

## CSA Staff Notice 43-311

*Review of Mineral Resource Estimates in Technical Reports*

June 4, 2020

### Executive Summary

Disclosure of a mineral resource estimate (MRE) is a significant milestone for mining issuers. It is often highly anticipated by the market and can have a major influence on the share price and market capitalization of a mining company. The MRE becomes the foundation for subsequent mining studies that serve to quantify the attractiveness of a mineral project as an investment opportunity.

Staff of the Canadian Securities Administrators (**Staff** or **we**) are publishing this notice to present the results of a disclosure review by the securities regulatory authorities in British Columbia, Ontario, Quebec, and Alberta. Staff evaluated 86 technical reports supporting MREs to assess the quality, clarity, and compliance of disclosure.

CSA staff had found non-compliant MRE disclosure in technical reports and taken note of recent MRE re-statements by mining issuers. This review, completed in late 2018, explored whether disclosure both complied with the disclosure standard and provided transparency into the qualified person's (QP) adherence to best estimation practices. Based on the review, ten technical reports were amended and refiled with six refilings related to inadequate disclosure and four refilings resulting in revisions to the MRE itself due to non-standard professional practice issues.

This notice provides mining issuers and QPs with a level of certainty about how securities regulatory authorities assess disclosure of MREs in technical reports and provides specific guidance to assist issuers, including their board and management, to address areas of deficient disclosure identified by the review and potentially reduce the need for regulatory intervention. We believe applying this guidance will help to standardize publicly reported MREs in technical reports, providing mining investors and analysts with greater confidence when evaluating MREs.

The review generally found that the mechanics of the estimation process were explained well including geological modelling of controls on the mineralization, statistical analysis of the data, interpolation methods, and validation tests on the block model. The disclosure of how project operators ensured quality control of sampling and analysis was also often well described.

Our results identified inadequate disclosure in the following areas:

- *Reasonable Prospects for Eventual Economic Extraction (Reasonable Prospects)*: A mineral deposit is not a mineral resource unless it has demonstrated Reasonable Prospects. Some technical reports lacked adequate disclosure on metal recoveries, assumed mining and processing methods and costs, and constraints applied to the MRE to demonstrate that the mineralized material had the potential to be mined and processed economically.
- *Data Verification*: Data used to support a MRE needs to be adequately verified and determined suitable by the QP for use in the MRE. It is common for mineral projects to pass through the hands of several property holders, each generating exploration and drilling

data. Using legacy data from former operators is legitimate, but this data needs careful verification, documented in the technical report.

- *Risk Factors:* Each mineral project has its own set of risks, any of which could affect the MRE. Many technical reports only provided boilerplate disclosure about potential risks and uncertainties that are general to the mining industry. Failure to set out meaningful known risks specific to the mineral project may make MRE disclosure potentially misleading.
- *Sensitivity to Cut-off Grade:* Variations to the cut-off grade to indicate the relative robustness of the estimate can be useful information. However, all estimates resulting from each of the cut-off grade scenarios must meet the test of Reasonable Prospects and the base case or preferred scenario must be highlighted.

Staff will continue to review technical reports as part of the ongoing continuous disclosure review process. Based on the outcomes of this review, Staff will pay special attention to MRE and the areas of inadequate disclosure identified.

We will require that issuers correct material disclosure deficiencies by amending and re-filing the technical report and filing a clarifying or retracting news release. Where warranted, we will direct complaints related to inappropriate professional practice to the QP's professional association.

## **Review Purpose and Scope**

### *Purpose*

The purpose of the review was to:

1. Assess technical reports' compliance with National Instrument 43-101 *Standards of Disclosure for Mineral Projects (NI 43-101)* and Form 43-101F1 *Technical Report (the Form)*. We also reviewed the disclosure for conformance to the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (**CIM Definition Standards**, adopted by CIM Council May 10, 2014) incorporated by reference into NI 43-101.
2. Compare estimation practice documented in the technical report against CIM Best Practices Guidelines including Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (**CIM BPG**, adopted by CIM Council November 23, 2003). Estimation practice has evolved since publication of CIM BPG, with sophisticated geological modeling, geostatistical, and mining optimization software now integral to the practice. Subsequent to the review, an updated version of CIM BPG was adopted by CIM Council on November 28, 2019.
3. Develop guidance for mining issuers and QPs to improve the disclosure of MREs in technical reports and ease the reporting burden by providing clarity on disclosure requirements and expectations of securities regulators.
4. Identify potential improvements to MRE disclosure requirements for consideration in future policy projects.

## ***Scope***

The review focused on the following key areas:

1. QP's relevant experience and the purpose of the technical report
2. Data verification and adequacy for use in MRE
3. Mineralization controls and geological model
4. Mineral resource estimate data analysis
5. Mineral resource estimation and classification
6. Reasonable prospects for eventual economic extraction
7. Reporting results, sensitivities, risks, and uncertainties in the MRE

The procedure used for the review included the following steps:

1. Staff developed a measurement system to evaluate MRE disclosure in technical reports, considering compliance with the Form, NI 43-101, and current industry best practice (see Methodology in Appendix I). For estimation best practice, staff consulted with the CIM Mineral Resources and Mineral Reserves Committee, the CSA Mining Technical Advisory and Monitoring Committee, and the AMF Mining Advisory Committee.
2. The system scored disclosure of 33 elements, across seven themes, evaluating the clarity and adequacy required for a reasonably informed reader to understand the MRE (see Methodology in Appendix I).
3. Staff selected technical reports for the review from those filed on SEDAR (see Technical Reports Selection Criteria in Appendix I).
4. Seven staff across three jurisdictions (British Columbia, Ontario, and Quebec) reviewed 86 technical reports, and repeated reviews of more than 10% of the selected technical reports for quality assurance.
5. We analyzed the results of the MRE review and reported key findings in Figure 1 and provided Staff's observations, commentary, and guidance (see Discussion of Review Findings).

## **Actions Taken**

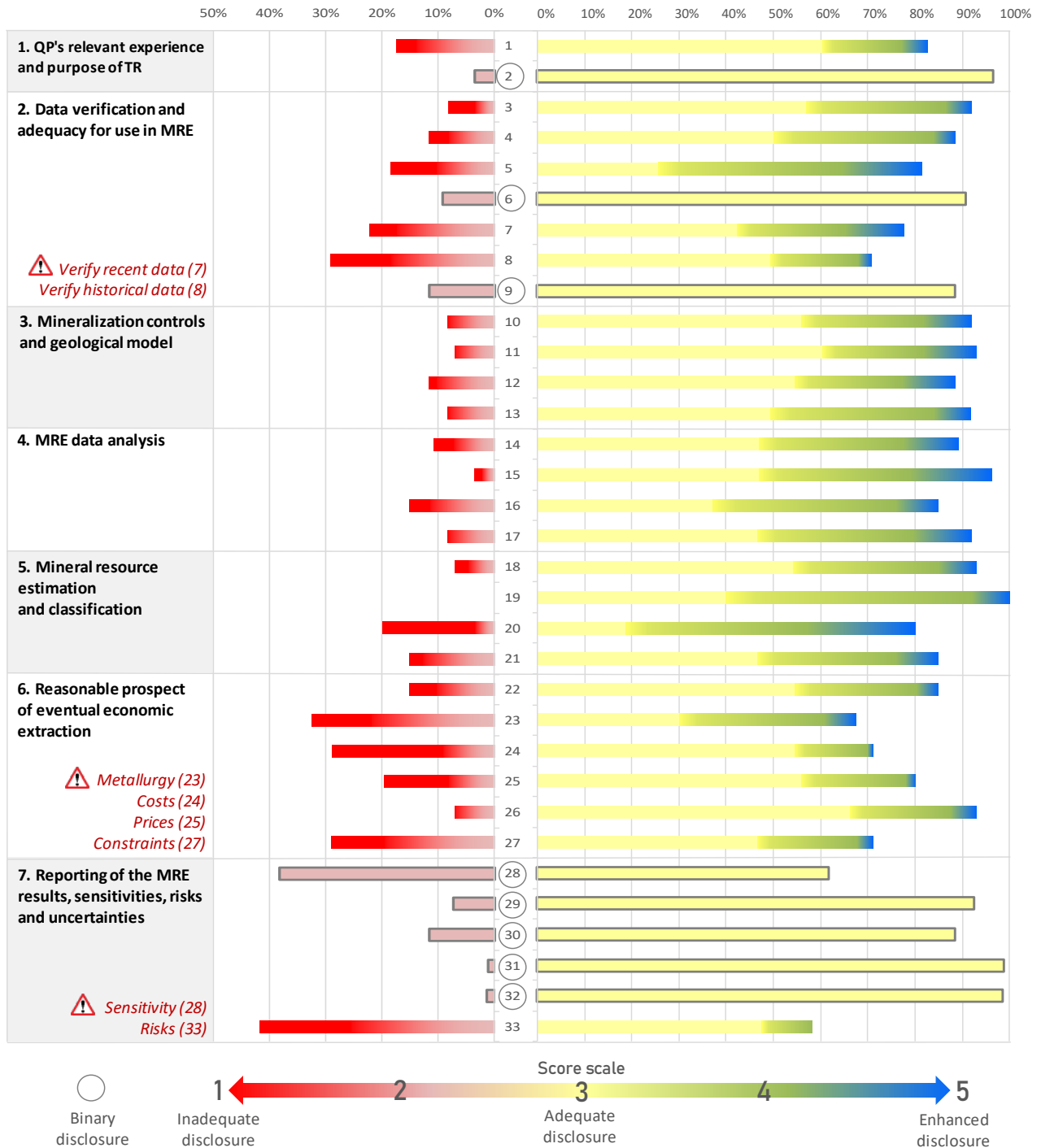
Staff issued ten comment letters to mining issuers when the disclosure was significantly inadequate in one area, or so inadequate across multiple areas to make the disclosure potentially misleading.

These letters resulted in ten amended and refiled technical reports (12% of reports reviewed), with the following outcomes:

- Six required revision to add disclosure supporting the MRE
- Four required revision to the MRE due to professional practice issues resulting in
  - One downgrade in the resource category
  - One reduction in the estimated tonnage or grade
  - One complete recalculation of the MRE, with verification of historical data
  - One retraction of the MRE.

Staff provided a summary of the findings to the CIM Mineral Resources and Mineral Reserves Committee who were concurrently updating the Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines.

**Figure 1: Disclosure Elements and Review Results**



The bars show the percentage of the 33 disclosure elements in the reviewed reports that were each assigned a score of 1-to-5. The numbers along the vertical axis correspond to the disclosure elements detailed in Appendix II. The circled binary disclosure elements (2, 6, 9, 28, 29, 30, 31, and 32) were assigned a score of 1 for inadequate or 3 for adequate. The seven disclosure themes are identified along the left side of the chart; individual elements are discussed in Appendix II.

## Discussion of Review Findings

The following summarizes the outcomes for each theme and includes Staff commentary. Appendix II describes the 33 disclosure elements and notes the requirements of NI 43-101, the Form, and CIM Definition Standards, and the guidance in CIM BPG, that correspond to each element.

### 1. QP's relevant experience and purpose of the technical report

The QP responsible for the MRE must be suitably qualified to complete a MRE for the specific property and its deposit model. The technical report must state its terms of reference.

#### *Results*

More than 15% of the QPs responsible for the MRE provided incomplete disclosure of their relevant experience in preparing estimates for the property's commodity and deposit type.

Disclosure of the terms of reference and purpose of the technical report was done very well.

#### *Staff Commentary*

- The QP's certificate should demonstrate relevant experience in comparable mineral deposit types by including examples of the MREs they have prepared.
- Disclosing the technical report's terms of reference gives readers specific information about the mineral project's stage of development.

### 2. Data verification and adequacy for use in MRE

Describing sample preparation, security, analytical procedures, and quality assurance/quality control (QA/QC) is critical to an understandable MRE. QPs must state their professional opinion on the merits of those processes, explain the steps they took to verify the integrity of the data, and state their professional opinion whether the data suits the purpose of the technical report.

#### *Results*

We found the disclosure of sample preparation, security, and analytical procedures to be of good quality, notably the disclosure of the QA/QC protocols and results implemented by the issuer. Our review found that more than 80% of the technical reports had disclosure that made the MRE result understandable. Staff noted enhanced disclosure about QA/QC protocols and results in more than 50% of the reports.

In contrast, disclosure about data verification procedures and results was one of the weakest areas in the MRE review. More than 20% of the technical reports reviewed had incomplete disclosure concerning the QP's data verification procedures and results. Among reports where a significant portion of the resource database was acquired by operators prior to the current issuer, the proportion with incomplete disclosure was almost 30%.

### *Staff Commentary*

- QPs should bear in mind the distinction between the project operator's QA/QC protocols (and results) and their own independent data verification.
- It is critical the QP verify the integrity of legacy data collected before the activities of the current operator, especially if the sampling, analytical, and QA/QC information is no longer available to the current operator.
- The personal inspection is an indispensable component of the data verification process; we think the QP responsible for the MRE should perform a site visit.

### 3. Mineralization controls and geological model

This theme takes in the description of the geological controls of the mineralization on the property; these controls form the basis for the geological model used to constrain the MRE. It also includes descriptions of the data sets used in the MRE, and the criteria and methodology used to develop the mineral resource model.

#### *Results*

We noted excellent disclosure of these elements, with more than 85% of the technical reports reviewed showing adequate disclosure for all the criteria. Staff saw enhanced disclosure in more than 30% of the technical reports reviewed.

### *Staff Commentary*

- Defining a proper geological mineralization model from the geological settings and mineralization controls is the foundation of a representative MRE.
- A poorly defined geological model may result in an erroneous estimate that may require future restatement.

### 4. Mineral resource estimate data analysis

This theme includes the description of analyses that quantify the statistical and spatial relationships of the variables (grades, dimensions, densities, etc.) used in the estimation process.

#### *Results*

We noted excellent disclosure related to this theme, with more than 85% of the technical reports providing adequate disclosure for all the elements in this theme. More than 40% of the technical reports provided enhanced disclosure.

### *Staff Commentary*

- Discuss any matters that might materially affect a reasonably informed reader's understanding of the estimate being reported. Problems encountered in the collection of data, or with the sufficiency of data, must be clearly disclosed, particularly when they directly affect the reliability or confidence in the MRE.

## 5. Mineral resource estimation and classification

This area includes discussion of the procedures and methodologies used to estimate and classify the mineral resource, including the steps taken to validate the mineral resource model.

### *Results*

Our review found adequate disclosure of all elements in more than 80% of the technical reports. We also noted enhanced disclosure on interpolation and block model validation in more than 40%. However, a subset (between 15% and 20%) of reviewed reports had incomplete disclosure about block model validation and classification methodology.

### *Staff Commentary*

- The criteria used for classification of the MRE should be described in enough detail for a reasonably informed reader to understand them.
- Disclosure of the block model validation methods and results lets a reasonably informed reader gauge how robust the results of the MRE are.

## 6. Reasonable prospects for eventual economic extraction

This area includes the description of the different technical and economic assumptions used to determine that the estimated mineralized material has Reasonable Prospects.

### *Results*

Except for the element mentioning the cut-off grade used to constrain the MRE (#26), our review found this aspect of disclosure to be one of the weakest. More than 20% of the technical reports provided incomplete disclosure of metallurgical recovery, cost assumptions, or other factors that might limit the economics of the resource. Many reports lacked specific information about constraining surfaces applied to demonstrate Reasonable Prospects -- for example, pit shells for open pit deposits, mineable shapes for underground, and surface limitations that might constrain the potential mining method.



## *Staff Commentary*

- This is a critical aspect of the MRE. A reasonably informed reader needs complete disclosure of the assumptions applied to the project in order to understand how the deposit is a mineral resource with demonstrated Reasonable Prospects, and not just a mineral inventory.
- Show your work: clearly show how the cut-off grade was derived from the selected assumptions and parameters.
- For early stage projects, QPs may demonstrate Reasonable Prospects by comparing the subject deposit to analogous mine operations. QPs using analogy should:
  - state specific analogues showing why they apply to the subject property,
  - compare the key attributes of the subject deposit with those of the analogues,
  - adjust the cut-off grade of the MRE to reflect the differences between the project and its analogues.
- QPs should seek opinions or assistance from other professionals in areas where they lack the necessary expertise, such as mining, metallurgy, and infrastructure.

## 7. Reporting MRE results, sensitivities, risks, and uncertainties

This theme includes disclosure of the MRE according to NI 43-101 requirements, including information about tonnage, grade, mineral resource categories, and a discussion about uncertainties or risk factors that could materially affect the MRE. It can also provide the reader with a sensitivity analysis using alternative cut-off grade scenarios.

### *Results*

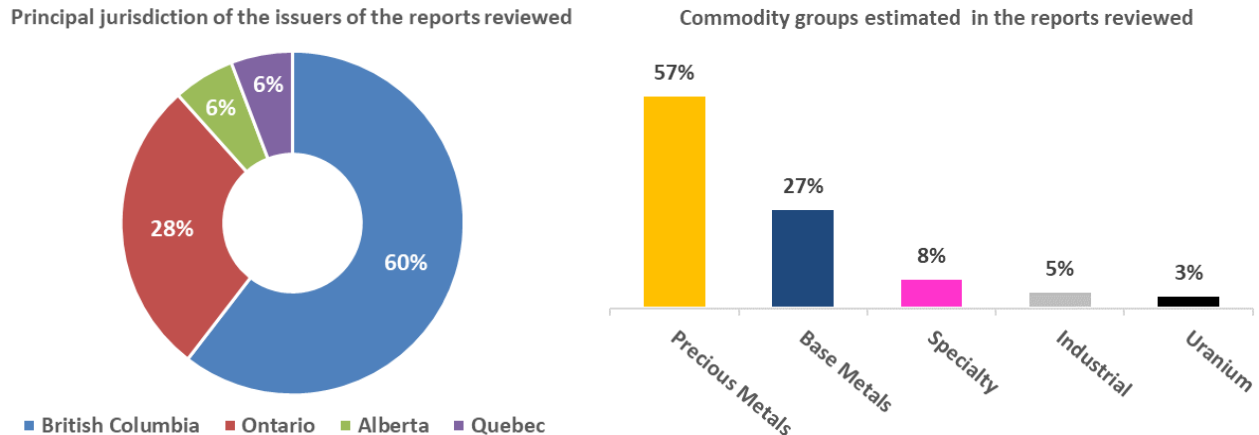
Our review found adequate disclosure in this area with two major exceptions. First, more than 35% of the technical reports did not disclose sensitivities to cut-off grade well, including some reports with sensitivity cases that did not demonstrate Reasonable Prospects. Second, more than 40% of the reports had incomplete disclosure on factors specific to the project that could materially affect the MRE, with some reporting only generic disclosure of risks or uncertainties.

## *Staff Commentary*

- To show the relative robustness of cut-off grade scenarios clearly, and to meet definition standards:
  - show the MRE at the base case cut-off grade prominently; there can only be one current MRE for the mineral project at a point in time;
  - report only the alternative cut-off grade scenarios that meet the test of Reasonable Prospects;
  - do not include an estimate with a zero cut-off grade; it represents a mineral inventory with no demonstrated Reasonable Prospects.
- Omitting specific risks of the MRE could potentially be misleading.

## Appendix I

### Distribution profile of technical reports reviewed



*The distribution profile of technical reports reviewed approximates the distribution of the total number of reporting mining issuers in Canada by principal jurisdiction (left) and the relative percentage of technical reports reviewed by commodity group (right).*

### Selection criteria for technical reports

The selection criteria included:

- The technical report supported the disclosure of an initial or an updated mineral resource estimate.
- The technical report was the then-current technical report the issuer had on file for the subject property at the time of the review.
- The property was not the subject of an economic analysis, and therefore not an ‘advanced property’ as defined in section 1.1 of NI 43-101.
- The technical report had an effective date (or that failing, a signing date) after the most recent revision to the CIM Definition Standards.
- The selection reflected the distribution of mining issuers by principal regulating jurisdiction and covered a range of commodity types. (A distribution profile of the reports reviewed, by the issuer’s principal jurisdiction and the commodities estimated, is shown above.)

### Methodology

The measurement system staff developed to evaluate disclosure of mineral resource estimates considered 33 specific disclosure elements or requirements, covering seven disclosure themes. For each element, staff evaluated whether the disclosure was clear and sufficient for a reasonably informed reader to understand it.

Staff used this five-point scale to rate the quality, clarity, and compliance of the disclosure for each of the 33 elements reviewed:



For eight of the 33 elements, where disclosure could be either adequate or inadequate, staff assigned a score of 1 for inadequate disclosure and a score of 3 for adequate disclosure.

### ***Quality Control***

To assess the consistency of scoring across jurisdictions, staff completed an additional nine 'blind' repeat reviews of selected technical reports. The process selected three technical reports randomly from the 86 reviews. Each had been originally reviewed by staff in a different jurisdiction. One staff refereed the selection and quality assessment process. No staff duplicated a review on a report they had already seen. The referee kept all re-review selections and results confidential until all nine repeat reviews were completed. A statistical analysis comparing the original review and the (three) repeat reviews shows that scoring across the CSA was consistent or highly repeatable (precise). Scores ranged less than half the standard deviation for all 33 categories in the 86 reviews.

## Appendix II

### *NI 43-101 and CIM BPG*

Disclosure elements reviewed and referenced to the specific provisions of NI 43-101, the Form, CIM Definition Standards, and CIM BPG. The table below highlights applicable requirements, standards and guidelines, but is not intended to present a comprehensive review of these requirements, standards and guidelines.

QP's relevant experience and purpose of the technical report		
1	Qualifications of the QP	Para. 8.1(2)(c) of NI 43-101 requires a statement of the QP's qualifications in the Certificate of Qualified Person, including a brief summary of relevant experience.
2	Purpose for preparing the technical report	Item 2(b) of the Form requires a description of the terms of reference and purpose the technical report was prepared for.
Data verification and adequacy for use in the MRE		
3	Sample preparation and security procedures	Item 11(a) of the Form requires a description of sample preparation methods and quality control measures employed before dispatch of samples to an analytical or testing laboratory, the method or process of sample splitting and reduction, and the security measures taken to ensure the validity and integrity of samples taken.
4	Analytical procedures	Item 11(b) of the Form requires a description of relevant information regarding sample preparation, assaying and analytical procedures used, the name and location of the analytical or testing laboratories, the relationship of the laboratory to the issuer, and whether the laboratories are certified by any standards association and the particulars of any certification.
5	Quality assurance and quality control results analysis	Item 11(c) of the Form requires a description of a summary of the nature, extent, and results of quality control procedures employed and quality assurance actions taken or recommended to provide adequate confidence in the data collection and processing.
6	Opinion of the QP on sample preparation, security and analytical procedures	Item 11(d) of the Form requires a statement of the author's opinion on the adequacy of sample preparation, security, and analytical procedures.
7	Verification of the issuer's data used in the MRE	Items 12(a) and 12(b) of the Form require a description of the steps taken by the QP to verify the data in the technical report, including the data verification procedures applied by the QP, and any limitation on or failure to conduct such verification, and the reason for any such limitations or failure.
8	Verification of the data used in the MRE collected prior to the activities of the issuer	Items 12(a) and 12(b) of the Form require a description of the steps taken by the QP to verify the data in the technical report, including the data verification procedures applied by the QP, and any limitation on or failure to conduct such verification, and the reason for any such limitations or failure.

9	Opinion of the QP on the adequacy of data	Item 12(c) of the Form requires a statement of the QP's opinion on the adequacy of the data for the purposes used in the technical report.
Mineralization controls and geological model		
Item 14(a) of the Form requires that a technical report disclosing mineral resources must provide sufficient discussion of the key assumptions, parameters, and methods used to estimate the mineral resources for a reasonably informed reader to understand the basis for the estimate and how it was generated. CIM Definition Standards states QPs are encouraged to provide information that is as comprehensive as possible in their technical reports on MREs. The Estimation of Mineral Resource and Mineral Reserve Best Practice Guidelines provide, in a summary form, a list of the main criteria which should be considered when reporting Mineral Resources.		
10	Geological and analytical datasets used for the MRE	CIM BPG (4) states that the resource database forms the foundation necessary for the estimation of mineral resources. The database typically includes geological, survey and assay datasets that, verified beforehand, will be used during the geological interpretation, modeling, and estimation of the mineral resources.
11	Surfaces, volumes and other features used to constrain the MRE	CIM BPG (6) states that surfaces (i.e. surface topography or bedrock interface) and volumes (i.e. underground excavation voids), potentially constraining the MRE, must be considered during the modeling of the mineralized deposit.
12	Geological and mineralization control model	CIM BPG (5) states that the collected data should be analyzed in an unbiased, scientific fashion to develop a geological concept which forms the underlying premise on which the geological interpretation is developed. The concept should include consideration of the geological setting, analogous deposits, styles of mineralization, mineralogical characteristics, and genesis.
13	Methodology of modelling geological domains	CIM BPG (5) states that assumptions concerning the spatial continuity of the mineralizing structures in the mineralization wireframe models should be reasonable, be supported by the direct geological evidence, and be consistent with similar deposits where the spatial continuity has been demonstrated. The parameters used for the construction of all mineralized wireframe models should be fully documented.
Mineral resource estimate data analysis		
14	Sample support	CIM BPG (6) states that data for the MRE generally are obtained from a variety of support (size, shape and orientation of samples) and must be standardized into composites if statistical parameters vary substantially from one support to another. Selection of the composite length should be appropriate for the data, deposit, and conceptual operational scenario, and be specific to a geological or mineralization domain.

15	Treatment of outliers	CIM BPG (6) states that outliers, those values inconsistent with the majority of the data, must be recognized and managed in the estimate because they can contribute to serious overestimation of global and local grades. Regardless of the methodology selected (like domaining, grade capping and spatially restricting the influence of high-grade assays), the QP must provide documentation of the approach selected, along with justification and support for the decision.
16	Continuity analysis	CIM BPG (6) states that the QP should use a comprehensive approach to, and appropriate methods of, exploratory data analysis to understand the statistical and spatial character of variables on which the estimate depends. Data analysis includes interrelationships among variables of interest, recognition of systematic spatial variation of the variables (e.g. grade, thickness, density, etc.), definition of distinctive domains that must be evaluated independently for the estimate, and identification and understanding of outliers. Data analysis should be conducted using appropriate univariate, bivariate and/or multivariate procedures, including spatial autocorrelation studies, which are an aspect of data analysis that assists in defining correlation and range of influence of a grade variable in two or three dimensions.
17	Rock density	Rock bulk density is used to convert a volume of rock into tonnage. CIM BPG (4) and (6) state that the methodology used to determine bulk density values should be described in detail and must account for any void spaces or cavities that may be present so as to avoid over-estimation of tonnage. Estimation of the bulk density is a critical component in the preparation of an accurate tonnage estimate for both the mineralized volumes, and the adjoining non-mineralized or weakly mineralized material.
<b>Mineral resource estimation and classification</b>		
18	Block model parameters and interpolated variables	The block model is a three-dimensional array of blocks, typically constrained inside the geological domains, used to assign the interpolated variables during the estimation process. CIM BPG (6) states that the modelling work flow adopted for the preparation of a resource block model should consider the distribution of the informing data, along with the size, distribution, and geometry of the mineralized zones, all of which must be compatible with the anticipated mining method(s) and related equipment.
19	Interpolation methodology	CIM BPG (6) states that the QP must select appropriate estimation method(s) or techniques for the resource model (for example, nearest neighbor estimates, inverse distance to a power, various kriging approaches). The choice of estimation techniques to be employed is dependent to a degree on the size and geometry of the deposit and the quantity and spatial distribution of available data.

20	Resource model validation	CIM BPG (6) states that the QP should ensure that the final resource block model is consistent with such primary data as the geology and mineralization wireframe models, structural models, topography and excavation surfaces and volumes, and the analytical data that were used to prepare estimates of the modelled attributes. The validation steps could include comparison of volume estimates between the block model and the wireframe models, visual inspection of interpolated results on suitable plans and sections, checks for global and local bias (comparison of interpolated and nearest neighbor or declustered composite statistics, and analysis of local trends), and checks on change of support (degree of grade smoothing in the interpolation).
21	Mineral resource classification	CIM Definition Standards require the classification of the MRE into three categories which reflect the level of geological knowledge and confidence. CIM BPG (6) states that the criteria or methods used for classification should be documented in sufficient detail so that the results are reproducible by others.
Reasonable prospects for eventual economic extraction		
22	Mining method	CIM Definition Standards for mineral resource states that the phrase 'reasonable prospects for eventual economic extraction' implies a judgment by the QP in respect to the technical and economic factors likely to influence the prospect of economic extraction. The QP should consider and clearly state the basis for determining that the material has reasonable prospects for eventual economic extraction. Assumptions should include estimates of cut-off grade and geological continuity at the selected cut-off, metallurgical recovery, smelter payments, commodity price or product value, mining and processing method, and mining, processing and general and administrative costs.
23	Metallurgical assumptions	
24	Costs assumptions	
25	Commodity prices	
26	Cut-off grade	
27	Constraints applied to the MRE	Description of features used to constrain the MRE in determining reasonable prospects for eventual economic extraction (for example, an optimized pit envelope, conceptual underground workings, mineral property boundary, or surface infrastructure).
Reporting of MRE results, sensitivities, risks, and uncertainties		
Item 14(b) of the Form requires a technical report that discloses mineral resources to comply with all disclosure requirements for mineral resources set out in s. 2.2, 2.3, and 3.4 of NI 43-101.		
28	Sensitivity analysis using different cut-off grades	Instruction (b) of Item 14 of the Form states that where multiple cut-off grades scenarios are presented, all estimates resulting from each of the cut-off grade scenarios must meet the test of Reasonable Prospects.
29	Methodology of metal or mineral equivalent grade	Item 14(c) of the Form states that when the grade of a multiple-commodity mineral resource is reported as metal or mineral equivalent, the report must also state the individual grade of each metal or mineral and the metal prices, recoveries, and relevant conversion factors used to estimate the metal or mineral equivalent grade.

30	Effective date of MRE	Para. 3.4(a) of NI 43-101 requires the issuer to include in the written disclosure the effective date of each mineral resource.
31	Quantity and grade of each resource category	Para. 2.2(d) and 3.4(b) of NI 43-101 require the disclosure of the quantity and grade of each category of mineral resources.
32	Inferred category not added with other categories	Para. 2.2(c) of NI 43-101 proscribes adding inferred mineral resources to other categories of mineral resources.
33	Specific risk factors	Para. 3.4(d) of NI 43-101 and Item 14(d) of the Form requires the inclusion of a general discussion on the extent to which the MRE could be materially affected by any known environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors.



## Questions

Please refer your questions to any of the following people:

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