Understanding the SEC's New Mining Disclosure Rules : Questions and Answers

Why has the SEC adopted new rules for mining companies?

The SEC's guidelines for mining disclosure, currently set forth in Industry Guide 7 (Guide 7), have not been updated for more than 30 years. During this period, mining has become an increasingly globalized industry and several foreign countries have adopted mining disclosure standards based on the Committee for Mineral Reserves International Reporting Standards (CRIRSCO), which significantly differ from Guide 7. For example, unlike Guide 7, CRIRSCO standards:

- Require companies to disclose material mineral resources;
- Require that any public report about a company's exploration results, mineral resources and mineral reserves be prepared by a "competent or qualified person"; and
- Permit disclosure of mineral reserves to be based on a preliminary feasibility (pre-feasibility) study or a final feasibility study.

Because of the widespread adoption of the CRIRSCO standards[1], industry participants requested revisions to Guide 7, urging the SEC to align its mining disclosure rules with the CRIRSCO-based codes. The SEC's replacement of Guide 7 with a CRIRSCO-based code takes into account these global developments and industry participants' concerns

When will the new rules become effective?

The new rules will become effective for an SEC registrant's first fiscal year beginning on or **after January 1, 2021**. As an example of what this means, the SEC has stated that a registrant with a December 31 fiscal year end will be required to comply with the final rules when filing an applicable registration statement[2] on or after January 1, 2021, and when filing its SEC annual report for the fiscal year ended December 31, 2021. For registrants filing registration statements in 2021, this has the effect of accelerating public reporting under the new rules.

Once the SEC has completed EDGAR reprogramming made necessary by the final rules, the SEC will permit registrants to voluntarily comply with the new mining property disclosure rules as of an earlier date, as long as in doing so, they comply with all of the new requirements. Until then, registrants should continue to comply with Guide 7 for their mining property disclosures.

What types of companies will be subject to the new rules?

The final rules will apply to an SEC registrant that has *mining operations* that are *material* to its business or financial condition.

***Mining operations* is defined under the final rules as including 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.

The SEC has not modified its definition of materiality in the new rules. Information is material if there is a substantial likelihood that a reasonable investor would attach importance to such information in determining whether to buy or sell the securities registered.

Because the new rules define mining operations to include both direct and indirect economic interests, and because the standard for disclosure is materiality, companies that hold royalties, streaming agreements or other economic interests with respect to mining properties, as well as companies that invest in mining

companies, will be subject to the new rules if such interests are material to the registrant's business or financial condition.

Will foreign private issuers be subject to the new rules?

Yes. Foreign private issuers that file annual reports or registration statements with the SEC on Forms 20-F, F-1, F-3 or F-4, that voluntarily file on U.S. domestic reporting forms or that prepare offering circulars on Form 1-A under Regulation A+ will be required to comply with the new rules.

Canadian issuers that file annual reports or registration statements with the SEC under the Multijurisdictional Disclosure System (MJDS), including Forms 40-F, F-10, F-7, F-8 and F-80, will not be required to comply with the new rules.

What are the main differences between the SEC's Industry Guide 7 and the new rules?

The chart in Appendix A provides an overview of the main differences between existing Guide 7 and related SEC guidance, and the new rules.

What are the main differences between the SEC's initial proposal in 2016 and the new rules?

The SEC first proposed an overhaul of the disclosure requirements for mining companies, and solicited comments on its proposed rules, in 2016. Many industry organizations, companies, and law firms that commented on the proposals were supportive of the idea of modernization, but felt that the SEC's proposals were too prescriptive and varied in too many ways from CRIRSCO standards, thereby imposing an administrative burden on companies, especially those reporting in more than one jurisdiction.

In response to these comments, the SEC's final rules incorporated a number of changes, many of which were intended to more closely align the SEC's mineral property disclosure requirements with CRIRSCO standards, and thereby help decrease the compliance burden and costs on registrants that are subject to additional CRIRSCO-based codes. For example, as compared to the 2016 proposals, the final rules:

- eliminate the prohibition on estimating mineral resources and mineral reserves using a commodity price that is greater than the 24-month historical average;
- allow mineral reserves to be declared based on a pre-feasibility study, even in high-risk situations;
- allow mineral reserves to include diluting materials and allowances for losses;
- permit inferred mineral resources to be included in the economic analysis that is included in an initial assessment (the equivalent to a preliminary economic assessment under Canada's NI 43-101);
- eliminate the requirement for a technical report summary in order to disclose material exploration results;
- permit mineral resources and reserves to be disclosed at any specific point of reference selected by the qualified person, rather than three (in situ, plant or mill feed, and saleable product);
- permit the use of non-compliant, historic estimates of mineral resources or mineral reserves in SEC filings pertaining to mergers, acquisitions and business combinations, subject to certain conditions;
- permit registrants holding royalty or similar interests to omit information to which they lack access and which they cannot obtain without incurring an unreasonable burden or expense;
- will not apply to geothermal fields;
- permit the disclosure of exploration targets;
- eliminate many of the quantitative thresholds in the proposed rules, in favor of more qualitative standards;
- reduce the number of required tables, and the amount of information required to be included in tables;
- clarify that technical report summaries may be authored by more than one qualified person; and
- allow a qualified person to rely on certain information provided by the registrant.

In addition, the final rules clarify that when a qualified person is not an employee of the registrant and is not otherwise affiliated with the registrant, the technical report summary and any required expert consent may be signed by the third-party firm that employs the individual qualified person, without naming the individual.

Are the SEC's new rules the same as the standards under Canada's National Instrument 43-101 (NI 43-101) or other CRIRSCO-based codes?

No. While the SEC's new rules are intended to be substantially similar to those of other CRIRSCO-based codes, they are not identical to any single CRIRSCO-based code. Some differences relate to terminology. For example, the SEC's new rules use the term "technical report summary" instead of NI 43-101's "technical report", and the term "initial assessment" instead of NI 43-101's "preliminary economic assessment". Other differences

relate to substantive requirements, and are in some cases subtle. SEC registrants that are subject to other CRIRSCO-based codes should compare such codes to the SEC's new rules and determine whether the differences have any material implications for the registrant.

How do the new rules affect the characterization of a mining company and its properties as being in the exploration, development or production stage?

The new rules introduce a materiality threshold for being considered a development or production stage issuer. Under the new rules, a registrant is defined as:

- An exploration stage issuer if it has no material property with mineral reserves;
- A development stage issuer if it is engaged in the preparation of mineral reserves for extraction on at least one material property; or
- A production stage issuer if it is engaged in material extraction of mineral reserves on at least one material property.

The new rules also clarify how individual properties of a mining company should be described. Under the new rules, an individual property is defined as being:

- An exploration stage property if it has no mineral reserves disclosed;
- A development stage property if it has mineral reserves disclosed, but with no material extraction; and
- A production stage property if it has material extraction of mineral reserves.

It should be noted that both Guide 7 and the new rules require a registrant to have disclosed mineral reserves in order to describe itself as being either a development or production stage company, regardless of whether the registrant is actively constructing a mine or operating a producing mine. Guide 7 does not discuss the characterization of individual properties, or distinguish between properties of a registrant that are at different stages of development.

Who is a qualified person?

Consistent with CRIRSCO-based mining codes, the new rules would introduce the concept of a *qualified person*, a mineral industry professional meeting certain criteria, whose expertise must be utilized in preparing certain mining disclosures.

In the final rules, a *qualified person* is defined as an individual who is:

- 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
- An eligible member or licensee in good standing of a *recognized professional organization* at the time the technical report is prepared.

To be a *recognized professional organization*, an organization must:

- Be either:
  - An organization recognized within the mining industry as a reputable professional association, or
  - A board authorized by U.S. federal, state or foreign statute to regulate professionals in the mining, geoscience or related field;
- Admit eligible members primarily on the basis of their academic qualifications and experience;
- Establish and require compliance with professional standards of competence and ethics;
- Require or encourage continuing professional development;
- Have and apply disciplinary powers, including the power to suspend or expel a member regardless of where the member practices or resides; and
- Provide a public list of members in good standing.

The SEC has stated that it does not intend to publish and maintain a list of recognized professional organizations.

A person is not required to be independent of the registrant in order to be a qualified person. Therefore, an employee of the registrant that satisfies the requisite criteria of experience and membership in a recognized professional organization could serve as the registrant's qualified person.

What role does a qualified person serve under the new rules?

A registrant's disclosure of exploration results, mineral resources and mineral reserves, as required by the new rules, must be based on and accurately reflect information and supporting documentation prepared by a qualified person. The registrant is responsible for determining that the person meets the requirements of a qualified person, and that the disclosure in the registrant's filing accurately reflects the information provided by the qualified person.

With respect to any property containing **mineral resources or mineral reserves** that is material to the registrant's business or financial condition, the registrant must obtain a dated and signed technical report summary from the qualified person, **which identifies and summarizes the information reviewed and conclusions reached by the qualified person about the registrant's mineral resources and mineral reserves results determined to be on such property**. **A registrant may, but is not required to, obtain a dated and signed technical report summary from a qualified person relating to exploration results on a property prior to the declaration of mineral resources or mineral reserves.**

When a qualified person is not an employee of the registrant and is not otherwise affiliated with the registrant, the technical report summary and any required expert consent may, but is not required to be, be signed by the third-party firm that employs the individual qualified person, without naming the individual.

Who has to sign consents and when must they be filed?

Written consents of a qualified person are required to the use of the qualified person's name, or any quotation from, or summarization of, the technical report summary in the relevant registration statement or report, and to the filing of the technical report summary as an exhibit to the registration statement or report.

The rules provide that a third-party firm comprising mining experts, such as professional geologists or mining engineers, may sign the technical report summary instead of, and without naming, its employee, or other affiliated person who prepared the summary. If a third-party firm has signed the technical report summary, the firm must provide the written consent. **So, if an individual qualified person is employed by a third-party firm, that firm may sign the technical report summary and provide the written consent required for an expert under the Securities Act**. However, if a qualified person is an employee of, or affiliated with, the issuer, the qualified person must provide the written consent on an individual basis.

The written consent must be filed as an exhibit to a Securities Act registration statement. However, **for periodic reports, the registrant is not required to file the written consent obtained from the qualified person, but should retain the written consent for as long as it is relying on the qualified person's information and supporting documentation for its current estimates regarding mineral resources, mineral reserves, or exploration results**.

In what circumstances may a qualified person rely on, or disclaim, information provided by third parties?

The new rules permit a qualified person, in preparing its findings and conclusions, to rely on information provided by the registrant regarding the following aspects of modifying factors:

- macroeconomic trends, data, and assumptions, and interest rates;
- marketing information and plans within the control of the registrant;
- legal matters outside the expertise of the qualified person, such as statutory and regulatory interpretations affecting the mine plan;

- environmental matters outside the expertise of the qualified person;
- accommodations the registrant commits or plans to provide to local individuals or groups in connection with its mine plans; and
- governmental factors outside the expertise of the qualified person.

Any such reliance must be disclosed in the applicable technical report summary, and accompanied by additional information as described in Appendix B.

A technical report summary may be prepared by more than one qualified person, with the summary clearly delineating the section or sections of the summary prepared by each qualified person.

A qualified person may also include in the technical report summary information provided by a third-party specialist who is not a qualified person, such as an attorney, appraiser, and economic or environmental consultant, upon which the qualified person has relied in preparing the technical report summary. However, the qualified person may not disclaim responsibility for any information or documentation prepared by such a third-party specialist.

What are mineral resources and how are they calculated?

Unlike Guide 7, the new rules both recognize and require the disclosure of *mineral resources*. The rules define a *mineral resource* as 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. ***Material of economic interest*** **includes mineralization, including dumps and tailings, mineral brines, and other resources extracted on or within the Earth's crust, but does not include oil and gas resources** as defined in Regulation S-X, gases (e.g., helium and carbon dioxide), geothermal fields or water.

An instruction to the rules clarifies that 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. The rules set forth a definition of *cut-off grade* and provide for requirements that a qualified person must satisfy in determining the existence of a mineral resource. These include the evaluation **of *modifying factors***, which is the term used in the new rules to describe factors that affect the economic prospects of a deposit. Modifying 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.

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

What are the differences between inferred, indicated and measured mineral resources?

The new rules create three different categories of mineral resources based on the level of geological confidence that the mineral resource exists.

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, which means evidence that is only sufficient to establish that geological and grade or quality continuity is more likely than not. An inferred mineral resource has the lowest level of geological confidence of all mineral resources, which in the SEC's view prevents the application of the modifying factors in a manner useful for evaluation of economic viability.

An *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, which means evidence that is sufficient to establish geological and grade or quality continuity with reasonable certainty. 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. 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.

A *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, which means evidence that is sufficient to test and confirm geological and grade or quality continuity. 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 proven mineral reserve or to a probable mineral reserve.

How will the new rules affect the definitions of mineral reserves, probable mineral reserves and proven mineral reserves?

Under existing Guide 7, a reserve is that part of a mineral deposit which could be economically and legally extracted or produced at the time of the reserve determination. Reserves are to be identified as probable or proven based on the mineralization's level of certainty. The SEC's staff has provided guidance that a final feasibility study is required to support the establishment of reserves and that the commodity prices used in establishing a Guide 7 reserve should not exceed the 3-year trailing average price of such commodity.

The new rules retain the categories of probable and proven reserves, but replace the existing Guide 7 definitions with new definitions, **permit mineral reserves to be established on the basis of either a preliminary feasibility (pre-feasibility) study or a final feasibility study and replace the 3-year trailing average price limitation with a requirement that the commodity prices used in calculating mineral reserves provide a reasonable basis for establishing that the project is economically viable**.

Under the new rules, a *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.

The determination that part of a measured or indicated mineral resource is economically mineable **MUST be based on a pre-feasibility or feasibility study conducted by a qualified person applying the modifying factors to indicated or measured mineral resources**. Such study 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**.

A *probable mineral reserve* is the economically mineable part of an indicated and, in some cases, a measured mineral resource. 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.

A *proven mineral reserve* is the economically mineable part of a measured mineral resource. For a proven mineral reserve, the qualified person has 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.

For purposes of estimating mineral reserves, the *modifying factors* are the same factors as are used in estimating mineral resources, as applied to determine 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.

What are the different types of technical report summary?

The new rules describe four types of technical report summary:

- A technical report summary that discloses exploration results;
- An initial assessment, which is required to establish mineral resources;
- A preliminary feasibility study (pre-feasibility study), which is required to establish mineral reserves; and

- A feasibility study or final feasibility study.

Under the new rules, *exploration results* are defined as 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.

An *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 modifying 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.

A *preliminary feasibility study (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. 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. 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.

A *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. 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. The confidence level in the results of a feasibility study is higher than that with a pre-feasibility study. Terms such as full, final, comprehensive, bankable, or definitive feasibility study are equivalent to a feasibility study.

When must a technical report summary initially be filed?

The new rules require that a registrant file a technical report summary authored by a qualified person **as an exhibit to its SEC annual report** or applicable registration statement when the registrant is disclosing in such report or registration statement, for the first time, mineral resources or mineral reserves for a property that is material to the registrant's business or financial condition. A registrant also may, but is not required to, file a technical report summary with respect to exploration results.

Certain exceptions apply to a registrant that only holds a royalty, streaming or other similar right with respect to a property. Such a registrant is not required to file a technical report summary for a property that is covered by a current technical report summary filed by the producing mine registrant. In that situation, the registrant holding the royalty, streaming or other similar right should refer to the producing registrant's previously filed technical report summary. Such a reference will not be deemed to incorporate the report by reference, absent an express statement to such effect.

If such a report has not been filed, the registrant holding the royalty, streaming or other similar right will be required to file a technical report summary for the underlying property unless the registrant lacks access to the technical report summary because:

- obtaining the information would result in an unreasonable burden or expense, or

- it requested the technical report summary from the owner, operator or other person possessing the technical report summary, who is not affiliated with the registrant, and who denied the request, and it provides in the applicable registration statement or annual report all the information required by the SEC rules that it does possess or which it can acquire without unreasonable effort and expense.

When must a technical report summary be updated?

The new rules will require the registrant to file an updated technical report summary in connection with the filing of the registrant's SEC annual report or in connection with an applicable registration statement if, at such time, **there has been a material change in the mineral resources or mineral reserves for a material property from that reported in the previously-filed technical report summary, or a material change in the exploration results contained in a technical report summary that the registrant filed voluntarily**.

Without limiting the foregoing, a registrant may not rely on a previously filed technical report summary if, at the time of filing the registrant's SEC annual report or in connection with an applicable registration statement, the registrant is unable to conclude that all material assumptions and information pertaining to the disclosure of a registrant's mineral resources and mineral reserves, including material assumptions relating to all modifying factors, price estimates, and scientific and technical information (*e.g.*, sampling data, estimation assumptions and methods), are current as of the end of the registrant's most recently completed fiscal year.

Due to the number of requirements with which a technical report summary must comply, **an updated technical report summary may, in practice, be required on an annual or other regular basis**.

What information must be included in every technical report summary?

Every technical report summary filed with the SEC must:

- be prepared, signed and dated by each qualified person responsible for the technical report summary; provided, that in the case of a qualified person that is not an employee of and not otherwise affiliated with the registrant, a third-party firm comprising mining experts, such as professional geologists or mining engineers, may date and sign the technical report summary instead of, and without naming, the individual qualified person employed or affiliated with the firm that prepared the technical report summary;
- avoid the inclusion of large amounts of technical or other project data, either in the report or as appendices to the report, conform, to the extent practicable, with "plain English" principles, otherwise comply with subpart 1300 of Regulation S-K, and comply with detailed disclosure requirements **in the following general categories: (i) executive summary, (ii) introduction, (iii) property description, (iv) accessibility, climate, local resources, infrastructure and physiography, (v) history, (vi) geological setting, mineralization and deposit, (vii) exploration, including hydrogeology, and geotechnical data, testing and analysis, (viii) sample preparation, analyses, and security, (ix) data verification, (x) adjacent properties, (xi) other relevant data and information, (xii) interpretation and conclusions, (xiii) recommendations, (xiv) references, and (xv) reliance on information provided by the registrant. The details on disclosure for each of these categories are set forth in the rules. See Appendix B**.

What additional information must be included in a technical report summary that reports exploration results?

None.

What additional information must be included in a technical report summary that reports the results of an initial assessment and, if applicable, mineral resources?

A registrant's disclosure of mineral resources must be based upon a qualified person's initial assessment, which supports the determination of mineral resources. As explained above in the discussion of mineral resources, the initial assessment must include the qualified person's qualitative evaluation of applicable modifying factors to establish the economic potential of the mining property or project. 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. In addition to the information required to be included in

every technical report summary, a technical report summary that reports the results of an initial assessment must include detailed disclosure in the following general categories: (i) mineral processing and metallurgical testing and (ii) mineral resource estimates. The details on disclosure for each of these categories are set forth in the new rules. See Appendix B.

A qualified person may, but is not required to, apply modifying factors to the mineral resources **to include an economic analysis in the initial assessment.**

To assist qualified persons in understanding the disclosure requirements in an initial assessment relating to modifying factors, the new rules include Table 1, extracted below, which describes certain information the qualified person is required or permitted to disclose, or permitted to assume, in an initial assessment relating to modifying factors.

Extract from Table 1 – Summary Description of Modifying Factors Evaluated in Technical Studies

Factors[2]	Initial Assessment
Site infrastructure	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.
Mine design & planning	Mining method defined broadly as surface or underground. Production rates assumed.
Processing plant	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.
Environmental compliance & permitting	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.
Other relevant factors[2]	Appropriate assessments of other reasonably assumed modifying factors necessary to demonstrate reasonable prospects for economic extraction.
Capital costs	Optional.[3] If included: Accuracy: ±50% Contingency: ≤25%
Operating costs	Optional.[3] If included: Accuracy: ±50% Contingency: ≤25%
Economic analysis[4]	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.

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.

2. The relevant technical and economic factors to be applied in an initial assessment 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 cash flow analyses or operating and capital cost estimates. The qualified person may include such cash flow analyses 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. Economic analyses, if included, may be based only on measured and indicated mineral resources, or also may include inferred resources if additional conditions are met.

What additional information must be included in a technical report summary that reports the results of a preliminary feasibility (pre-feasibility) study or a final feasibility study and, if applicable, mineral reserves?

A registrant's disclosure of mineral reserves must be based upon a qualified person's pre-feasibility study or feasibility study which supports a 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. 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. In addition to the information required to be included in a technical report summary that reports the results of an initial assessment, a technical report summary that reports the results of a pre-feasibility or feasibility study must include detailed disclosure in the following general categories: (i) mineral reserve estimates, (ii) mining methods, (iii) processing and recovery methods, (iv) infrastructure, (v) market studies, (vi) environmental studies, permitting, and plans, negotiations or agreements with local individuals or groups, (vii) capital and operating costs, and (viii) economic analysis. The details on disclosure for each of these categories are set forth in the new rules. See Appendix B.

To assist qualified persons in understanding the disclosure requirements relating to modifying factors, the new rules include the table below, which describes certain information regarding modifying factors that is required to be included in a pre-feasibility or feasibility study.

Extract from Table 1 – Summary Description of Modifying Factors Evaluated in Technical Studies

Factors[1]	Preliminary Feasibility Study	Feasibility Study
Site infrastructure	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.	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.
Mine design & planning	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.	Mining method finalized. Detailed mine layouts finalized for preferred alternative. Development and production plan finalized for preferred alternative with required equipment fleet specified.
Processing plant	Detailed bench lab tests conducted. Detailed process flow sheet, equipment sizes, and general arrangement completed. Detailed plant throughput specified.	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.
Environmental compliance & permitting	Identification and detailed analysis of requirements or interests of agencies, NGOs, communities and other stakeholders. Detailed baseline studies with preliminary impact assessment	Identification and detailed analysis of requirements or interests of agencies, NGOs, communities and other stakeholders finalized. Completed baseline studies with final impact assessment (internal). Tailings

	(internal). Detailed tailings disposal, reclamation and mitigation plans.	disposal, reclamation and mitigation plans finalized.
Other relevant factors[2]	Reasonable assumptions, based on appropriate testing, on the modifying factors sufficient to demonstrate that extraction is economically viable.	Detailed assessments of modifying factors necessary to demonstrate that extraction is economically viable.
Capital costs	Accuracy: ±25% Contingency: ≤15%	Accuracy: ±15% Contingency: ≤10%
Operating costs	Accuracy: ±25% Contingency: ≤15%	Accuracy: ±15% Contingency: ≤10%
Economic Analysis	Taxes described in detail; revenues are estimated based on at least a preliminary market study; economic viability assessed by detailed discounted cash flow analysis.	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.

1. When applied in a preliminary or final feasibility study, these factors pertain to the modifying factors, as defined in this subpart.
2. 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.

What information must a registrant disclose in its SEC filings regarding all of its mining properties, including those that are non-material?

Registrants are currently required to disclose under Guide 7 information regarding mines, plants and significant properties owned or operated, or presently intended to be owned or operated, by the registrant.

The new rules would require **differing levels of disclosure regarding a mining property depending on whether the property is material to the registrant**. If a registrant with material mining operations has more than one mining property that it:

- 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, then it must provide in its SEC annual report and applicable registration statements the following information regarding all such properties, including both material and non-material properties:
    - A map or maps, of appropriate scale, showing the locations of all properties. Such maps should be legible on the page when printed.
    - An overview of the registrant's mining properties and operations. The overview must include aggregate annual production for the properties during each of the three most recently completed fiscal years preceding the filing. It should also include, as relevant:
        - The location of the properties;
        - The type and amount of ownership interests;
        - The identity of the operator or operators;
        - Title, mineral rights, leases or options and acreage involved;
        - The stages of the properties (exploration, development or production);
        - Key permit conditions;
        - Mine types and mineralization styles; and
        - Processing plants and other available facilities.

When presenting the overview, the registrant should include the amount and type of disclosure that is material to an investor's understanding of the registrant's properties and mining operations in the aggregate. A registrant should refer to, rather than duplicate, any disclosure concerning individually material properties provided elsewhere in the document.

- A summary of all mineral resources and mineral reserves, as determined by the qualified person, at the end of the most recently completed fiscal year by commodity and geographic area and for each property containing 10% or more of the registrant's combined measured and indicated mineral resources or containing 10% or more of the registrant's mineral reserves. This summary must be provided for each class of mineral resources (inferred, indicated and measured), together with total measured and indicated mineral resources, and each class of mineral reserves (probable and proven), together with total mineral reserves, using a tabular format set forth in the new rules.
- Registrants that hold only royalties, streaming or other similar rights with respect to a material property are subject to the foregoing disclosure requirements; however, if such a registrant lacks access to any of the required information, such registrant may omit such information, provided that the registrant:
    - Specifies the information to which it lacks access;
    - Explains that it does not have access to the required information because:
        - Obtaining the information would result in an unreasonable burden or expense, or
        - It requested the information from a person possessing knowledge of the information, who is not affiliated with the royalty company or similar registrant, and who denied the request; and
        - Provides all required information that it does possess or which it can acquire without incurring an unreasonable burden or expense.

What information must a registrant disclose in its SEC filings regarding properties that are individually material to the registrant?

In its SEC annual report and in applicable registration statements, a registrant engaged in mining operations would be required to disclose certain property-specific information for each property that is material to the registrant's business or financial condition. While the new rules do not specify how a registrant should determine what is an individual "property", versus multiple properties, the SEC noted in the proposing release that properties sharing the same processing plant or other facilities prior to the first point of material external sale could be treated as one mining property. This suggests that such determinations should not be made on a strictly legal basis but should instead be based on how such properties are situated or operated.

The new rules acknowledge that some registrants have material mining operations but do not have any single property that is material to the registrant's business or financial condition; for example, a registrant may have 50 distinct properties, none of which is individually material. A registrant with no individually material properties need not comply with the disclosure requirements described in this section.

In addition to information similar to current Guide 7 requirements, the new rules require, with respect to each material property:

- Tabular disclosure of mineral resources and mineral reserves;
- Additional narrative disclosures; and
- As previously described, filing as an exhibit a technical report summary prepared by one or more qualified persons in support of any estimate of material resources, any estimate of material reserves, any material change in the foregoing or any material change in a voluntarily-filed technical report summary relating to exploration results.

The new rules require that a registrant engaged in mining operations include in its annual reports and applicable registration statements the following information with respect to each property that is material to the registrant's business or financial condition:

- A brief description of the property including:
    - The location, accurate to within one mile, using an easily recognizable coordinate system. The registrant must provide appropriate maps, with proper engineering detail (such as scale, orientation, and titles). Such maps must be legible on the page when printed;
    - Existing infrastructure including roads, railroads, airports, towns, ports, sources of water, electricity, and personnel; and
    - A brief description, including the name or number and size (acreage), of the titles, claims, concessions, mineral rights, leases or options under which the registrant and its subsidiaries have or will have the right to hold or operate the property, and how such rights are obtained at this location, indicating any conditions that the registrant must meet in order to obtain or retain the property. If held by leases or options or if the mineral rights otherwise have termination provisions, the registrant must provide the expiration dates of such leases, options or mineral rights and associated payments.
- If the registrant's interest in the property is through a royalty, streaming or other similar right, a brief description of the agreement under which the registrant and its subsidiaries have or will have the right to a royalty or similar interest in the property, indicating any conditions that the registrant must meet in order to obtain or retain the royalty or similar interest, and indicating the expiration date.
- The following information, as relevant to the particular property:
    - A brief description of the present condition of the property, the work completed by the registrant on the property, the registrant's proposed program of exploration or development, the current stage of the property as exploration, development or production, the current state of exploration or development of the property, and the current production activities. Mines should be identified as either surface or underground, with a brief description of the mining method and processing operations. If the property is without known reserves and the proposed program is exploratory in nature or the registrant has started extraction without determining mineral reserves, the registrant must provide a statement to that effect;

    - The age, details as to modernization and physical condition of the equipment, facilities, infrastructure, and underground development; and
    - The total cost for or book value of the property and its associated plant and equipment;
- A brief history of previous operations, including the names of previous operators, insofar as known;
- A brief description of any significant encumbrances to the property, including current and future permitting requirements and associated timelines, permit conditions, and violations and fines;
- If mineral resources or reserves have been determined, a tabular summary of all mineral resources or reserves as of the end of the most recently completed fiscal year, presented for each class of mineral resources (measured, indicated and inferred), together with total measured and indicated mineral resources, the estimated tonnages and grades (or quality, where appropriate), and in a separate table, for each class of mineral reserves (proven and probable), together with total mineral reserves, the estimated tonnages, grades (or quality, where appropriate), cut-off grades and metallurgical recovery, based on a specific point of reference selected by the qualified person.
- A comparison of the property's mineral resources and reserves as of the end of the last fiscal year with the mineral resources and reserves as of the end of the preceding fiscal year, with an explanation of any material change between the two. The comparison must disclose information concerning:
    - The mineral resources or reserves at the end of the last two fiscal years;
    - The net difference between the mineral resources or reserves at the end of the last completed fiscal year and the preceding fiscal year, as a percentage of the resources or reserves at the end of the fiscal year preceding the last completed one;
    - An explanation of the causes of any discrepancy in mineral resources including depletion or production, changes in commodity prices, additional resources discovered through exploration, and changes due to the methods employed; and
    - An explanation of the causes of any discrepancy in mineral reserves including depletion or production, changes in the resource model, changes in commodity prices and operating costs, changes due to the methods employed, and changes due to acquisition or disposal of properties;

- If the registrant has not previously disclosed mineral reserve or resource estimates in a filing with the SEC or is disclosing material changes to its previously disclosed mineral reserve or resource estimates, a brief discussion of the material assumptions and criteria in the disclosure and cite to corresponding sections of the technical report summary, which must be filed as an exhibit.
- To the extent material to investors, a discussion of exploration activity and exploration results, including:

    - If disclosing exploration activity for any material property for the most recently completed fiscal year, a summary that describes the sampling methods used, and, for each sampling method used, the number of samples, the total size or length of the samples, and the total number of assays; and
    - If disclosing exploration results for any material property for the most recently completed fiscal year, a summary that, for each property, identifies the hole, trench or other sample that generated the exploration results, describes the length, lithology, and key geologic properties of the exploration results, and includes a brief discussion of the exploration results' context and relevance. If the summary only includes results from selected samples and intersections, it should be accompanied with a discussion of the context and justification for excluding other results.
- If the registrant is disclosing exploration results not previously disclosed in a filing with the SEC, or material changes to previously disclosed exploration results, provide sufficient information to allow for an accurate understanding of the significance of the exploration results. This must include information such as exploration context, type and method of sampling, sampling intervals and methods, relevant sample locations, distribution, dimensions, and relative location of all relevant assay and physical data, data aggregation methods, land tenure status, and any additional material information that may be necessary to make the required disclosure concerning the registrant's exploration results not misleading. If filing a technical report summary, the registrant must cite to corresponding sections of the summary technical report, which must be filed as an exhibit. A change in exploration results that significantly alters the potential of the subject deposit is considered material.

- If the registrant includes disclosure of an exploration target, such disclosure must appear in a separate section of the filing that is clearly captioned as a discussion of an exploration target. This 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.
    - 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.

Registrants that hold only royalties, streaming or other similar rights are subject to the foregoing disclosure requirements; however, if such a registrant lacks access to any of the required information, such registrant may omit such information, provided that the registrant:

- Specifies the information to which it lacks access;
- Explains that it does not have access to the required information because:
    - Obtaining the information would result in an unreasonable burden or expense, or
    - It requested the information from a person possessing knowledge of the information, who is not affiliated with the royalty company or similar registrant, and who denied the request; and
- Provides all required information that it does possess or which it can acquire without incurring an unreasonable burden or expense.

What other information must a registrant disclose in its SEC filings?

Under the new rules, every registrant with mining operations that are material to its business or financial condition must describe in its SEC annual report and applicable registration statements the internal controls that the registrant uses in its exploration and mineral resource and reserve estimation efforts. **This disclosure should include quality control and quality assurance (QC/QA) programs, verification of analytical procedures and a discussion of comprehensive risk inherent in the estimation**.

In addition, if a registrant has filed a technical report summary with respect to any property, the registrant must identify the qualified person who prepared the technical report summary and state whether the qualified person is an employee of the registrant. If the qualified person is not an employee of the registrant, the registrant must name the qualified person's employer, disclose whether the qualified person or the qualified person's employer is affiliated with the registrant or another entity that has an ownership, royalty or other interest in the property that is the subject of the technical report summary, and if affiliated, describe the nature of the affiliation.

May a registrant disclose historic mineral resources, mineral reserves or material exploration results that the registrant has been unable to verify?

Only in limited circumstances. If a report containing a mineral resource, mineral reserve or other estimate relating to a property was prepared before the registrant acquired, or entered into an agreement to acquire, an interest in the property, and the registrant has not verified the information as a current estimate of mineral

resources, mineral reserves, or exploration results, then such information is not considered current and cannot be filed in support of disclosure. Notwithstanding this prohibition, a registrant may include such an estimate in an SEC 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.

May a registrant include in its SEC filings supplemental disclosures that do not comply with the SEC's new rules, but comply with a foreign mining code such as Canada's NI 43-101?

Not in its core "filed" SEC reports, such as Form 10-Ks, 10-Qs and 20-Fs, and certain Form 8-Ks. Nor can such information be incorporated by reference into a non-MJDS SEC registration statement.

However, the SEC's new rules will not prohibit a registrant from including supplemental disclosures that are inconsistent with the SEC's rules in disclosures that are not subject to the rules, such as disclosures on an issuer's website, in press releases or in certain SEC submitted documents such as a Form 8-K furnished under Regulation FD, or for foreign private issuers a Form 6-K that is not incorporated by reference into an applicable registration statement. This is consistent with the existing reporting regime for U.S. issuers, under which many U.S. issuers voluntarily prepare technical reports and other disclosures that comply with NI 43-101 or other foreign standards and make such reports available to the public outside their core "filed" SEC reports. As under existing Guide 7, a registrant seeking to make such supplemental disclosures should assure itself that neither such disclosures nor its SEC filings are misleading.

The new rules will change the existing practice of Canadian issuers that file on non-MJDS forms including Forms 20-F, F-1, F-3 and F-4. Existing Guide 7 includes an exception that permits the disclosure of information that would otherwise be prohibited by Guide 7, if such information is required by foreign or state law. The SEC has taken the view that only Canada requires by law compliance with a particular mining disclosure code (NI 43-101). In addition, the SEC has not permitted U.S. issuers that are subject to Canadian disclosure requirements to take advantage of the exemption. Accordingly, the prevailing SEC guidance is that Canadian issuers filing with the SEC on non-MJDS forms are permitted to disclose NI 43-101 compliant information (which would otherwise violate Guide 7) in their SEC filings, as long as the filings are not misleading and the registrant also includes the information that would be required by Guide 7. U.S. issuers and registrants from other countries are not permitted to vary from Guide 7. As initially proposed by the SEC, the final new rules eliminate this exception on the basis that, because the new rules permit the disclosure of mineral resources and are generally consistent with other CRIRSCO-based reporting regimes, such an exception is no longer be necessary.

Could a qualified person be liable if information contained in the technical report summary is incorrect or misleading?

Yes. U.S. securities laws allow the purchaser in a public offering of securities to sue the registrant, its directors, and any officer that signed the SEC registration statement for the offering, if the registration statement pursuant to which the securities were sold "contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading . . . ", and the purchaser suffered damages. A purchaser may also sue any accountant, engineer, or other expert who has, with his or her consent, been named in the registration statement, with respect to the statements attributed to him. This would include any qualified person named as the author of a technical report summary.

Notwithstanding the foregoing, a person (other than the registrant) generally will not be liable if after reasonable investigation, the person had reasonable grounds to believe and did believe that the statements were true and that there was no material omission. This is known as the due diligence defense. A qualified person may therefore avoid liability, even in the case of a materially misleading statement or omission, if the qualified person conducted appropriate due diligence and had reasonable grounds to believe and did believe in the accuracy of the disclosure.

Liability for misleading disclosures is not limited to public offerings. Rule 10b-5 under the Securities Exchange Act of 1934 makes it unlawful to "make any untrue statement of a material fact or to omit to state a material

fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading . . . in connection with the purchase or sale of any security." Under this rule, claims for damages may be made in respect of securities purchased in private placements. In addition, lawsuits may be brought against a registrant or other persons alleged to have "made" untrue or misleading statements to the market generally, seeking damages on behalf of persons that purchased or sold securities in the market in reliance upon such information. The applicable standards for such claims are complex and beyond the scope of this discussion.

The filing of such lawsuits as class actions is common in the United States. Defendants may agree to settle such actions as an otherwise costly nuisance. Because plaintiffs' attorneys may be entitled to receive fees in such settlements, even ones with little benefit to the purported class of affected shareholders, it is common for plaintiffs' attorneys to bring class action lawsuits against companies that have experienced a significant drop in stock price as a result of an unfavorable disclosure, or that are engaged in a sale of the company.

Many qualified persons are already subject to these potential liabilities, because they act for registrants that are Canadian companies, and that pursuant to Canada's NI 43-101 have been identified in such registrants' SEC registration statements and reports.

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1. Including in Canada, Australia, South Africa, the European Union, Chile, Hong Kong, and Russia.
2. Unless otherwise indicated, "applicable registration statement" and similar references shall mean a registration statement on Form S-1, S-3, S-4, F-1, F-3, F-4, 10 or 20-F, or an offering statement on Form 1-A.

Appendix A

Primary Differences Between SEC Industry Guide 7 and the New Rules

	Industry Guide 7 and SEC Informal Guidance	Proposed Rules
Who must report?	Registrants with significant mining operations – the Staff has historically used 10% of assets as a benchmark Staff has treated royalty companies and vertically integrated companies as subject to Guide 7	Registrants with mining operations material to its business or financial condition Specifically includes vertically integrated companies and royalty companies
What is a mineral?	Neither minerals nor mineral deposits are defined	More expansive. Includes mineralization, including dumps and tailings, mineral brines, and other resources extracted on or within the earth's crust, **but excluding oil and gas resources, gases, geothermal fields and water**
What is a mineral resource?	Not defined	Defined as 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 its economic extraction.
What is a mineral reserve?	That part of a mineral deposit which could be economically and legally extracted or produced at the time of the reserve determination	An estimate of tonnage and grade or quality of indicated or measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project
What study can form the basis of reserves?	Final "bankable" feasibility study	Preliminary or Final Feasibility Studies
What commodity price must be used to calculate reserves?	Based on trailing three-year average prices	Must be reasonable

What factors must be considered when converting resources to reserves?	Does not outline the factors that must be considered when making a reserve determination	Establishes the framework of applying modifying factors to indicated or measured mineral resources in order to convert them to mineral reserves
What reserves and resources may be disclosed?	Only proven and probable reserves (if foreign law requires additional disclosure, that additional disclosure may be included – only Canada's NI 43-101 falls within this exemption) Resources may not be disclosed Informal Staff guidance allows disclosure of "mineralized material", which must be presented as in-place tonnage and grade and may not include contained ounces	Reserves and resources must be disclosed, if determined in accordance with the rule requirements. Otherwise, they may not be disclosed
Are exploration results required to be disclosed?	Not addressed	Optional
Is a technical report summary required to be filed with the SEC?	No	Yes
Must the resource determination be made by an expert or qualified person?	No	Yes
Characterization of the issuer as being in exploration, development or production stage	Guide 7 doesn't discuss the characterization of individual properties, or distinguish between properties of a registrant that are at different stages of development	Introduces a materiality concept. Adds classification standards for individual properties
Property Disclosure	Requires disclosure of certain items for each "mine, plant or other	Additional disclosure for material properties. Required summary disclosure

	significant property" in which the registrant has an economic interest. No rule provision regarding summary disclosure for multiple properties but the Staff has not objected to such summary disclosure	for registrants with multiple mining properties
Disclosure of internal controls used in exploration and mineral resource and reserve estimation efforts	No	Yes
Use of US Geological Survey published Circular 831 and 891?	The Staff has not objected to use of the circulars to classify resources of coal or industrial minerals	No longer permitted

Appendix B

Summary of Requirements for Technical Report Summaries

Required Content for All Technical Report Summaries:

- *Executive Summary*. Briefly summarize the most significant information in the technical report summary, including property description (including mineral rights) and ownership, geology and mineralization, the status of exploration, development and operations, mineral resource and mineral reserve estimates, summary capital and operating cost estimates, permitting requirements, and the qualified person's conclusions and recommendations. The executive summary must be brief and should not contain all of the detailed information in the technical support summary;
- *Introduction*. Disclose:
    - The registrant for whom the technical report summary was prepared;
    - The terms of reference and purpose for which the technical report summary was prepared;
    - The sources of information and data contained in the technical report summary or used in its preparation, with citations if applicable;
    - The details of the personal inspection on the property by each qualified person or, if applicable, the reason why a personal inspection has not been completed;
    - Whether the technical report summary's purpose was to report mineral resources, mineral reserves or material exploration results;
    - If applicable, that the technical report summary updates a previously filed technical report summary; and
    - When filing an update, the name and date of the previous technical report summary.
- Property Description. *Describe:*
    - The location of the property, accurate to within one mile, using an easily recognizable coordinate system. The qualified person must provide appropriate maps, with proper engineering detail (such as scale, orientation, and titles) to portray the location of the property. Such maps must be legible on the page when printed;
    - The area of the property;

- The name or number of each title, claim, mineral right, lease or option under which the registrant and its subsidiaries have or will have the right to hold or operate the property. If held by leases or options, the registrant must provide the expiration dates of such leases or options and associated payments;
- The mineral rights, and how such rights have been obtained at this location, indicating any conditions that the registrant must meet in order to obtain or retain the property;
- Any significant encumbrances to the property, including current and future permitting requirements and associated timelines, permit conditions, and violations and fines; and
- Any other significant factors and risks that may affect access, title, or the right or ability to perform work on the property.

If the registrant holds a royalty or similar interest in the property, the above information must be provided for the property that is owned or operated by a party other than the registrant. In this event, for example, the report must address the documents under which the owner or operator holds or operates the property, the mineral rights held by the owner or operator, conditions required to be met by the owner or operator, significant encumbrances and significant factors and risks relating to the property or work on the property.

- Accessibility, Climate, Local Resources, Infrastructure and Physiography. Describe:
  - The topography, elevation, and vegetation;
  - The means of access to the property, including highways, towns, rivers, railroads, and airports;
  - The climate and the length of the operating season, as applicable; and
  - The availability of and required infrastructure, including sources of water, electricity, personnel, and supplies.
- History. *Describe:*
  - Previous operations, including the names of previous operators, insofar as known; and
  - The type, amount, quantity, and general results of exploration and development work undertaken by any previous owners or operators.
- *Geological Setting, Mineralization and Deposit*. Describe briefly:
  - The regional, local, and property geology;
  - The significant mineralized 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 mineralization, together with a description of the type, character, and distribution of the mineralization; and
  - Each mineral deposit type that is the subject of investigation or exploration together with the geological model or concepts being applied in the investigation or forming the basis of exploration program.

The qualified person must include at least one stratigraphic column and one cross-section of the local geology to meet the requirements of this paragraph.

- Exploration. *Describe the nature and extent of all relevant exploration work, conducted by or on behalf of, the registrant.*
  - For all exploration work other than drilling, describe:
    - The procedures and parameters relating to the surveys and investigations;
    - The sampling methods and sample quality, including whether the samples are representative, and any factors that may have resulted in sample biases;
    - The location, number, type, nature, and spacing or density of samples collected, and the size of the area covered; and
    - The significant results of and the qualified person's interpretation of the exploration information.
  - For drilling, to the extent such information is relevant and available, describe:

        - The type and extent of drilling including the procedures followed;
        - Any drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results; and
        - The material results and interpretation of the drilling results.
    - For characterization of hydrogeology, to the extent such information is relevant and available, describe:
        - The nature and quality of the sampling methods used to acquire data on surface and groundwater parameters;
        - The type and appropriateness of laboratory techniques used to test for groundwater flow parameters such as permeability, and include discussions of the quality control and quality assurance procedures;
        - Results of laboratory testing and the qualified person's interpretation, including any material assumptions, which must include descriptions of permeable zones or aquifers, flow rates, in-situ saturation, recharge rates and water balance; and
        - The groundwater models used to characterize aquifers, including material assumptions used in the modeling.
    - For geotechnical data, testing and analysis, to the extent such information is relevant and available, describe:
        - The nature and quality of the sampling methods used to acquire geotechnical data;
        - The type and appropriateness of laboratory techniques used to test for soil and rock strength parameters, including discussions of the quality control and quality assurance procedures; and
        - Results of laboratory testing and the qualified person's interpretation, including any material assumptions.
    - For a technical report summary to support disclosure of exploration results, the qualified person must provide information on all samples or drill holes. If some information is excluded, the qualified person must identify the omitted information and explain why that information is not material.
    - For a technical report summary to support disclosure of mineral resources or mineral reserves, the qualified person can meet the requirements of this section by providing sampling (including drilling) plans, representative plans and cross-sections of results.
    - Include a plan view of the property showing locations of all drill holes and other samples.
    - If disclosing an exploration target for which a mineral resource has yet to be disclosed, the above information must be provided in a subsection of the "Exploration" section that is clearly captioned as a discussion of an exploration target, together with:
        - 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.
        - 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.
- *Sample Preparation, Analyses, and Security*. Describe:
    - Sample preparation methods and quality control measures employed prior to sending samples to an analytical or testing laboratory, sample splitting and reduction methods, and the security measures taken to ensure the validity and integrity of samples;
    - Sample preparation, assaying and analytical procedures used, the name and location of the analytical or testing laboratories, the relationship of the laboratory to the registrant, and whether the laboratories are certified by any standards association and the particulars of such certification;
    - The nature, extent, and results of quality control procedures and quality assurance actions taken or recommended to provide adequate confidence in the data collection and estimation process; and
    - The author's opinion on the adequacy of sample preparation, security, and analytical procedures. If the analytical procedures used in the analysis are not part of conventional industry practice, the qualified person must state so and provide a justification for why he or she believes the procedure is appropriate in this instance.
- Data Verification. Describe the steps taken by the qualified person to verify the data being reported on or which is the basis of this technical report summary, including:
    - Data verification procedures applied by the qualified person;
    - Any limitations on or failure to conduct such verification, and the reasons for any such limitations or failure; and
    - The qualified person's opinion on the adequacy of the data for the purposes used in the technical report summary.

- *Adjacent Properties*. Where applicable, a qualified person may include relevant information concerning an adjacent property if:

    - Such information was publicly disclosed by the owner or operator of the adjacent property;
    - The source of the information is identified;
    - The qualified person states that he or she has been unable to verify the information and that the information is not necessarily indicative of the mineralization on the property that is the subject of the technical report summary; and
    - The technical report summary clearly distinguishes between the information from the adjacent property and the information from the property that is the subject of the technical report summary.

- Other Relevant Data and Information. Include any additional information or explanation necessary to provide a complete and balanced presentation of the value of the property to the registrant.
- Interpretation and Conclusions. The qualified person must summarize the interpretations of and conclusions based on the data and analysis in the technical report summary. He or she must also discuss any significant risks and uncertainties that could reasonably be expected to affect the reliability or confidence in the exploration results, mineral resource or mineral reserve estimates, or projected economic outcomes.
- Recommendations. If applicable, the qualified person must describe the recommendations for additional work with associated costs. If the additional work program is divided into phases, the costs for each phase must be provided along with decision points at the end of each phase.
- References. Include a list of all references cited in the technical report summary in sufficient detail so that a reader can locate each reference.

- Reliance on Information Provided by the Registrant. If the qualified person is relying on information provided by the registrant, as permitted by the SEC's rules, for any matters discussed in the technical report summary:

    - Identify the categories of information provided by the registrant;
    - Identify the particular portions of the technical report summary that were prepared in reliance on information provided by the registrant and the extent of that reliance; and
    - Disclose why the qualified person considers it reasonable to rely upon the registrant for any of such information.

Required Additions for an Initial Assessment:

- Mineral Processing and Metallurgical Testing. *Describe:*

    - The nature and extent of the mineral processing or metallurgical testing and analytical procedures;
    - The degree to which the test samples are representative of the various types and styles of mineralization and the mineral deposit as a whole;
    - The name and location of the analytical or testing laboratories, the relationship of the laboratory to the registrant, whether the laboratories are certified by any standards association and the particulars of such certification;
    - The relevant results including the basis for any assumptions or predictions about recovery estimates. Discuss any processing factors or deleterious elements that could have a significant effect on potential economic extraction; and
    - The qualified person's opinion on the adequacy of the data for the purposes used in the technical report summary. If the analytical procedures used in the analysis are not part of conventional industry practice, the qualified person must state so and provide a justification for why he or she believes the procedure is appropriate, in this instance.

- Mineral Resource Estimates. *If this item is included, the technical report summary must:*

    - Describe the key assumptions, parameters, and methods used to estimate the mineral resources, in sufficient detail for a reasonably informed person to understand the basis for and how the qualified person estimated the mineral resources;
    - Provide the qualified person's estimates of mineral resources for all commodities, including estimates of quantities, grade or quality, cut-off grades, and metallurgical or processing recoveries. The qualified person must classify mineral resources into inferred, indicated, and measured mineral resources, disclose the criteria used to classify a resource as inferred, indicated or measured, and justify the classification. The technical report summary must include mineral resource estimates at a specific point of reference selected by the qualified person and disclosed in the technical report summary. The qualified person must round off, to appropriate significant figures chosen to reflect order of accuracy, any estimates of quantity and grade or quality. The qualified person must estimate cut-off grades based on assumed costs for surface or underground operations and commodity prices that provide a reasonable basis for establishing prospects of economic extraction for resources. The qualified person must disclose the price used for each commodity, 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 the qualified person reports the grade or quality for a multiple commodity mineral resource as metal or mineral equivalent, he or she also must report the individual grade of each metal or mineral and the commodity prices, recoveries, and any other relevant conversion factors used to estimate the metal or mineral equivalent grade;
- Discuss the uncertainty in the estimates of inferred, indicated, and measured mineral resources and explain the sources of uncertainty and how they were considered in the uncertainty estimates. The qualified person must support the disclosure of uncertainty associated with each class of mineral resources with a list of all factors considered and explain how those factors contributed to the final conclusion about the level of uncertainty underlying the resource; and
- 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. These 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.

- In complying with the above requirements, the qualified person must take into account the following instructions:

  - The qualified person must consider all sources of uncertainty when reporting the uncertainty associated with each class of mineral resources. Sources of uncertainty that affect such reporting of uncertainty include sampling or drilling methods, data processing and handling, geologic modeling and estimation. The qualified person is not required to use estimates of confidence limits derived from geostatistics or other numerical methods to support the disclosure of uncertainty surrounding mineral resource classification. If the qualified person chooses to use confidence limit estimates from geostatistics or other numerical methods, he or she should consider the limitations of these methods and adjust the estimates appropriately to reflect sources of uncertainty that are not accounted for by these methods.
  - Mineral resources must generally be reported exclusive of mineral reserves; however, in the technical report summary mineral resource estimates may be inclusive of mineral reserves so long as this is clearly stated with equal prominence to the rest of the item. If the qualified person chooses to disclose resources inclusive of mineral reserves, he or she must also clearly state the mineral resources exclusive of mineral reserves in the technical report summary.
  - Unless otherwise stated, cut-off grades also refer to net smelter returns, pay limits and other similar terms.

A qualified person may, but is not required to, also include the following information in the initial assessment:

- Economic Analysis. *Describe:*

- The key assumptions, parameters, and methods used to demonstrate economic viability. The qualified person must provide all material assumptions including discount rates, exchange rates, commodity prices, and taxes, royalties, and other government levies or interests applicable to the mineral project or to production, and to revenues or income from the mineral project;
- Results of the economic analysis, including annual cash flow forecasts based on an annual production schedule for the life of project, and measures of economic viability such as net present value (NPV), internal rate of return (IRR), and payback period of capital; and
- Sensitivity analysis results using variants in commodity price, grade, capital and operating costs, or other significant input parameters, as appropriate, and discuss the impact on the results of the economic analysis.

When this information is included in an initial assessment:

- The qualified person must include a statement, of equal prominence to the rest of this section, that, unlike mineral reserves, mineral resources do not have demonstrated economic viability; and
- If the qualified person includes inferred mineral resources in any economic analysis, the report must:
  - State 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;
  - Disclose the percentage of the mineral resources used in the cash flow analysis that was classified as inferred mineral resources; and
  - Disclose, with equal prominence, the results of the economic analysis excluding inferred mineral resources in addition to the results that include inferred mineral resources.
- Operating and capital cost estimates must have an accuracy level of at least approximately ±50% and a contingency level of no greater than 25%. The qualified person must state the accuracy and contingency levels in the initial assessment.

Further Required Additions for a Preliminary Feasibility Study or a Final Feasibility Study:

- Mineral Reserves Estimates. If this item is included, the technical report summary must:

  - Describe the key assumptions, parameters, and methods used to estimate the mineral reserves, in sufficient detail for a reasonably informed person to understand the basis for converting, and how the qualified person converted, indicated and measured mineral resources into the mineral reserves;
  - Provide the qualified person's estimates of mineral reserves for all commodities, including estimates of quantities, grade or quality, cut-off grades, and metallurgical or processing recoveries. The qualified person must classify mineral reserves into probable and proven mineral reserves. The qualified person must round off, to appropriate significant figures chosen to reflect order of accuracy, any estimates of quantity and grade or quality. The technical report summary must include mineral reserve estimates at a specific point of reference selected by the qualified person and disclosed in the technical report summary. The qualified person must estimate cut-off grades based on detailed cut-off grade analysis that includes a long term price that provides a reasonable basis for establishing that the project is economically viable. The qualified person must disclose the price used for each commodity, which must provide a reasonable basis for establishing that the project is economically viable, 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;
    - When the qualified person reports the grade or quality for a multiple commodity mineral reserve as metal or mineral equivalent, he or she must also report the individual grade of each metal or mineral and the commodity prices, recoveries, and any other relevant conversion factors used to estimate the metal or mineral equivalent grade.
    - Provide the qualified person's opinion on how the mineral reserve estimates could be materially affected by risk factors associated with or changes to any aspect of the modifying factors.

- Mining Methods. *Describe the current or proposed mining methods and the reasons for selecting these methods as the most suitable for the mineral reserves under consideration. Include:*

    - Geotechnical and hydrological models, and other parameters relevant to mine designs and plans;
    - Production rates, expected mine life, mining unit dimensions, and mining dilution and recovery factors;
    - Requirements for stripping, underground development, and backfilling;
    - Required mining equipment fleet and machinery, and personnel; and
    - At least one map of the final mine outline.

- Processing and Recovery Methods. *Describe the current or proposed mineral processing methods and the reasons for selecting these methods as the most suitable for extracting the valuable products from the mineralization under consideration. Include:*

    - A description or flow sheet of any current or proposed process plant;
    - Plant throughput and design, equipment characteristics and specifications;
    - Current or projected requirements for energy, water, process materials, and personnel; and
    - If the processing method, plant design or other parameters have never been used to successfully extract the valuable product from such mineralization, the qualified person must so state and provide a justification for why he or she believes the approach will be successful in this instance.

  If the processing method, plant design or other parameter has never been used to commercially extract the valuable product from such mineralization and is still under development, then no mineral resources or reserves can be disclosed on the basis of that method, design, or other parameter.

- Infrastructure. *Describe the required infrastructure for the project, including roads, rail, port facilities, dams, dumps and leach pads, tailings disposal, power, water and pipelines, as applicable. The qualified person must include at least one map showing the layout of the infrastructure.*
- Market Studies. *Describe the market for the products of the mine, including justification for demand or sales over the life of the mine (or length of cash flow projections). Include:*

    - Information concerning markets for the property's production, including the nature and material terms of any agency relationships and the results of any relevant market studies, commodity price projections, product valuation, market entry strategies, and product specification requirements;
    - Descriptions of all material contracts required for the issuer to develop the property, including mining, concentrating, smelting, refining, transportation, handling, hedging arrangements, and forward sales contracts. State which contracts have been executed and which are still under negotiation. For all contracts with affiliated parties, discuss whether the registrant obtained the

same terms, rates or charges as could be obtained had the contract been negotiated at arm's length with an unaffiliated third party; and

- If the mine's product cannot be traded on an exchange, there is no other established market for the product, and no sales contract exists:
  - In the case of a pre-feasibility study, a *preliminary market study*, meaning 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; and
  - In the case of a feasibility study, a *final market study*, meaning 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 all assumptions concerning the material contracts required to develop and sell the mineral reserves.

- Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups. Describe the factors pertaining to environmental compliance, permitting, and local individuals or groups, which are related to the project. Include:

  - The results of environmental studies (e.g. environmental baseline studies or impact assessments);
  - Requirements and plans for waste and tailings disposal, site monitoring, and water management during operations and after mine closure;
  - Project permitting requirements, the status of any permit applications, and any known requirements to post performance or reclamation bonds;
  - Plans, negotiations or agreements with local individuals or groups;
  - Descriptions of any commitments to ensure local procurement and hiring;
  - Mine closure plans, including remediation and reclamation plans, and the associated costs; and
  - The qualified person's opinion on the adequacy of current plans to address any issues related to environmental compliance, permitting and local individuals or groups.

- Capital and Operating Costs. *Provide estimates of capital and operating costs, with the major components set out in tabular form. Explain and justify the basis for the cost estimates including any contingency budget estimates. State the accuracy level of the capital and operating cost estimates. To assess the accuracy of the capital and operating cost estimates, the qualified person must take into account the risks associated with the specific engineering estimation methods used to arrive at the estimates. As part of this analysis, the qualified person must take into consideration the accuracy of the estimation methods in prior similar environments. Operating and capital cost estimates in a pre-feasibility study must, at a minimum, have an accuracy level of approximately ±25% and a contingency range not exceeding 15%. Operating and capital cost estimates in a feasibility study must, at a minimum, have an accuracy level of approximately ±15% and a contingency range not exceeding 10%. The qualified person must state the accuracy level and contingency range in the study.*
- Economic Analysis. *Describe:*

- *The key assumptions, parameters, and methods used to demonstrate economic viability. The qualified* person must provide all material assumptions including discount rates, exchange rates, commodity prices, and taxes, royalties, and other government levies or interests applicable to the mineral project or to production, and to revenues or income from the mineral project;
- Results of the economic analysis, including annual cash flow forecasts based on an annual production schedule for the life of project, and measures of economic viability such as net present value (NPV), internal rate of return (IRR), and payback period of capital; and
- Sensitivity analysis results using variants in commodity price, grade, capital and operating costs, or other significant input parameters, as appropriate, and discuss the impact on the results of the economic analysis.

When this information is included in a pre-feasibility study:

- 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;
- Factors to be considered are typically the same as those required for an initial assessment, but considered at a greater level of detail or at a later stage of development. For example, a pre-feasibility study must define, analyze or otherwise address in detail:
    - 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 or interests of agencies, non-governmental organizations, communities and other stakeholders, 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.
- The pre-feasibility study must also identify sources of uncertainty that require further refinement in a final feasibility study.

When this information is included in a final feasibility study:

- 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;
- 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, 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.