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ONTARIO  
SECURITIES  
COMMISSION



# Technical Reports on Mineral Resource Estimates

*The Good, the Bad, and the Compliant*

**CSA Staff Notice 43-311**

**Craig Waldie**, P.Geo., Senior Geologist, Corporate Finance

**Jim Whyte**, P.Geo., Senior Geologist, Corporate Finance

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## Caution

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## Presentation outline

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## Disclosure reviews by the regulator

# “Disclosure” under NI 43-101

## Disclosure means:

- any oral statement or written information
- made by, or on behalf of the company
- intended to be, or reasonably likely to be, made available to the public in a jurisdiction of Canada
- whether or not filed under securities legislation, ... including websites



**WHITBY**

**Whitby Associates: Filings of NI 43-101 Technical Report for Primary, Advanced and Mineral Potential in Eastern for the Kama Mine Complex, Canada**

**Whitby Associates Inc. (Whitby Associates) - Primary, Advanced and Mineral Potential in Eastern for the Kama Mine Complex, Canada**

The technical report titled "NI 43-101 Technical Report for Primary, Advanced and Mineral Potential in Eastern for the Kama Mine Complex, Canada" was prepared by Whitby Associates Inc. ("Whitby Associates") on behalf of the issuer, Whitby Associates Inc. ("Whitby Associates"). The report was prepared in accordance with the requirements of National Instrument 43-101 - Standards of Disclosure for Mineral Projects ("NI 43-101") and the applicable provisions of the Securities Act (S.A.) and the Securities Regulation (S.R.).

**Whitby Associates Inc. (Whitby Associates) - Primary, Advanced and Mineral Potential in Eastern for the Kama Mine Complex, Canada**

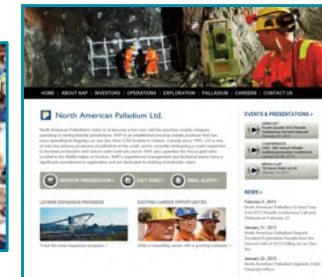
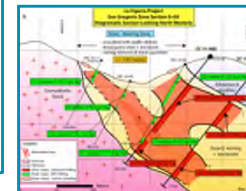
Category	Number	Value	Unit
Reserves	1,100,000	1.10	Million tonnes
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*Disclosure reviews by regulators look at many different documents*

## Disclosure review process

### Formal comment letter is sent electronically to the company

- Outlines specific disclosure concerns identified by staff
- Company is requested to respond in writing in 5-10 business days
- Review process may involve multiple comment and response letters
- Requests company to explain, clarify, or retract disclosure, or other corrective action
  - Staff will typically comment on issues such as:
    - Non-compliance with NI 43-101 or disclosure not based on best practices
    - Website disclosure that includes economic forecasts not supported by a technical report
    - Technical reports that do not comply with Form 43-101F1
- Staff may also conclude that the company is in “default” of a specific filing obligation

## So what if the disclosure doesn't comply?

### *NI 43-101 is enforceable under the Securities Act*

- **Possible outcomes:**

- News release clarifying and/or retracting the disclosure
- Amending and refileing a technical report
- Company placed on the OSC refileings and errors list
- Company placed on the default list (can't raise new money)
- Cease trade order or management cease trade order (trading stops)
- Referred to enforcement for further investigation

- **Other possible outcomes:**

- Class action lawsuit under civil liability provisions of the Act
- Complaint forwarded to the QP's professional association

# Review of mineral resource estimates in technical reports

June 4, 2020

**CSA/ACVM**

Canadian Securities  
Administrators

Autorités canadiennes  
en valeurs mobilières

CSA Staff Notice 43-311  
*Review of Mineral Resource Estimates in Technical Reports*



# Scope of the review

- **86 technical reports** (reviewed by staff from BC, ON, QC)
  - Supporting an initial mineral resource or updated mineral resource estimate
  - Property was not subject to PEA, mineral reserves, or production
- **7 key themes** (33 criteria) used to measure disclosure compliance and quality
  - 25 criteria used a 1 (low) to 5 (high) scale
  - 8 criteria used a pass or fail scale
- **Commodities** - Primarily gold (57%) and base metal (27%) projects
- **Countries** - 23 countries - Canada (48%), USA (17%), South American (14%), European (9%)
- **Qualified Persons** - 65 different QPs responsible for Item 14 (mineral resource estimate)



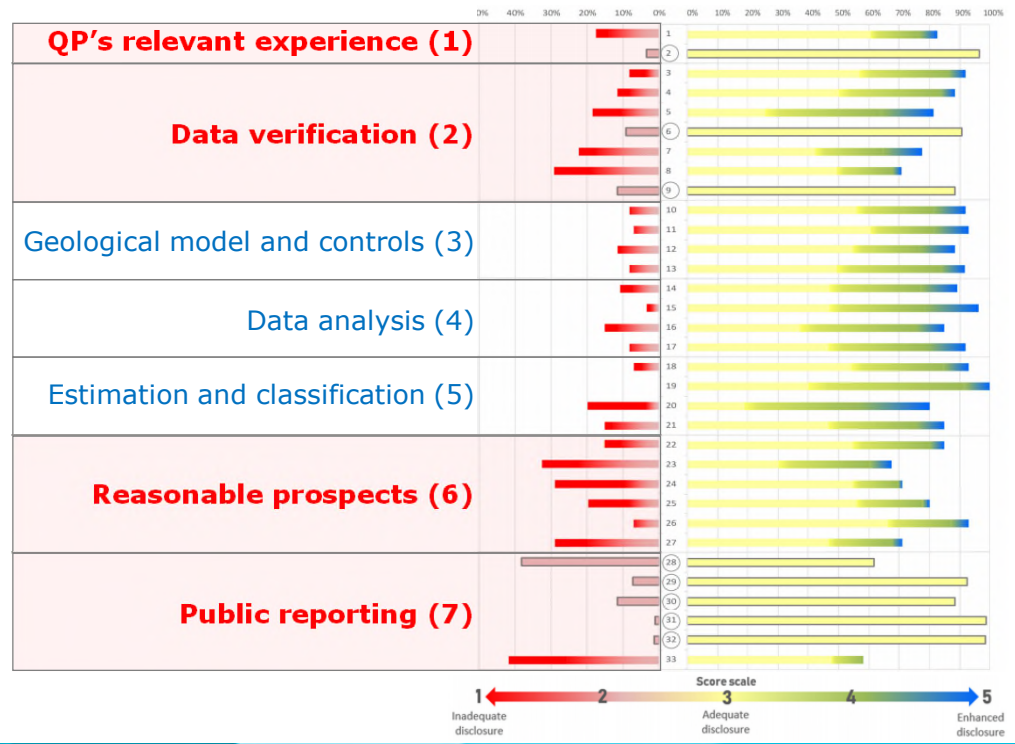
## Outcomes

- **TEN** of **86** technical reports (**12%**) required revisions due to either a significant deficiency in one area, or several deficiencies making the disclosure potentially misleading

### Technical report revisions

- **Six** revised to add disclosure supporting the resource estimate (*i.e.* key assumptions)
- **Four** revised the resource estimate due to professional practice issues resulting in:
  - Downgrading the category to inferred due to lack of data verification and metallurgical testing
  - Reducing the estimate by applying constraining surfaces (pit-shell)
  - Redoing the estimate after verification of historical data
  - Retracting the entire estimate due to lack of reasonable prospects

# Disclosure themes and review results



Five-point scale was used to rate the quality, clarity, and compliance of the disclosure for each of the 33 elements reviewed

# Qualified person's relevant experience

- **Certificate of Qualified Persons**

- **8.1(2)(c) of NI 43-101** requires a statement of the QP's qualifications in the QP's Certificate, including a **brief summary of relevant experience**
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- **Relevant experience**

- The Certificate of the QP responsible for the resource estimate should provide clear evidence demonstrating that the individual is suitably qualified and has "sufficient relevant experience" in estimation of the commodity, deposit type (or comparable deposit type), and the particular situation
  - "**Sufficient relevant experience**" is interpreted to mean that level of experience necessary to be able to identify with substantial confidence problems and situations that could affect the reliability of the resource estimate

## Example: Relevant experience statement (Responsible for mineral resource estimate)

### Deficient Example:

*I have practiced my profession continuously since graduation from university in 1990.*

### Better Example:

*I have worked as a professional geologist for 30 years since graduation from university in 1990. My relevant experience for the purpose of the Technical Report includes:*

- Since 2006 - Consulting geologist specializing in mineral resource and mineral reserve estimation and audits for a variety of early and advanced stage gold, silver, and base metal projects in Canada, Africa, Chile and Mexico; and*
- 1992 to 2005 - Employed at several underground and open pit gold and copper mining operations in Canada and held positions of Mineral Resources Manager, Chief Mine Geologist, and Chief Evaluation Geologist with the responsibility for estimation of mineral resources and mineral reserves for development projects and operating mines.*

## Data verification

- **Item 12: Data Verification**

- **Item 12(a) to (c) in Form 43-101F1** requires a description of the **procedures and steps taken by the QP to verify the data used in the technical report**, including any reasons for limitations or failures to verify data, and provide the **QP's opinion** on the adequacy of the data for the purposes used in the technical report
- **Historical Data:** A key issue is how the QP deals with verifying the integrity of data collected before the current owner, especially if the historical sampling, analytical, and QA/QC data is missing, or historical core is not available for resampling

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- **Important link between data verification and the site visit**

- **Item 2(d) in Form 43-101F1 (Introduction)** requires a description of the details of the personal inspection on the property by each qualified person (at least one QP)
  - While not a requirement, the QP responsible for the resource estimate should perform a site visit

## Example: QP's opinion on data verification

*"The qualified person visited the Property on March 3, 2020. The site visit was complemented by a review of digital documents and databases both before and after the visit. The purpose of this site visit was to get an overview of the Property, complete independent check sampling of drill core, assess the compliance of the work being conducted, and provide guidelines, if needed, to ensure the project was ready for an initial mineral resource estimate prepared under NI 43-101.*

*A drilling program was underway at the time of the site visit. Special emphasis was placed on the following items:*

- *Drill collar locations*
- *Collar downhole surveys*
- *Drilling protocols*
- *Logging protocols*
- *Sampling protocols*
- *QA/QC protocols*
- *Assay data validation*
- *Bulk density*
- *Interpretation methodology*

*Overall, the qualified person is of the opinion that the site visit and subsequent data verification exercises and check sampling described above demonstrated that the database is of sufficient quality to be used for the mineral resource estimate."*

## Reasonable prospects for eventual economic extraction (mineral resource)

- **Item 14: Mineral Resource Estimates**

- *Item 14(a) in Form 43-101F1* requires 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

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- **CIM Definition Standards**

- Under the CIM Definition Standards, **key assumptions** should include commodity price, metallurgical recovery, mining and processing methods and costs, G&A costs, and application of reasonable constraints on the resource estimate to support and justify “**reasonable prospects**”





## Example: Reasonable prospects assumptions

### *Assessing reasonable prospects for eventual economic extraction*

*To assess reasonable prospects for eventual economic extraction, an optimized pit shell was prepared using general technical and economic assumptions listed below in order to constrain the estimated mineral resource blocks.*

*Technical and economic parameters for assessing reasonable prospects:*

<i>Gold Price</i>	<i>US\$1,800/oz</i>
<i>Silver Price</i>	<i>US\$20/oz</i>
<i>Gold Recovery</i>	<i>85%</i>
<i>Silver Recovery</i>	<i>45%</i>
<i>Exchange Rate</i>	<i>\$1.00US = \$1.32CA</i>
<i>Mining Cost</i>	<i>US\$5.00/tonne</i>
<i>Processing Cost</i>	<i>US\$15.00/tonne</i>
<i>G&amp;A Cost</i>	<i>US\$2.00/tonne</i>
<i>Pit Slope</i>	<i>45 degrees</i>

## What does NI 43-101 say about using CIM best practice guidelines?

- **General Guidance (6) of Companion Policy 43-101CP**

- QP is not specifically required to follow the CIM Best Practices Guidelines
- However, a QP acting as a “professional”, will generally respect industry standard practices as established by CIM or similar organizations in other jurisdictions
- Companies that disclose technical information not conforming to industry standard practices could be making potentially **misleading disclosure**

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**Note:**

- *Regulators may challenge a company’s disclosure if it appears to deviate from published industry best practices*



## What is potentially misleading disclosure?

- **Mineral resource estimates that re based on any of the following:**
  - Unverified historical or “legacy” data used as the basis for the estimate
  - Failure to consider the geologic model
  - Unconstrained resource estimate (*i.e.* mineral inventory)
  - Not explaining how the estimate meets “reasonable prospects for eventual economic extraction” (*i.e.* mining and metallurgy methods and costs, price assumptions, etc.)
  - Unrealistic cut-off grade (*i.e.* open-pit cut-off grade for an underground deposit)
  - Indicated and measured resources without any supporting metallurgical sampling
  - Physical locations that make mining very unlikely or impossible (*i.e.* within or near national parks, environmentally or culturally sensitive areas, below some bodies of water, etc.)

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### ***Possible intervention by the regulator:***

- *May require the QP to provide additional disclosure (or revise the disclosure) to show how they determined the mineral resource has “reasonable prospects for eventual economic extraction”*

# Reporting of the resource estimate

## Sensitivity based on multiple cut-off grades

- **Instruction (b) of Item 14 of Form 43-101F1** states that where multiple cut-off grades scenarios are presented, each cut-off grade scenario must meet the test of "reasonable prospects", and the base case cut-off grade must be highlighted

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## • Disclosure implications

- Only report cut-off grade scenarios that meet the test of "reasonable prospects"
  - Don't report a zero cut-off grade – this is a mineral inventory, not a mineral resource!
- Identify the base case cut-off - there can only be one current resource estimate

## Examples: Pit shell cut-off grade sensitivity

### Good disclosure:

Category	Cut-off Gold (g/t)	Metric Tonnes	Gold Grade (g/t)	Gold Metal (oz)
Indicated	5.00	452,000	8.60	125,000
	2.00	1,372,000	4.94	218,000
	1.00	2,411,000	3.42	265,000
	0.50	3,510,000	2.58	291,000
	<b>0.45</b>	<b>3,693,000</b>	<b>2.47</b>	<b>294,000</b>
	0.40	3,875,000	2.38	296,000

Cut-off grade scenarios appear to meet the test of “reasonable prospects”, and the base case cut-off grade is highlighted

### Bad disclosure:

Indicated resources				
Class	Cut-Off Grade	Ton (metric ton)	Grade	Ounces (troy)
IND	0	66 861 300	0.29	626 600
IND	0.2	12 793 800	1.43	588 700
IND	0.3	10 418 300	1.70	569 900
IND	0.4	8 884 500	1.94	552 800
IND	0.5	7 710 300	2.16	535 900
IND	0.6	6 855 600	2.36	520 900
IND	0.7	6 147 600	2.56	506 100
IND	0.8	5 580 700	2.74	492 500
IND	0.9	5 156 400	2.90	480 900
IND	1	4 786 000	3.05	469 600
IND	1.1	4 463 300	3.20	458 700
IND	1.2	4 153 400	3.35	447 300

Cut-off grade scenarios reported down to a zero cut-off grade (mineral inventory!) and the base case cut-off grade is not highlighted

# Reporting of the resource estimate

## Specific risk factors that could materially affect the estimate

- **3.4(d) of NI 43-101 & Item 14(d) of Form 43-101F1** requires a general discussion on the extent to which the estimate could be materially affected by any known environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors

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## • Disclosure implications

- Typically only boilerplate or generic disclosure of risk factors is provided, for example:
  - *"The QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the resource estimate."*
- Omitting a discussion of specific risks to the project could be potentially **misleading**

## Example: Specific risk factors

*"There are several known risks which would materially affect the potential development of the Project including the risk of not being able to secure the necessary government permits for development and operation of the Project.*

*Following a change in the government, demonstrations and road blockades of mining projects occurred sporadically throughout the country, including the Company's Project. Access to the Project has been limited since March 2020, and key water-use permits from the government have been declined.*

*Table XX provides a risk factor matrix in which environmental and social risk elements were considered. The most significant risks arising from the lack of government permits will impact the project schedule, mining operations, water management, infrastructure, and capital cost escalation.*"

# Thank You!

**Craig Waldie**  
*Senior Geologist*

416-593-8308  
[cwaldie@osc.gov.on.ca](mailto:cwaldie@osc.gov.on.ca)

**Jim Whyte**  
*Senior Geologist*

416-593-2168  
[jwhyte@osc.gov.on.ca](mailto:jwhyte@osc.gov.on.ca)

