or if mined in surface mining, its destination will be the waste dump) from material deemed to have economic value (its ultimate destination during mining will be a processing facility). Other terms used in similar fashion as cut-off grade include net smelter return, pay limit, and break-even stripping ratio."

Regulation S-K 1300 provides additional guidance in relation to cut-off grades.

“A qualified person must include cut-off grade estimation, based on assumed unit costs for surface or underground operations and estimated mineral prices, in the initial assessment. To estimate mineral prices, the qualified person must use a price for each commodity that provides a reasonable basis for establishing the prospects of economic extraction for mineral resources. The qualified person must disclose the price used and explain, with particularity, his or her reasons for using the selected price, including the material assumptions underlying the selection. This explanation must include disclosure of the time frame used to estimate the commodity price and unit costs for cut-off grade estimation and the reasons justifying the selection of that time frame. The qualified person may use a price set by contractual arrangement, provided that such price is reasonable, and the qualified person discloses that he or she is using a contractual price when disclosing the price used. The selected price required by this section and all material assumptions underlying it must be current as of the end of the registrant’s most recently completed fiscal year.”

Prospect of Extraction

Regulation S-K 1300 requires that an evaluation be conducted as to the prospect of economic extraction:

“The qualified person must provide a qualitative assessment of all relevant technical and economic factors likely to influence the prospect of economic extraction to establish economic potential and justify why he or she believes that all issues can be resolved with further exploration and analysis. Those factors include, but are not limited to, to the extent material:

- *Site infrastructure (e.g., whether access to power and site is possible);*
- *Mine design and planning (e.g., what is the broadly defined mining method);*
- *Processing plant (e.g., whether all products used in assessing prospects of economic extraction can be processed with methods consistent with each other);*
- *Environmental compliance and permitting (e.g., what are the required permits and corresponding agencies and whether significant obstacles exist to obtaining those permits); and*
- *Any other reasonably assumed technical and economic factors, including plans, negotiations, or agreements with local individuals or groups, which are necessary to demonstrate reasonable prospects for economic extraction.”*

Inferred Mineral Resource

The defined term is as follows:

“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. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project, and may not be converted to a mineral reserve.”

Regulation S-K 1300 provides additional guidance when reporting an inferred mineral resource.

“For inferred mineral resources, a qualified person:

- *Must have a reasonable expectation that the majority of inferred mineral resources could be upgraded to indicated or measured mineral resources with continued exploration; and*
- *Should be able to defend the basis of this expectation before his or her peers.”*

Limited Geological Evidence

The defined term is as follows:

“Limited geological evidence, when used in the context of mineral resource determination, means evidence that is only sufficient to establish that geological and grade or quality continuity are more likely than not.”

Indicated Mineral Resource

The defined term is as follows:

“Indicated mineral resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource, an indicated mineral resource may only be converted to a probable mineral reserve.”

Adequate Geological Evidence

The defined term is as follows:

“Adequate geological evidence *when used in the context of mineral resource determination, means evidence that is sufficient to establish geological and grade or quality continuity with reasonable certainty.*”

Measured Mineral Resource

The defined term is as follows:

“Measured mineral resource *is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured mineral resource has a higher level of confidence than the level of confidence of either an indicated mineral resource or an inferred mineral resource, a measured mineral resource may be converted to a proven mineral reserve or to a probable mineral reserve.*”

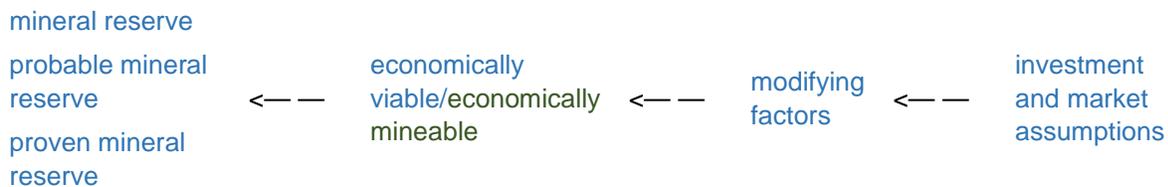
Conclusive Geological Evidence

The defined term is as follows:

“Conclusive geological evidence *when used in the context of mineral resource determination, means evidence that is sufficient to test and confirm geological and grade or quality continuity.*”

Mineral Reserves

Mineral reserves are sub-divided into two confidence categories in Regulation S-K 1300, but require evaluation of three supporting assumptions as shown in the following table. In this table, defined terms are in blue text, and terms defined within the rule are in green.



Mineral Reserve

The defined term is as follows:

“Mineral reserve is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted”.

Regulation S-K 1300 provides additional guidance when reporting mineral reserves.

“A registrant’s disclosure of mineral reserves under this subpart must be based upon a qualified person’s preliminary feasibility (pre-feasibility) study or feasibility study, each as defined, which includes and supports the qualified person’s determination of mineral reserves. The pre-feasibility or feasibility study must include the qualified person’s detailed evaluation of all applicable modifying factors to demonstrate the economic viability of the mining property or project. For a material property, the technical report summary submitted by the qualified person to support a determination of mineral reserves must describe the procedures, findings and conclusions reached for the pre-feasibility or feasibility study, as required.

When determining mineral reserves, a qualified person must subdivide mineral reserves, in order of increasing confidence, into probable mineral reserves and proven mineral reserves, as defined. The determination of probable or proven mineral reserves must be based on a qualified person’s application of the modifying factors to indicated or measured mineral resources, which results in the qualified person’s determination that part of the indicated or measured mineral resource is economically mineable.

The pre-feasibility study or feasibility study, which supports the qualified person’s determination of mineral reserves, must demonstrate that, at the time of reporting, extraction of the mineral reserve is economically viable under reasonable investment and market assumptions. The study must establish a life of mine plan that is technically achievable and economically viable, which will be the basis of determining the mineral reserve.

The term mineral reserves does not necessarily require that extraction facilities are in place or operational, that the company has obtained all necessary permits or that the company has entered into sales contracts for the sale of mined products. It does require, however, that the qualified person has, after reasonable investigation, not identified any obstacles to obtaining permits and entering into the necessary sales contracts, and reasonably believes that the chances of obtaining such approvals and contracts in a timely manner are highly likely.

In certain circumstances, the determination of mineral reserves may require the completion of at least a preliminary market study, as defined, in the context of a pre-feasibility study, or a final market study, as defined, in the context of a feasibility study, to support the qualified person's conclusions about the chances of obtaining revenues from sales. For example, a preliminary or final market study would be required where the mine's product cannot be traded on an exchange, there is no other established market for the product, and no sales contract exists. When assessing mineral reserves, the qualified person must take into account the potential adverse impacts, if any, from any unresolved material matter on which extraction is contingent and which is dependent on a third party."

[Authors' Note: the guidance above appears to limit the need for a market study on commodities that are not freely traded on recognized exchanges. Freely-traded commodities would include most precious and base metals. Whereas, certain specialty metals, industrial minerals, and precious minerals would likely require a market study to support the existence of a market for the mine's product at the prices assumed in the study].

Economically Viable

The defined term is as follows:

"Economically viable, when used in the context of mineral reserve determination, means that the qualified person has determined, using a discounted cash flow analysis, or has otherwise analytically determined, that extraction of the mineral reserve is economically viable under reasonable investment and market assumptions."

[Authors' Note: the text of the regulation appears to equate "economically viable" with "economically mineable"].

Modifying Factors

The defined term is as follows:

"Modifying factors are the factors that a qualified person must apply to indicated and measured mineral resources and then evaluate in order to establish the economic viability of mineral reserves. A qualified person must apply and evaluate modifying factors to convert measured and indicated mineral resources to proven and probable mineral reserves. These factors include, but are not restricted to: Mining; processing; metallurgical; infrastructure; economic; marketing; legal; environmental compliance; plans, negotiations, or agreements with local individuals or groups; and governmental factors. The number, type and specific characteristics of the modifying factors applied will necessarily be a function of and depend upon the mineral, mine, property, or project."

Investment and Market Assumptions

The defined term is as follows:

“Investment and market assumptions, when used in the context of mineral reserve determination, includes all assumptions made about the prices, exchange rates, interest and discount rates, sales volumes, and costs that are necessary to determine the economic viability of the mineral reserves. The qualified person must use a price for each commodity that provides a reasonable basis for establishing that the project is economically viable.”

Regulation S-K 1300 provides additional guidance on commodity pricing.

“For both a pre-feasibility and feasibility study, a qualified person must use a price for each commodity that provides a reasonable basis for establishing that the project is economically viable. The qualified person must disclose the price used and explain, with particularity, his or her reasons for using the selected price, including the material assumptions underlying the selection. This explanation must include disclosure of the time frame used to estimate the price and costs and the reasons justifying the selection of that time frame. The qualified person may use a price set by contractual arrangement, provided that such price is reasonable, and the qualified person discloses that he or she is using a contractual price when disclosing the price used. The selected price required by this section and all material assumptions underlying it must be current as of the end of the registrant’s most recently completed fiscal year.”

Probable Mineral Reserve

The defined term is as follows:

“Probable mineral reserve is the economically mineable part of an indicated and, in some cases, a measured mineral resource.”

Regulation S-K 1300 provides additional guidance when reporting probable mineral reserves.

“For a probable mineral reserve, the qualified person’s confidence in the results obtained from the application of the modifying factors and in the estimates of tonnage and grade or quality is lower than what is sufficient for a classification as a proven mineral reserve, but is still sufficient to demonstrate that, at the time of reporting, extraction of the mineral reserve is economically viable under reasonable investment and market assumptions. The lower level of confidence is due to higher geologic uncertainty when the qualified person converts an indicated mineral resource to a probable reserve or higher risk in the results of the application of modifying factors at the time when the qualified person converts a measured mineral resource to a probable mineral reserve. A qualified person

must classify a measured mineral resource as a probable mineral reserve when his or her confidence in the results obtained from the application of the modifying factors to the measured mineral resource is lower than what is sufficient for a proven mineral reserve.”

Proven Mineral Reserve

The defined term is as follows:

“Proven mineral reserve is the economically mineable part of a measured mineral resource and can only result from conversion of a measured mineral resource.”

Regulation S-K 1300 provides additional guidance when reporting proven mineral reserves.

“For a proven mineral reserve, the qualified person must have a high degree of confidence in the results obtained from the application of the modifying factors and in the estimates of tonnage and grade or quality.”

Technical Studies

Regulation S-K 1300 introduces definitions and accuracy requirements for three technical study types in support of mineral resource and mineral reserve estimation. The new regulation requires specific marketing studies be performed in support of feasibility and pre-feasibility studies, see the following table. All terms in this table are defined terms.

[initial assessment](#)

[preliminary feasibility study](#) ← — [preliminary marketing study](#)

[feasibility study](#) ← — [final marketing study](#)

Regulation S-K 1300 provides a table that summarizes required content for the three major technical study types required for resource/reserve estimation, referred to as “Table 1—Summary Description of Relevant Factors Evaluated in Technical Studies”.

Table 1—Summary Description of Relevant Factors Evaluated in Technical Studies

Factors 1	Initial assessment	Preliminary feasibility study	Feasibility study
<i>Site infrastructure</i>	<i>Establish whether or not access to power and site is possible. Assume infrastructure location, plant area required, type of power supply, site access roads, and camp/town site, if required.</i>	<i>Required access roads, infrastructure location and plant area defined. Source of all utilities (power, water, etc.) required for development and production defined with initial designs suitable for cost estimates. Camp/Town site finalized.</i>	<i>Required access roads, infrastructure location and plant area finalized. Source of all required utilities (power, water, etc.) for development and production finalized. Camp/ Town site finalized.</i>
<i>Mine design & planning.</i>	<i>Mining method defined broadly as surface or underground. Production rates assumed.</i>	<i>Preferred underground mining method or the pit configuration for surface mine defined. Detailed mine layouts drawn for each alternative. Development and production plan defined for each alternative with required equipment fleet specified.</i>	<i>Mining method finalized. Detailed mine layouts finalized for preferred alternative. Development and production plan finalized for preferred alternative with required equipment fleet specified.</i>
<i>Processing plant</i>	<i>Establish that all products used in assessing prospects of economic extraction can be processed with methods consistent with each other. Processing method and plant throughput assumed.</i>	<i>Detailed bench lab tests conducted. Detailed process flow sheet, equipment sizes, and general arrangement completed. Detailed plant throughput specified.</i>	<i>Detailed bench lab tests conducted. Pilot plant test completed, if required, based on risk. Process flow sheet, equipment sizes, and general arrangement finalized. Final plant throughput specified.</i>
<i>Environmental compliance & permitting.</i>	<i>List of required permits & agencies drawn. Determine if significant obstacles exist to obtaining permits. Identify pre-mining land uses. Assess requirements for baseline studies. Assume post-mining land uses. Assume tailings disposal, reclamation, and mitigation plans.</i>	<i>Identification and detailed analysis of environmental compliance and permitting requirements. Detailed baseline studies with preliminary impact assessment (internal). Detailed tailings disposal, reclamation, and mitigation plans.</i>	<i>Identification and detailed analysis of environmental compliance and permitting requirements finalized. Completed baseline studies with final impact assessment (internal). Tailings disposal, reclamation, and mitigation plans finalized.</i>

Factors 1	Initial assessment	Preliminary feasibility study	Feasibility study
<i>Other relevant factors 2.</i>	<i>Appropriate assessments of other reasonably assumed technical and economic factors necessary to demonstrate reasonable prospects for economic extraction.</i>	<i>Reasonable assumptions, based on appropriate testing, on the modifying factors sufficient to demonstrate that extraction is economically viable.</i>	<i>Detailed assessments of modifying factors necessary to demonstrate that extraction is economically viable.</i>
<i>Capital costs</i>	<i>Optional.³ If included: Accuracy: ±50%. Contingency: ±25%.</i>	<i>Accuracy: ±25%. Contingency: ±15%.</i>	<i>Accuracy: ±15%. Contingency: ±10%.</i>
<i>Operating costs</i>	<i>Optional.³ If included: Accuracy: ±50%. Contingency: ±25%.</i>	<i>Accuracy: ±25% Contingency: ±15%.</i>	<i>Accuracy: ±15%. Contingency: ±10%.</i>
<i>Economic analysis 4</i>	<i>Optional. If included: Taxes and revenues are assumed. Discounted cash flow analysis based on assumed production rates and revenues from available measured and indicated mineral resources</i>	<i>Taxes described in detail; revenues are estimated based on at least a preliminary market study; economic viability assessed by detailed discounted cash flow analysis</i>	<i>Taxes described in detail; revenues are estimated based on at least a final market study or possible letters of intent to purchase; economic viability assessed by detailed discounted cash flow analysis.</i>

1. When applied in an initial assessment, these factors pertain to the relevant technical and economic factors likely to influence the prospect of economic extraction. When applied in a preliminary or final feasibility study, these factors pertain to the modifying factors, as defined in this sub-part.

2. The relevant technical and economic factors to be applied in an initial assessment, and the modifying factors to be applied in a pre-feasibility or final feasibility study, include, but are not limited to, the factors listed in this table. The number, type, and specific characteristics of the applicable factors will be a function of and depend upon the particular mineral, mine, property, or project.

3. Initial assessment, as defined in this subpart, does not require a cash flow analysis or operating and capital cost estimates. The qualified person may include a cash flow analysis at his or her discretion.

4. An initial assessment does not require capital and operating cost estimates or economic analysis, although it requires unit cost assumptions based on an assumption that the resource will be exploited with surface or underground mining methods. An economic analysis, if included, may be based only on measured and indicated mineral resources, or also may include inferred resources if additional conditions are met.

Initial Assessment

The defined term is as follows:

“Initial assessment is a preliminary technical and economic study of the economic potential of all or parts of mineralization to support the disclosure of mineral resources. The initial assessment must be prepared by a qualified person and must include appropriate assessments of reasonably assumed technical and economic factors, together with any other relevant operational factors, that are necessary to demonstrate at the time of reporting that there are reasonable prospects for economic extraction. An initial assessment is required for disclosure of mineral resources but cannot be used as the basis for disclosure of mineral reserves.”

Regulation S-K 1300 provides additional guidance if a cashflow analysis is included within an initial assessment to support mineral resources.

“A qualified person may include cash flow analysis in an initial assessment to demonstrate economic potential. If the qualified person includes cash flow analysis in the initial assessment, then operating and capital cost estimates must have an accuracy level of at least approximately $\pm 50\%$ and a contingency level of no greater than 25%, as provided by Table 1. The qualified person must state the accuracy and contingency levels in the initial assessment.”

Inferred mineral resources can be included in an economic analysis, but such an inclusion requires additional cautionary language and an accompanying set of results that shows the results of the economic analysis if the inferred were to be excluded.

“If providing an economic analysis in the initial assessment, a qualified person may include inferred mineral resources in the economic analysis, provided that the qualified person:

- *States with equal prominence to the disclosure of mineral resource estimates that the assessment is preliminary in nature, it includes inferred mineral resources that are considered too speculative geologically to have modifying factors applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that this economic assessment will be realized;*
- *Discloses the percentage of the mineral resources used in the cash flow analysis that was classified as inferred mineral resources; and*
- *Discloses, with equal prominence, the results of the economic analysis excluding inferred mineral resources in addition to the results that include inferred mineral resources.”*

[Authors' Note: The requirement to show the results of two conceptual mining studies: one that includes inferred and one that does not, may be challenging. It could be interpreted to require two completely different conceptual mine designs.]

Preliminary Feasibility Study

The defined term is as follows:

“Preliminary feasibility study (or 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 qualified person has determined (in the case of underground mining) a preferred mining method, or (in the case of surface mining) a pit configuration, and in all cases has determined an effective method of mineral processing and an effective plan to sell the product.

(1) A pre-feasibility study includes a financial analysis based on reasonable assumptions, based on appropriate testing, about the modifying factors and the evaluation of any other relevant factors that are sufficient for a qualified person to determine if all or part of the indicated and measured mineral resources may be converted to mineral reserves at the time of reporting. The financial analysis must have the level of detail necessary to demonstrate, at the time of reporting, that extraction is economically viable.

(2) A pre-feasibility study is less comprehensive and results in a lower confidence level than a feasibility study. A pre-feasibility study is more comprehensive and results in a higher confidence level than an initial assessment.”

Regulation S-K 1300 has a prohibition on the inclusion of inferred mineral resources in a mining study demonstrating economic viability.

“The qualified person must exclude inferred mineral resources from the pre-feasibility study’s demonstration of economic viability in support of a disclosure of a mineral reserve.”

Regulation S-K 1300 provides the following guidance for pre-feasibility studies.

“Factors to be considered in a pre-feasibility study are typically the same as those required for a final feasibility study, but considered at a lower level of detail or at an earlier stage of development. The list of factors is not exclusive. For example, as provided in Table 1, a pre-feasibility study must define, analyze or otherwise address in detail, to the extent material:

- *The required access roads, infrastructure location and plant area, and the source of all utilities (e.g., power and water) required for development and production;*

- *The preferred underground mining method or surface mine pit configuration, with detailed mine layouts drawn for each alternative;*
- *The bench lab tests that have been conducted, the process flow sheet, equipment sizes, and general arrangement that have been completed, and the plant throughput;*
- *The environmental compliance and permitting requirements, the baseline studies, and the plans for tailings disposal, reclamation, and mitigation, together with an analysis establishing that permitting is possible; and*
- *Any other reasonable assumptions, based on appropriate testing, on the modifying factors sufficient to demonstrate that extraction is economically viable.*

A pre-feasibility study must also identify sources of uncertainty that require further refinement in a final feasibility study.

Operating and capital cost estimates in a pre-feasibility study must, at a minimum, have an accuracy level of approximately $\pm 25\%$ and a contingency range not exceeding 15%, as provided in Table 1. The qualified person must state the accuracy level and contingency range in the pre-feasibility study.

A pre-feasibility study must include an economic analysis that supports the property's economic viability as assessed by a detailed discounted cash flow analysis or other similar financial analysis. The economic analysis must describe in detail applicable taxes and provide an estimate of revenues. The qualified person must use a price for each commodity in the economic analysis that meets the requirements [refer to guidance note provided under the discussion on the term "economically viable"]. In certain situations, estimates of revenues must be based on at least a preliminary market study."

Preliminary Marketing Study

The defined term is as follows:

"Preliminary market study is a study that is sufficiently rigorous and comprehensive to determine and support the existence of a readily accessible market for the mineral. It must, at a minimum, include product specifications based on preliminary geologic and metallurgical testing, supply and demand forecasts, historical prices for the preceding five or more years, estimated long term prices, evaluation of competitors (including products and estimates of production volumes, sales, and prices), customer evaluation of product specifications, and market entry strategies. The study must provide justification for all assumptions. It can, however, be less rigorous and comprehensive than a final market study, which is required for a full feasibility study."

Feasibility Study

The defined term is as follows:

“Feasibility study is a comprehensive technical and economic study of the selected development option for a mineral project, which includes detailed assessments of all applicable modifying factors, as defined by this section, together with any other relevant operational factors, and detailed financial analysis that are necessary to demonstrate, at the time of reporting, that extraction is economically viable. The results of the study may serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project.

(1) A feasibility study is more comprehensive, and with a higher degree of accuracy, than a pre-feasibility study. It must contain mining, infrastructure, and process designs completed with sufficient rigor to serve as the basis for an investment decision or to support project financing.

(2) The confidence level in the results of a feasibility study is higher than the confidence level in the results of a pre-feasibility study. Terms such as full, final, comprehensive, bankable, or definitive feasibility study are equivalent to a feasibility study.”

There is no specific wording guidance that prohibits the use of inferred to support the economic evaluation in feasibility studies, but it is assumed that the same prohibition as stated for pre-feasibility studies would apply.

Regulation S-K 1300 provides the following guidance for feasibility studies.

“A feasibility study must contain the application and description of all relevant modifying factors in a more detailed form and with more certainty than a pre-feasibility study. The list of factors is not exclusive. For example, as provided in Table 1, a feasibility study must define, analyze, or otherwise address in detail, to the extent material:

- Final requirements for site infrastructure, including well-defined access roads, finalized plans for infrastructure location, plant area, and camp or town site, and the established source of all required utilities (e.g., power and water) for development and production;*
- Finalized mining method, including detailed mine layouts and final development and production plan for the preferred alternative with the required equipment fleet specified. The feasibility study must address detailed mining schedules, construction and production ramp up, and project execution plans;*

- *Completed detailed bench lab tests and a pilot plant test, if required, based on risk. The feasibility study must further address final requirements for process flow sheet, equipment sizes, and general arrangement and specify the final plant throughput;*
- *The final identification and detailed analysis of environmental compliance and permitting requirements, and the completion of baseline studies and finalized plans for tailings disposal, reclamation, and mitigation; and*
- *The final assessments of other modifying factors necessary to demonstrate that extraction is economically viable.*

A feasibility study must also include an economic analysis that describes taxes in detail, estimates revenues, and assesses economic viability by a detailed discounted cash flow analysis. The qualified person must use a price for each commodity in the economic analysis that meets the requirements of Section 1.8.4. In certain situations, estimates of revenues must be based on a final market study or letters of intent to purchase.

Operating and capital cost estimates in a feasibility study must, at a minimum, have an accuracy level of approximately $\pm 15\%$ and a contingency range not exceeding 10%, as provided by Table 1. The qualified person must state the accuracy level and contingency range in the feasibility study.

If the uncertainties in the results obtained from the application of the modifying factors that prevented a measured mineral resource from being converted to a proven mineral reserve no longer exist, then the qualified person may convert the measured mineral resource to a proven mineral reserve.

The qualified person cannot convert an indicated mineral resource to a proven mineral reserve unless new evidence first justifies conversion to a measured mineral resource.

The qualified person cannot convert an inferred mineral resource to a mineral reserve without first obtaining new evidence that justifies converting it to an indicated or measured mineral resource.”

Final Marketing Study

The defined term is as follows:

“Final market study is a comprehensive study to determine and support the existence of a readily accessible market for the mineral. It must, at a minimum, include product specifications based on final geologic and metallurgical testing, supply and demand forecasts, historical prices for the preceding five or more years, estimated long term prices, evaluation of competitors (including products and estimates of production volumes, sales, and prices), customer evaluation of product specifications, and market entry strategies or sales contracts. The study must provide justification for all

assumptions, which must include assumptions concerning the material contracts required to develop and sell the mineral reserves.”

[Authors’ Note: The information in this final marketing study would likely be considered proprietary and highly sensitive information for both the seller and the intended buyers of the mine’s production].

Technical Report Summary

The technical report summary is described within Regulation S-K 1300, but is of itself, not a defined term.

“A registrant that discloses information concerning its mineral resources or mineral reserves must file a technical report summary by one or more qualified persons that, for each material property, identifies and summarizes the scientific and technical information and conclusions reached concerning an initial assessment used to support disclosure of mineral resources, or concerning a preliminary or final feasibility study used to support disclosure of mineral reserves. At its election, a registrant may also file a technical report summary from a qualified person that identifies and summarizes the information reviewed and conclusions reached by the qualified person about the registrant’s exploration results.”

Qualified Person

The qualified person definition comprises two aspects, the definition itself, and what constitutes relevant experience.

Qualified Person

The defined term is as follows:

“Qualified person is an individual who is:

- (1) A mineral industry professional with at least five years of relevant experience in the type of mineralization and type of deposit under consideration and in the specific type of activity that person is undertaking on behalf of the registrant; and*
- (2) An eligible member or licensee in good standing of a recognized professional organization at the time the technical report is prepared. For an organization to be a recognized professional organization, it must:*
 - (i) Be either:*
 - (A) An organization recognized within the mining industry as a reputable professional association; or*

(B) *A board authorized by U.S. federal, state or foreign statute to regulate professionals in the mining, geoscience or related field;*

(ii) *Admit eligible members primarily on the basis of their academic qualifications and experience;*

(iii) *Establish and require compliance with professional standards of competence and ethics;*

(iv) *Require or encourage continuing professional development;*

(v) *Have and apply disciplinary powers, including the power to suspend or expel a member regardless of where the member practices or resides; and*

(vi) *Provide a public list of members in good standing.*

(3) *For a qualified person applying the modifying factors, as defined by this section, to convert mineral resources to mineral reserves, relevant experience also requires:*

(i) *Sufficient knowledge and experience in the application of these factors to the mineral deposit under consideration; and*

(ii) *Experience with the geology, geostatistics, mining, extraction and processing that is applicable to the type of mineral and mining under consideration.”*

Relevant Experience

The defined term is as follows:

“Relevant experience means, for purposes of determining whether a party is a qualified person, that the party has experience in the specific type of activity that the person is undertaking on behalf of the registrant. If the qualified person is preparing or supervising the preparation of a technical report concerning exploration results, the relevant experience must be in exploration. If the qualified person is estimating, or supervising the estimation of mineral resources, the relevant experience must be in the estimation, assessment and evaluation of mineral resources and associated technical and economic factors likely to influence the prospect of economic extraction. If the qualified person is estimating, or supervising the estimation of mineral reserves, the relevant experience must be in engineering and other disciplines required for the estimation, assessment, evaluation and economic extraction of mineral reserves.

(1) *Relevant experience also means, for purposes of determining whether a party is a qualified person, that the party has experience evaluating the specific type of mineral deposit under consideration (e.g., coal, metal, base metal, industrial mineral, or mineral brine). The type of experience necessary to qualify as relevant is a facts and circumstances determination. For example, experience in a high-nugget, vein-type*

mineralization such as tin or tungsten would likely be relevant experience for estimating mineral resources for vein-gold mineralization, whereas experience in a low grade disseminated gold deposit likely would not be relevant.

Note 1 to paragraph (1) of the definition of relevant experience: It is not always necessary for a person to have five years' experience in each and every type of deposit in order to be an eligible qualified person if that person has relevant experience in similar deposit types. For example, a person with 20 years' experience in estimating mineral resources for a variety of metalliferous hard-rock deposit types may not require as much as five years of specific experience in porphyry-copper deposits to act as a qualified person. Relevant experience in the other deposit types could count towards the experience in relation to porphyry-copper deposits.

(2) For a qualified person providing a technical report for exploration results or mineral resource estimates, relevant experience also requires, in addition to experience in the type of mineralization, sufficient experience with the sampling and analytical techniques, as well as extraction and processing techniques, relevant to the mineral deposit under consideration. Sufficient experience means that level of experience necessary to be able to identify, with substantial confidence, problems that could affect the reliability of data and issues associated with processing."

Issuer Stage

Issuer stages are defined in Regulation S-K 1300 and are required disclosure to help ensure investors understand a registrant's operational status, based on material properties, as shown in the following table. Terms shown in blue font are defined within Regulation S-K 1300, the term shown in green is defined in the over-arching Securities and Exchange Acts.

exploration stage issuer	<— —	exploration stage property	
development stage issuer	<— —	development stage property	<— — material
production stage issuer	<— —	production stage property	

Exploration Stage Issuer

The defined term is as follows:

"Exploration stage issuer is an issuer that has no material property with mineral reserves disclosed."



Exploration Stage Property

The defined term is as follows:

“Exploration stage property is a property that has no mineral reserves disclosed.”

Development Stage Issuer

The defined term is as follows:

“Development stage issuer is an issuer that is engaged in the preparation of mineral reserves for extraction on at least one material property.”

Development Stage Property

The defined term is as follows:

“Development stage property is a property that has mineral reserves disclosed, pursuant to this subpart, but no material extraction.”

Production Stage Issuer

The defined term is as follows:

“Production stage issuer is an issuer that is engaged in material extraction of mineral reserves on at least one material property.”

Production Stage Property

The defined term is as follows:

“Production stage property is a property with material extraction of mineral reserves.”

Mining Operations

“Mining operations” is defined within the rule, but are not set out as part of the defined terms. Regulation S-K 1300 describes mining operations as:

“includes operations on all mining properties that a registrant

- Owns or in which it has, or it is probable that it will have, a direct or indirect economic interest*
- Operates, or it is probable that it will operate, under a lease or other legal agreement that grants the registrant ownership or similar rights that authorize it, as principal, to sell or otherwise dispose of the mineral; or*
- Has, or it is probable that it will have, an associated royalty or similar right.”*

A subset of this definition is used to determine which of its mining properties are “material mining operations” for reporting purposes when the registrant is evaluating summary and individual property disclosure requirements.

In this context, the registrant must determine its material mining operations:

“When determining whether its mining operations are material, a registrant must:

- Consider both quantitative and qualitative factors, assessed in the context of the registrant’s overall business and financial condition;*
- Aggregate mining operations on all of its mining properties, regardless of the stage of the mining property, and size or type of commodity produced, including coal, metalliferous minerals, industrial materials, and mineral brines; and*
- Include, for each property, as applicable, all related activities from exploration through extraction to the first point of material external sale, including processing, transportation, and warehousing.”*

Geographic Area

“Geographic area” is defined within the rule, but is not set out as part of the defined terms.

“the final rules define “by geographic area” to mean by individual country, regions of a country, state, groups of states, mining district, or other political units, to the extent material to and necessary for an investor’s understanding of a registrant’s mining operations.”

Affiliate/Affiliated

The words “affiliate” and “affiliated” are defined in the Securities and the Exchange Acts, both of which use the same definition.

- Securities Act Rule 405: An “affiliate” of, or a person “affiliated” with, a specified person, is a person that directly, or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, the person specified;
- Exchange Act Rule 12b–2: Affiliate. An affiliate of, or person affiliated with, a specified person, is a person that directly, or indirectly through one or more intermediaries, controls or is controlled by, or is under common control with, the person specified.