

Mineral Disclosure Standards Under NI 43-101

Basics, Pitfalls and Practical Guidance

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March 5, 2014



Caution

The views expressed in this presentation are the personal views of the presenting staff and do not necessarily represent the views of the Commission or other Commission staff.

The presentation is provided for general information purposes only and does not constitute legal or technical advice.

Information has been summarized and paraphrased for presentation purposes and examples have been provided for illustration purposes only.

Agenda : What you will learn

Canadian Regulatory Overview

NI 43-101 – Basics

- Misconceptions
- Basics and the qualified person
- Who are competent/qualified persons?

NI 43-101 – Disclosure Pitfalls & Practical Guidance

- Exploration target
- Mineral resource
 - CIM Definition Standards - revisions
- Preliminary economic assessment (PEA)
- PFS without declaring reserves
- Reserves no longer viable
- Production decision

Corporate Presentation Exercise

- Take a Chance Mining Ltd.

Technical Report – Basics

Technical Report – Disclosure Pitfalls and Practical Guidance

- Summary
- Reliance on other experts
- Data verification
- Mineral resource estimates
- Environmental studies and social impact
- Capital and operating costs
- Economic analysis
- Interpretation and conclusions
- QP certificates

Reviews by Commission Staff

Questions & Answers

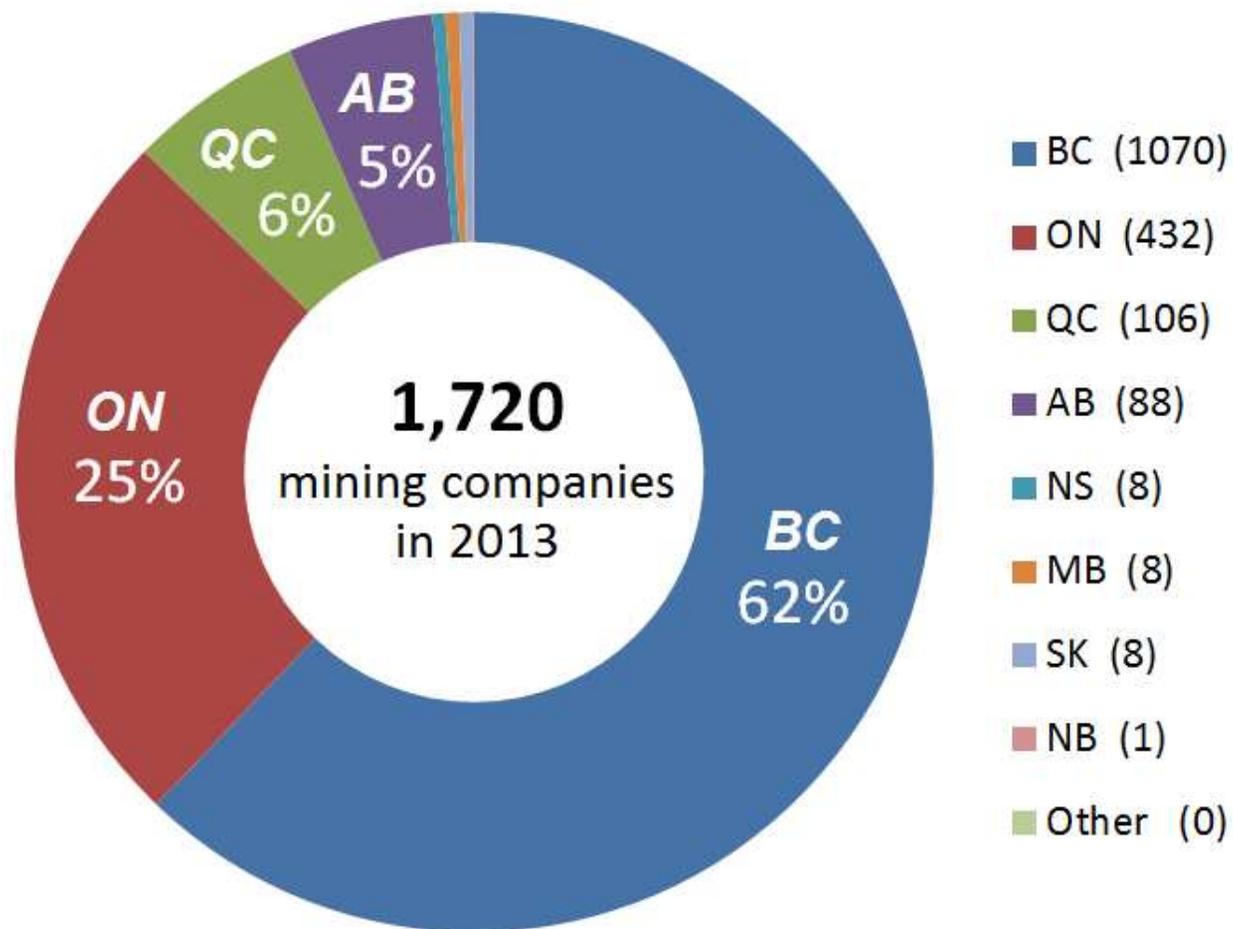
Canadian Regulatory Overview

13 provincial/territorial securities commissions



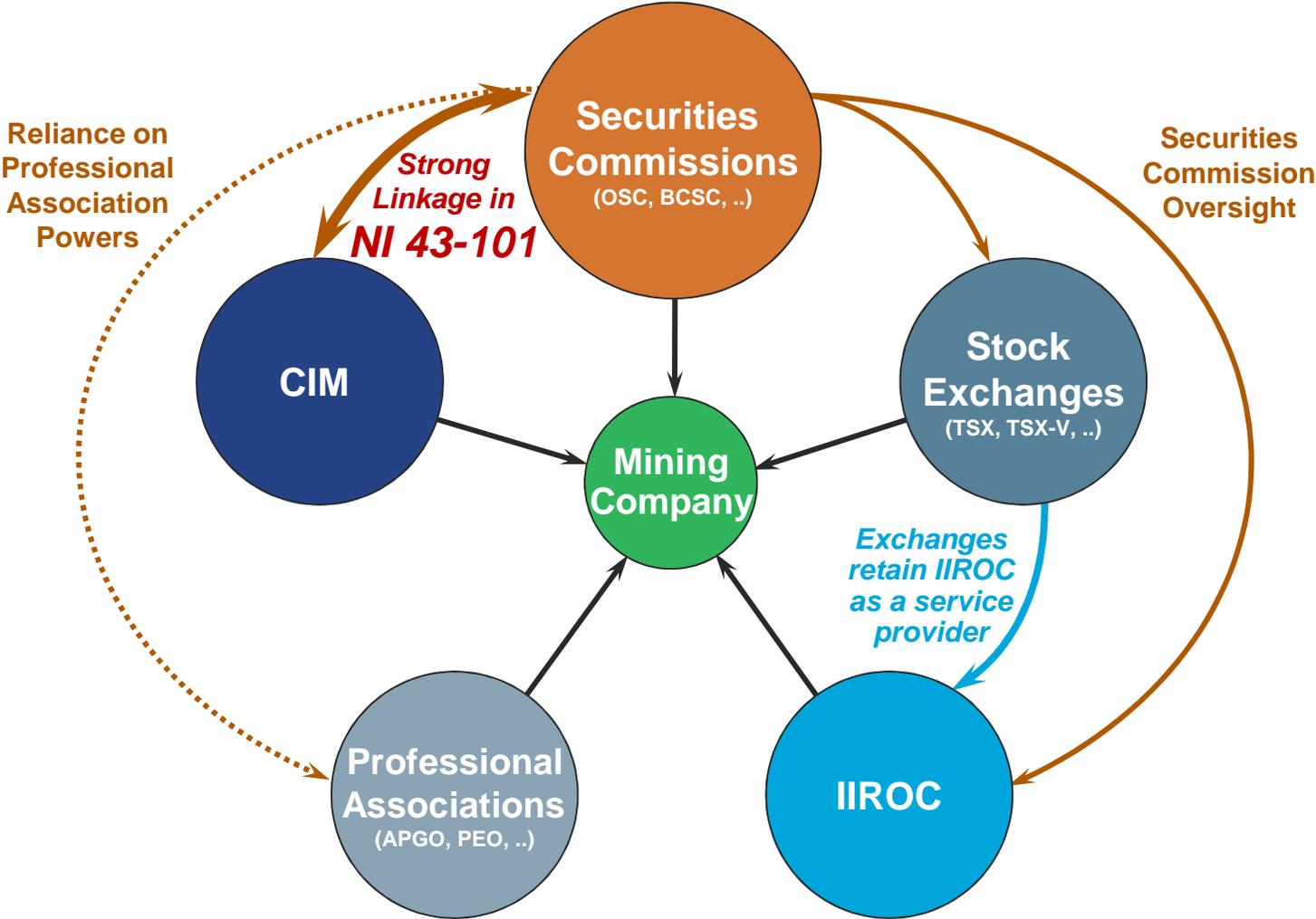
A company deals primarily with its “principal regulator” (where the head office is located)

Provincial oversight of mining companies



TSX + TSXV + NEX + CNSX (CSE)

Canadian regulatory landscape for mining companies



Who has oversight of mining analysts?

IIROC member firms are governed by IIROC Rule 3400 called *“Research Restrictions and Disclosure Requirements”*

Paragraph 17 requires:

- **Annual certification** by the head of research and the CEO of the firm
- Certifies that their analysts, regardless of whether they are CFA charter holders or not, are **“familiar with and have complied with”** the CFA Institute **“Code of Ethics and Standards of Professional Conduct”**



CFA Institute



Rule 3400 does not require analysts to be CFA charter holders

NI 43-101

Basics

Misconceptions

NI 43-101: What it's not

➤ **It's not a guarantee of good work**

- It places an obligation on the company to have work done by a QP
- The QP is supposed to do it right

➤ **It's not a cookbook for mineral estimation**

- The rule sets disclosure standards, not estimation practices
- It's designed so others can judge the QP's work

➤ **It's not a vetting process at the regulatory agency**

- Just because a technical report is filed doesn't mean it's compliant
- It's the company's responsibility to comply

NI 43-101 as a “brand”

If a company says:

“We have a NI 43-101 compliant estimate”, or

“We have a NI 43-101 compliant technical report”

then investors may have certain expectations:

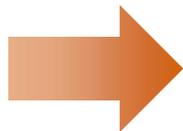
- Prepared according to NI 43-101
- Contains all the important information
- Signed-off by a qualified person
- It must be correct ... right?



What “*NI 43-101 compliant estimate*” really means

- The company has to comply with the disclosure rules in NI 43-101 – that’s what being “compliant” really means
- The term “*NI 43-101 compliant estimate*” refers to the manner of the reporting, not the accuracy of the estimate
- Describing an estimate as being a “*NI 43-101 compliant estimate*” is potentially misleading

“*NI 43-101 compliant estimate*” should be interpreted to mean:



*An estimate determined by a QP
and reported in accordance with NI 43-101*

Investor alert: Mission Mining & the “*NI 43-101 Report*” brand

Nov. 12, 2013 - LAS VEGAS -- Mission Mining Company (OTC: MISM)

Mission Mining Company NI 43-101 Report Confirms \$25.5 Billion in Measured Gold, Silver Resources

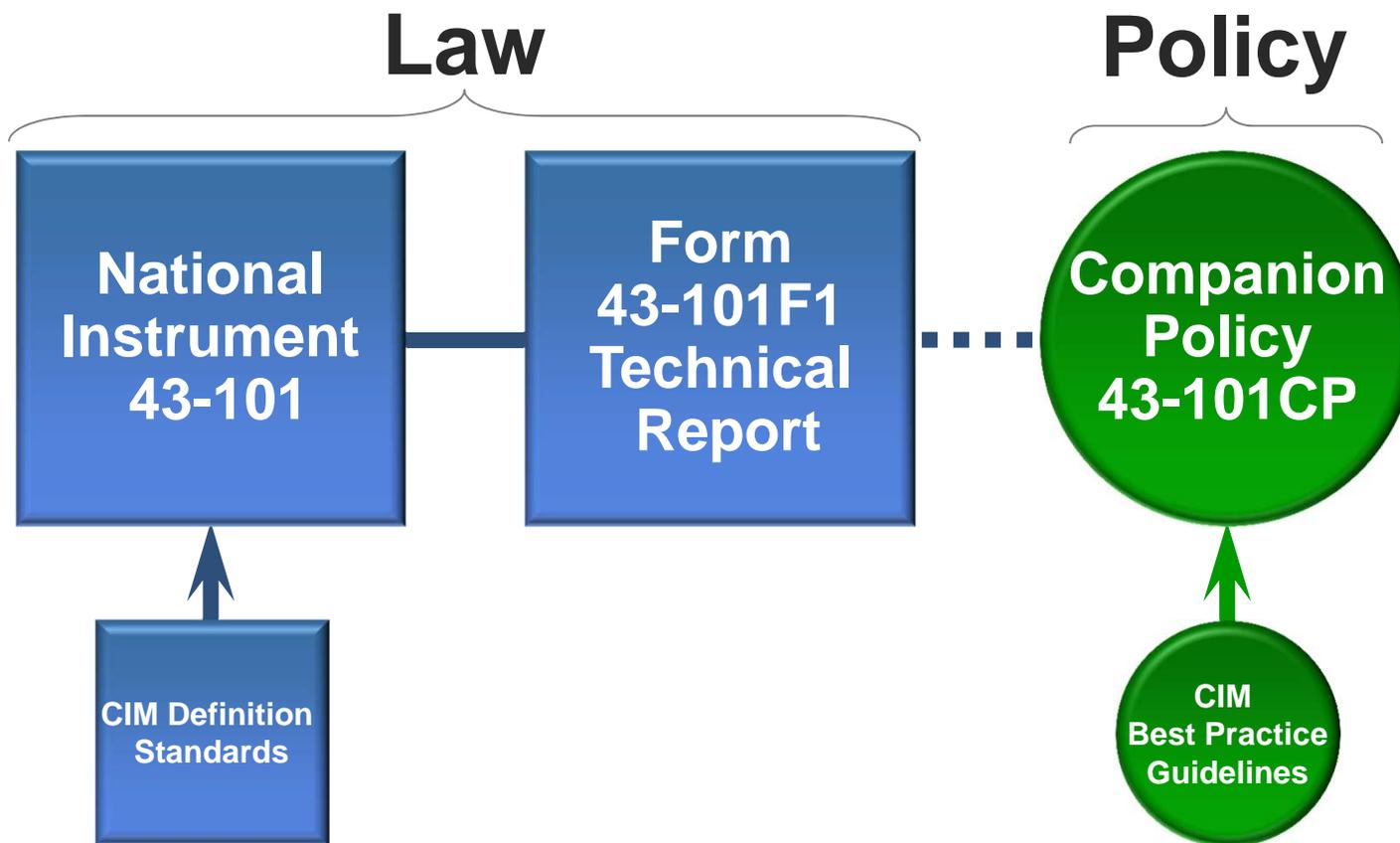
The NI 43-101 Report confirms total Measured mineral resources of 17.2 million ounces of gold and 148.3 million ounces of silver located in the top 30 feet of surface material across the six Gold Star Mine claims. - \$MISM

Nov. 28, 2013

The BCSC recommends that investors in B.C. exercise extreme caution when dealing with any company that purports to release a NI 43-101 technical report, but does not file the report with a securities regulator in Canada. Any technical report that a publicly traded company files with a securities regulator in Canada under NI 43-101 is available to the public on SEDAR.

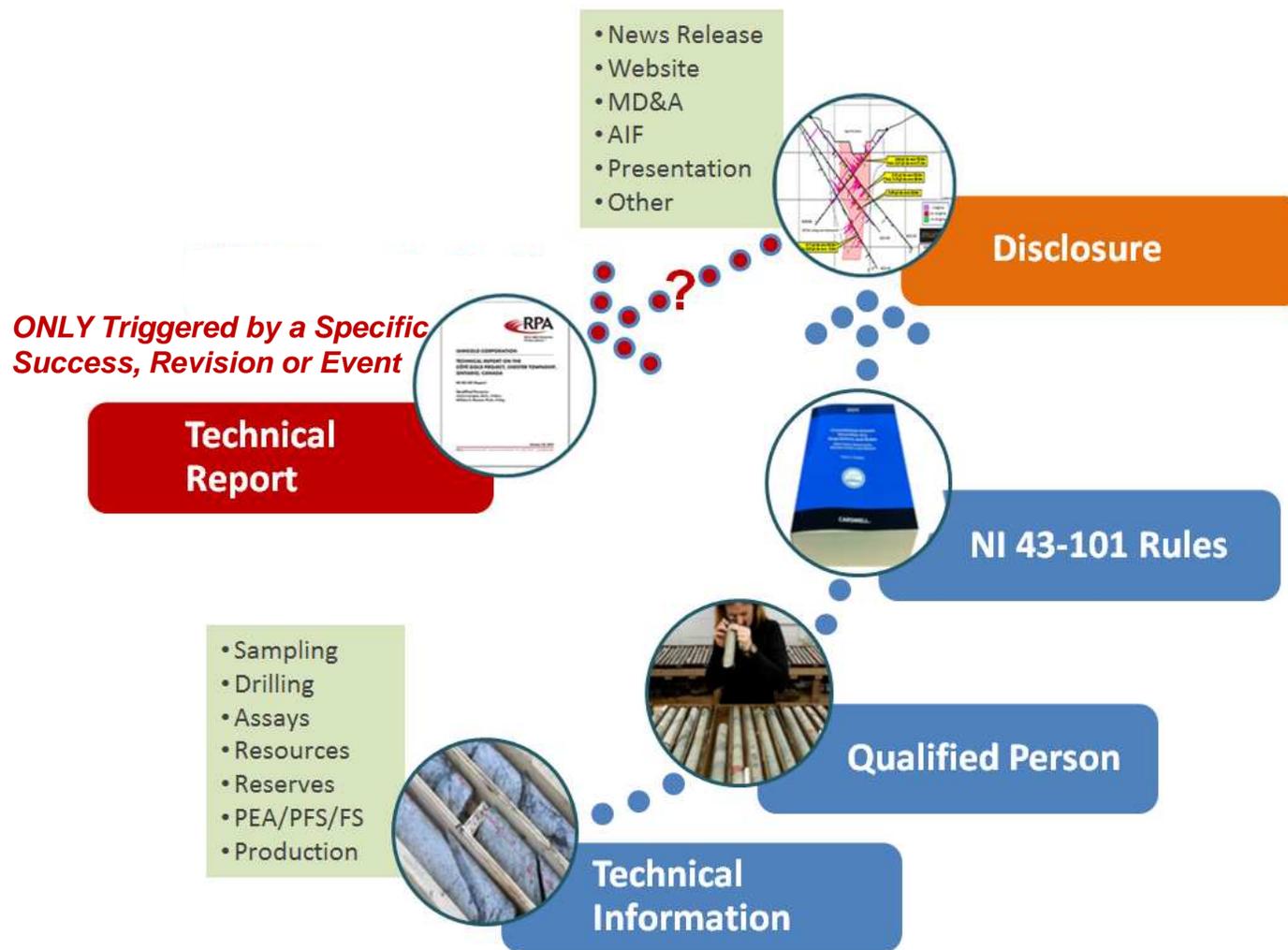
Basics and the Qualified Person

3 Parts to NI 43-101 – aka the “mining rule”



Note: Revisions in May 2014

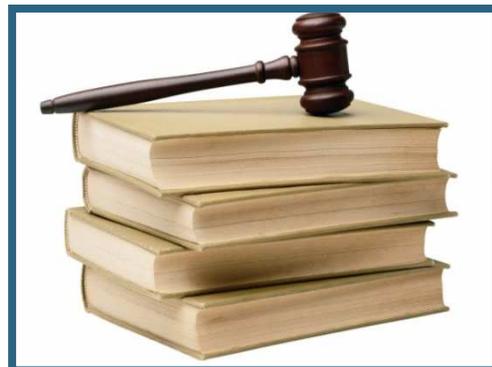
Flow of technical information within NI 43-101



What are the core principles of NI 43-101?



**Qualified
Person**



**Standards
&
Best Practices**



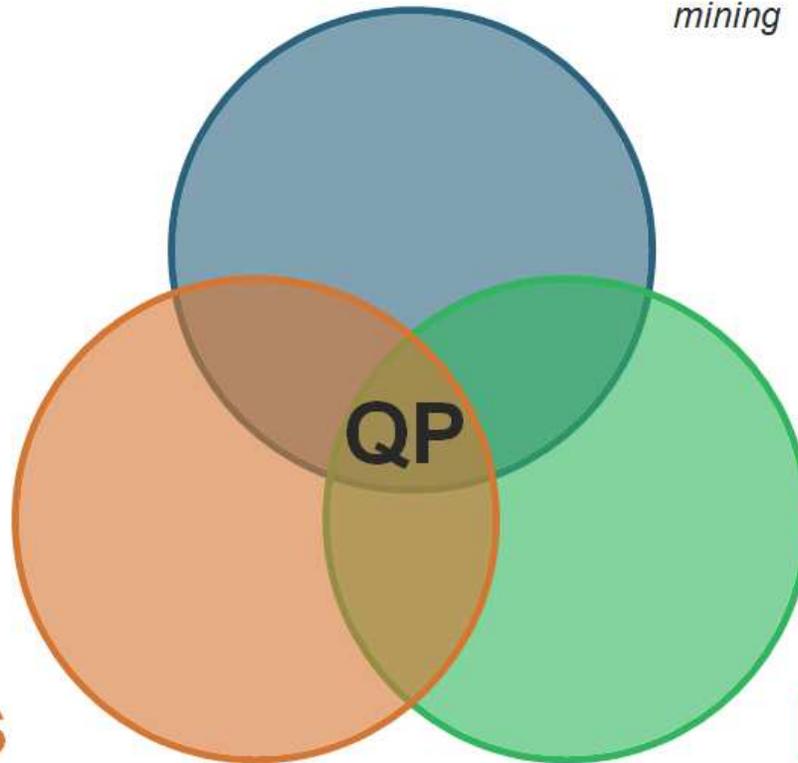
**Technical
Report**

Objective of NI 43-101 is to ensure that disclosure is based on reliable information, reflecting professional opinions, based on industry best practices and using standardized terms.

3 Es of a QP

Education

Geoscientist or engineer with a university degree in geoscience or engineering related to exploration or mining



Professional association recognized by law in Canada or a foreign association and membership designation listed in NI 43-101

Ethics

At least five years of experience in exploration, mining, or project assessment and experience relevant to subject matter being reporting on

Experience

QP and foreign “professional associations” (February 21, 2013)



Canadian Securities
Administrators

Autorités canadiennes
en valeurs mobilières

CSA Staff Notice 43-308 (Revised)

Professional Associations

under NI 43-101 Standards of Disclosure for Mineral Projects

Additions to the List of Foreign Associations and Membership Designations

After considering submissions received, in staff's view the organizations listed in this Notice meet the definition of a "professional association" in NI 43-101, and the membership designations listed meet the criteria in paragraph (e) of the definition of "qualified person" in NI 43-101.

Foreign Association	Membership Designation	Date of Determination
The Institution of Engineers Australia (Engineers Australia)	Chartered Professional Engineer (CPEng)	May 29, 2012
The Institution of Professional Engineers New Zealand (Engineers New Zealand, IPENZ)	Chartered Professional Engineer (CPEng)	November 5, 2012

These associations and membership designations should be considered additions to the list of accepted foreign associations and membership designations in Appendix A of the Companion Policy.

QP self assessment for “relevant experience”



“QP should be clearly satisfied that they could face their peers and demonstrate competence and relevant experience in the commodity, type of deposit and situation under consideration”



Article: *“Standards for QPs: how to evaluate relevant experience”* – C. Waldie & J. Whyte, Jun/Jul 2012, CIM Magazine

5 Cs of the QP's responsibility

Comply with your professional association's code of ethics

- Perform work only in your area of competency and be honest, fair and objective

CIM definition standards and best practices

- Follow CIM Standards and Best Practice Guidelines

Conduct data verification

- Perform a reasonable level of due diligence and validation of technical data

Communicate the project risks

- Clearly report on the material risks in a manner understandable to investors

Check the company's disclosure

- Helps reduce the risk of being misquoted

5 Cs of the company's responsibility

Company is responsible for its disclosure

- Company's directors and officers are responsible for their disclosure

Compliance with rules and policies

- Must comply with securities laws and stock exchange policies

Choose an appropriate QP

- Company is responsible for choosing an appropriate QP for the task

Current site visit

- Company must arrange its affairs so a QP can carry out a current site visit

Correctly use the QP's information and advice

- Allow the QP to check the technical disclosure and any revisions to it

QP misrepresented

What if you're cited as the QP but did not approve the disclosure?

- The QP is an “expert” under Securities Act liability provisions – if your work is misrepresented, you have to protect yourself
- If the company misrepresents your work, they may be committing a Securities Act offence

To protect yourself:

- Give them a chance to retract (with a deadline!)
- If they don't, inform the Securities Commission and the exchange they trade on
- Can't hurt to disseminate your own news release setting the record straight

Who are Competent Persons?

(J. Coombes)

[Who are Qualified Persons?]

Who are “competent persons” under JORC?



Coombes, J. (2013). PhD thesis entitled:
Practice based competency development: a study of resource geologists and the JORC code system.

Description of a “competent person” (J. Coombes)

A Competent Person is ...

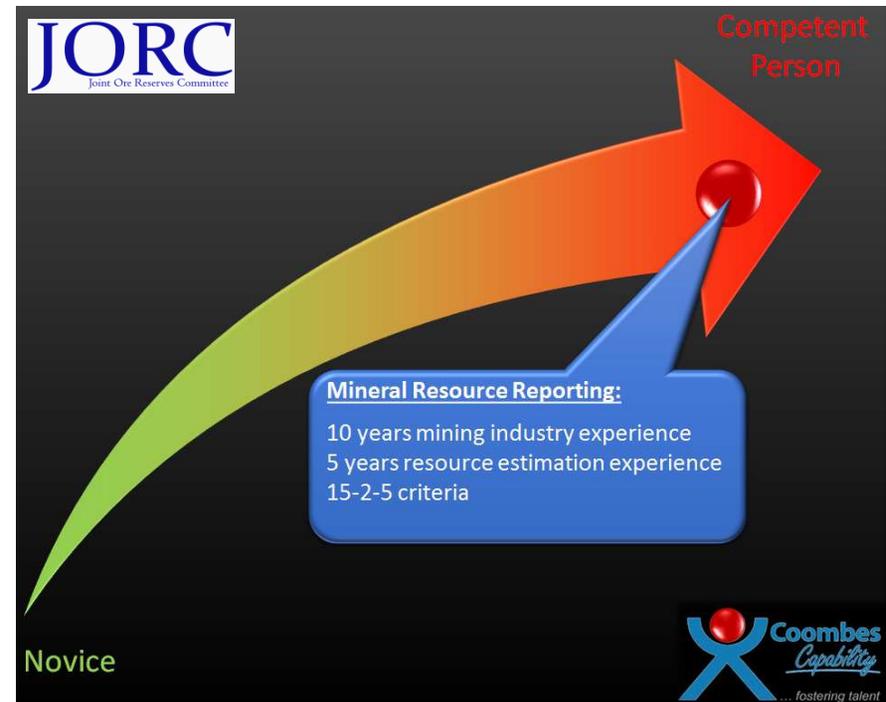
A mining industry professional
who has a **mature ability to reason across the JORC Code***,
can provide a **reasoned analysis of the risks** in a project
and is able to **communicate the material risks** (without exclusion)
to their peers, management, the board of directors and investors

(*including all respective items in Table 1)



“Alternative” minimum criteria for a “competent person” for resource estimation (J. Coombes)

- ✓ **10 years mining industry experience**
- ✓ **5 years resource estimation experience**
- ✓ **15-2-5 criteria**
 - Generated at least **15** resource estimate models
 - Estimates on at least **2** commodities
 - At least **5** reconciliations on their own estimates



Not all competent professionals are competent in JORC Code reporting

NI 43-101

**Disclosure Pitfalls
& Practical Guidance**

NI 43-101 disclosure pitfalls

- ☹ **Exploration target**
- ☹ **Mineral resource estimate**
- ☹ **Preliminary economic assessment (PEA)**
- ☹ **Prefeasibility study (PFS) without declaring reserves**
- ☹ **Mineral reserves no longer viable**
- ☹ **Production decision**

Remember: "written disclosure" captures it all

KINROSS Kinross Gold Corporation
25 York Street, 17th Floor
Toronto, ON Canada M5J 2Y5

NEWS RELEASE

Kinross provides additional information on Red Back transaction

Toronto, Ontario – September 1, 2010 - Kinross Gold Corporation announced today that in response to a request from Institutional Shareholder Services (ISS), the Company is providing further details regarding its friendly combination with Red Back Mining Inc. This includes additional detail to the "Background to the Arrangement" section of the management information circular dated August 16, 2010. The Company is also providing further information on its development plans for the Tasiast mine, in order to assist Kinross shareholders in evaluating the transaction.

Background to the transaction

From December 2009 through the first quarter of 2010, the Kinross Board met on five occasions, during which it received regular updates regarding potential acquisitions from Kinross management. These meetings included a number of discussions regarding early stage review of potential opportunities involving Red Back. Over the next four months, prior to the announcement of the transaction on August 2, 2010, the Board convened a further four times. At these meetings, the proposed business combination with Red Back was the subject of detailed discussion and consideration. In addition, the standing Special Committee of the Board, which advises the Board and management on transactional matters as part of its mandate, met on numerous occasions during the same period. On ten separate occasions, the Special Committee met specifically to discuss potential opportunities involving Red Back. Between January 2010 and the announcement of August 2, 2010, senior management from the two companies met five times to formally discuss and negotiate the terms of a potential business combination. Additional detail on the chronology and substance of the above meetings during which the Red Back combination was discussed is provided in an appendix to this news release.

Tasiast development plans

Following closing, Kinross plans to undertake immediately an extensive development program to expand the Tasiast operation. The Company currently anticipates completing this expansion program within approximately 36 months, with a view to commencing operations at a new mill in the fourth quarter of 2013. Given its extensive due diligence of Red Back and the Tasiast mine, the Company has already undertaken a substantial amount of planning and development work to support the proposed expansion. The Company's near-term timeline addresses four major areas of development activity:

- First, immediately following closing, a comprehensive integration program will be undertaken with the aim of ensuring a smooth transition and integration of the two companies, including maintaining production at existing operations and promptly initiating preparatory activities to support the expansion project at Tasiast.
- Second, an intensive exploration program including additional drill and step-out drilling is expected to commence shortly after closing. This program will involve increasing significantly the number of drill rigs at Tasiast and accelerating the current drilling campaign to delineate the high-grade zone at depth. The Company will provide an update on its expanded exploration program along with its third quarter results in November 2010 and expects to issue a new NI 43-101 compliant reserve and resource declaration in February 2011.

www.kinross.com

North American Palladium Ltd.

North American Palladium's vision is to become a low cost, mid-tier precious metals company operating in mining friendly jurisdictions. NAMP is an established precious metals producer that has been operating the Raglan Lode since the early 1970s located in Ontario, Canada since 1993. Lode is one of only two primary producers of palladium in the world, and is currently undergoing a major expansion to increase production and reduce cash costs per ounce. NAMP also operates the Vaca Muerta mine located in the Atacama region of Chile. NAMP's experienced management and technical teams have a significant commitment to exploration and are dedicated to building shareholder value.

INVESTOR PRESENTATION > FACT SHEET > EMAIL ALERTS >

LD MINE EXPANSION PROGRESS EXCITING CAREER OPPORTUNITIES

Track the mine expansion progress > Build a rewarding career with a growing company >

NEWS >

February 6, 2013
North American Palladium to Host Year End 2012 Results Conference Call and Webcast on February 22

January 31, 2013
North American Palladium Reports Excellent Exploration Results from the Second Half of 2012 Drilling at Lac Des Saies

January 22, 2013
North American Palladium Appoints Chief Financial Officer



NI 43-101 Technical Report Mineral Resources of the North Creek Gold Deposit Birchbelt District, Ontario

Prepared for:
Vector Venture Resources Inc.
Toronto, ON MSJ 2L9

Prepared by:
North American Mining Associates
Toronto, Ontario

Qualified Persons:
John Smith, P.Eng
Kathy Allen, P.Geol.

Effective Date: July 1, 2011
Report Date: August 15, 2011

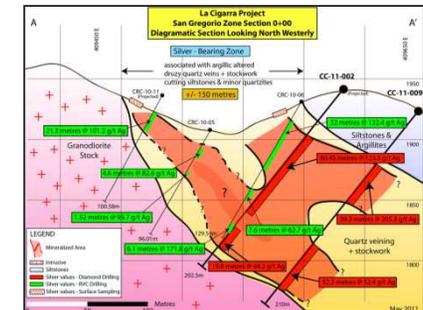
Written Disclosure

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BlueSky Resources Inc.

Corporate Presentation January 2013



Exploration Target

What is an exploration target?

- Statement of the **exploration potential** of mineralization in a defined geological setting
- Relates to mineralization where there is **insufficient exploration** to estimate a mineral resource
- Must be a **basis for determining the target** which may include information such as:
 - Exploration results
 - Historical estimate
 - Foreign estimate
- Further exploration should be able to test the validity of the exploration target

Disclosing an exploration target

s. 2.3(2)

May disclose the potential tonnes and grade, **expressed as ranges**, of a target for further exploration only if the disclosure **states with equal prominence**:

- **Potential quantity and grade is conceptual in nature**
- **Insufficient exploration to define a mineral resource**
- **Uncertain if a mineral resource estimate will be delineated**
- **Basis on which exploration target has been determined**

Exploration target disclosure checklist:

- Range of tonnes & grade
- Cautionary statement – next to the disclosed target ranges
- Reasonable basis for target ranges

Exploration target – Pitfalls

- ✘ Reporting an unrealistic and untestable exploration target
- ✘ Extrapolating resource grades into unsampled areas
- ✘ Creating a block model with a cut-off grade, but not disclosing it as a resource estimate
- ✘ Using an exploration target as a proxy for a resource or reserve estimate (and making a production decision)
- ✘ Disclosing an economic analysis on an exploration target

Exploration target – Don't misuse the privilege!

June 29, 2012

“Barkerville Announces a NI 43-101 Compliant Indicated Resource of 10,626,100 oz's Gold on Cow Mtn with a NI 43-101 Compliant Geological Potential of 65-90 Million oz's Gold in an Area Encompassing Approximately 10% of its Cariboo Gold Project”

Company cease traded from August 14, 2012 to July 15, 2013

- CTO remained in place until the Company filed a NI 43-101 technical report addressing all technical comments from the BCSC

Mineral Resource

Definition of a mineral resource

- A concentration or occurrence in or on the Earth's crust of:
 - natural solid inorganic material including base and precious metals, diamonds and industrial minerals, or
 - natural solid fossilized organic material including coal
- Location, quantity, grade, geological characteristics and continuity are:
 - known, estimated or interpreted from specific evidence and knowledge
- Has “***reasonable prospects for economic extraction***”

CIM DEFINITION STANDARDS - For Mineral Resources and Mineral Reserves

Prepared by the *CIM Standing Committee on Reserve Definitions*

Adopted by CIM Council on November 27, 2010

“Must nots unless” about disclosing estimates

s. 2.2

Must not disclose any information about a mineral resource or mineral reserve unless the disclosure

- Uses only the five **CIM categories** (measured resource, proven reserve, etc.)
- Reports each **category separately**
- **Does not add inferred** resources to other categories
- States the **tonnes and grade for each category** if the quantity of contained metal is disclosed

Disclosing mineral resources and reserves

s. 3.4

When disclosing mineral resources or reserves include:

- **Effective date** of each estimate
- **Quantity and grade** of each category
- Key **assumptions, parameters, and methods** used
- **Any known risks** that could materially affect potential development
- Statement that “*mineral resources that are not mineral reserves and do not have demonstrated economic viability*” if results of an economic analysis of resources is disclosed (such as in a PEA)

Examples: Assumptions, parameters & methods

Assumptions

- Cut-off grade and basis for determination
- Mining and processing method
- Metallurgical recovery
- Metal prices

Parameters

- Appropriate geological model for the deposit type
- Cutting factors and specific gravity
- Search distances and minimum samples per block
- Interpolation distances and directions

Methods

- Polygonal, cross-sectional, etc.
- Geostatistical

How were “reasonable prospects of economic extraction” determined?

Disclosing resources and reserves – Pitfalls

Non-compliant resource/reserve modifiers (s. 2.2a)

- e.g. geologic, global, drill indicated, possible

Adding inferred resources to other categories (s. 2.2c)

- Never!

Reporting estimates as contained metal only (s. 2.2d)

- e.g. 1.2 Moz Au, 750 Mlbs Cu, 28 Mlbs U3O8
- Provide the category, tonnage, and grade with numbers rounded-off

Lack of assumption, parameters, and methods (s. 3.4c)

- Date of estimate, cut-off grade, metal price, recovery, etc.

Disclosing resources and reserves – Pitfalls

Reporting only combined grades (s. 2.3(1)(d))

- e.g. 5.0 g/t TPM, 2.0% TREO
- Show grade of each element that makes up the combined grade

Metal equivalent grades without the details (s. 2.3(1)(d))

- 2.2% Cueq, 10.0 g/t Aueq
- State how these were calculated and show grades element by element

Reporting estimates without rounding-off (CIM)

- Estimates are imprecise and should reflect the uncertainty
- Rounding to the 2nd significant figure is suggested (JORC - clause 25)
 - e.g. 10,863,000 t at 8.23 g/t Au should be stated as 11 Mt at 8.2 g/t Au

Estimating mineral resources – Pitfalls

-  Ignoring key geological controls
-  Smearing grades into barren units
-  Excluding unsampled intervals from composites
-  Using unreasonable grade-capping levels
-  Using inappropriate cut-off grades (metal prices)
-  Not validating sectional interpretations in plan
-  Not having your work peer reviewed

Example: Ignoring key geological controls

Aurcana Corp. (December 12, 2013)

- Previous model supporting the mineral resource estimate was an inconsistent predictor of tons and grade
- Updated geological model will result in a **significant reduction** in the mineral resource estimate
- A significant portion of the reduction can be attributed to the utilization of **geological and structural controls absent in the prior mineral resource estimate**

Aurcana Corp. (December 19, 2013)

- Project placed on care and maintenance

Example: Smearing grades into barren units

Canada Lithium Corp. (May 16, 2011)

- AMC identified certain issues with regard to the mineral resource estimate previously announced on October 28, 2010
- Some mineralized envelopes did not conform to the pegmatite dyke boundaries and included waste
- Some unsampled intervals within the pegmatite dykes were not assigned a zero grade
- **Consequently, some of the resource blocks should have been classified as waste rather than having Li₂O grades assigned to them**
 - +37% overestimation for measured and indicated resources
 - +64% overestimation for inferred resources

CIM Definition Standards

(Revisions to 2010 version coming in May 2014)

Purpose of *CIM Definition Standards* revisions

1997 - CRIRSCO members agreed on a set of common definitions

Over time, these definitions drifted apart

2012 - CRIRSCO members agreed to standardize 15 core definitions

2013 - CIM proposed revisions to 10 definitions referenced in the *CIM Definition Standards*



CRIRSCO Members

- JORC (Australasia)
- CIM (Canada)
- IMEC (Chile)
- PERC (Europe)
- NAEN (Russia)
- SAMCODES (South Africa)
- SME (USA)

CIM definition standards – proposed revisions

1. Modifying Factors
2. Mineral Resource* ← reasonable prospects for eventual economic extraction
3. Inferred Mineral Resource* ← reasonably expected that the majority of inferred mineral resources could be upgraded to indicated mineral resources with continued exploration
4. Indicated Mineral Resource*
5. Measured Mineral Resource*
6. Mineral Reserve* ← defined by studies at a pre-feasibility or feasibility level
7. Probable Mineral Reserve*
8. Proven Mineral Reserve*
9. Pre-Feasibility Study**
10. Feasibility Study**

*Incorporated, by reference, into NI43-101 from Feb. 1, 2001 onward.

**Incorporated, by reference, into NI43-101 from June 30, 2011 onward.



Preliminary Economic Assessment (PEA)

s. 1.4 Mining Studies

CIM Definition Standards for a pre-feasibility and feasibility study are **incorporated by reference into NI 43-101**

- Allows for future definition changes in order to harmonize with international definitions through the assistance of CRIRSCO



PEA is defined only in NI 43-101, not in CIM

- *Allows regulators to restrict use of inferred resources in economic analyses*

Definition of a PEA

s. 1.1 of NI 43-101

“preliminary economic assessment”

- Means a study, other than a pre-feasibility or feasibility study, that includes an economic analysis of the **potential viability** of mineral resources

s. 1.1(4) of Companion Policy 43-101CP

- Term “preliminary economic assessment” can include a study commonly referred to as a scoping study
- PEA might be based on measured, indicated, or inferred mineral resources, or a combination of any of these

Types of technical and economic studies

Criteria	Technical & Economic Studies		
Study	Preliminary Economic Assessment (PEA)	Prefeasibility Study (PFS)	Feasibility Study (FS)
Objective	Early stage conceptual assessment of the <u>potential economic viability</u> of mineral resources	Realistic economic and engineering studies sufficient to <u>demonstrate economic viability</u> & establish mineral reserves	Detailed study of how the mine will be built, used as the basis for a <u>production decision</u>
Accuracy Range	+/- 75 %	+/- 25 %	+/- 10 %
Mineral Estimate Inputs	Inferred/Indicated/Measured Resources	Indicated & Measured Resources	
Mineral Estimate Outputs	Inferred/Indicated/Measured Resources	Proven and Probable Reserves	

Disclosing a PEA

s. 2.3(3)

May disclose the results of a PEA that includes inferred resources if the disclosure **states with equal prominence:**

- **PEA is preliminary in nature**
- **Includes inferred resources that are too speculative geologically to have the economic considerations applied to them**
- **No certainty that the PEA will be realized**

Also:

- **States the basis and assumptions for the PEA**
- Describes the impact of the PEA on any pre-feasibility or feasibility study

CSA Staff Notice 43-307 on the PEA

(August 16, 2012)



Canadian Securities
Administrators

Autorités canadiennes
en valeurs mobilières

CSA Staff Notice 43-307

Mining Technical Reports - Preliminary Economic Assessments

Provides PEA guidance in seven areas:

- Misuse of a PEA as a proxy for a PFS
- PEAs done in conjunction with a PFS or a FS
- PEA disclosure and technical report triggers
- Potentially misleading PEA results
- PEA disclosure that includes by-products
- Relevant experience of QPs
- Consequences of disclosure deficiencies or errors

PEA disclosure – Pitfalls

Economics on historical estimate or exploration target (s. 2.3b)

- Don't base economic outcomes on unverified or conceptual information
- Potentially misleading

Misuse of the term “ore” (s. 2.3(2) in CP)

- Implies technical feasibility and economic viability
- Use only in the context of mineral reserves

Reporting resources in a PEA as “mineable resources” (s. 1.2)

- Term “mineable” implies reserves, which they are not
- Instead, use terms such as:
 - “mineral resources within PEA mine plan”
 - “mineral resources within PEA pit”
 - “PEA mineral resources”

Consequences of not getting it right

Osler, Hoskin & Harcourt LLP

Update March 27, 2012
page 1

Failed Public Financings in the Mining Sector – Use of Economic Analysis and Confusion Around Preliminary Economic Assessments

Orbite Files Revised Preliminary Economic Assessment Technical Report (PEA) Confirming Economic Results

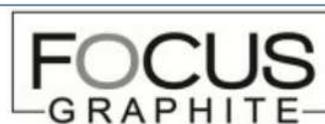


Press Release: Orbite Aluminae Inc. – Thu, 31 May, 2012 9:08 AM EDT

Banks Island Gold Ltd. Clarifies Technical Disclosure



Press Release: Banks Island Gold Ltd. – Wed, Feb 6, 2013 6:41 PM EST



September 10, 2012 16:02 ET

Focus Clarifies Disclosure on its Lac Knife Project

True Gold Mining Inc.: Clarification of Technical Disclosure



Wed, Mar 20, 2013 4:04 PM EDT

PRESS RELEASE

March 28, 2013, 8:01 p.m. EDT

Timberline Clarifies Technical Disclosures for Canadian NI 43-101 Compliance

PRESS RELEASE

July 18, 2013, 9:06 a.m. EDT

Tahoe to Clarify PEA Disclosure

Appropriate uses of a PEA

- ✓ Road map for planning and strategic decision making
- ✓ Assessing project risks and opportunities
- ✓ Public disclosure to raise capital for advanced studies
- ✓ Preparing for a pre-feasibility study

Problems with a PEA – Pitfalls

- ✘ Underestimating the cost and complexities of the project
- ✘ Overly simplistic design due to lack of information
- ✘ Using “economy of scale” to overcome low grade
- ✘ Over reliance on converting inferred to M&I resources
- ✘ Permitting process may restrict changes to mine design
- ✘ Reporting only pre-tax economic outcomes
- ✘ Making a production decision
- ✘ Disclosing a PEA after a PFS or FS on the project

PEA after a PFS or FS – When is it allowed?

Allowed only if the company is significantly re-scoping an advanced project based on:

- Significant change in new information
- Alternative mining or processing scenario
- Changes in infrastructure
- Significant new discovery

It is NOT allowed:

- As part of, or soon after, a PFS or FS
- As a way to “backdoor” inferred resources in a PFS or FS
- As a way to modify a PFS or FS to include “blue-sky potential”

PEA on an exploration target – What???



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F 604.682.3600 - www.bralorne.com – ir@bralorne.com

October 17, 2012

I

TSX.V : BPM
OTCQX : BPMSF
FSE : GV7

**PEA DEMONSTRATES A NPV OF \$6.4 MILLION FOR THE BRALORNE OPERATION,
AND THE POTENTIAL FOR A NPV OF \$29.7 MILLION AND AN IRR OF 50.43% IF
INCREASED TO 250 TPD**

Speculative case of increasing operations from 85 to 250 tpd

- Plan will require additional mineral resources
- A mineral resource equivalent to that above the 800 level is assumed to be available from 800 level to 1000 level

Bralorne Gold Mines settles with BCSC (Dec 20, 2013)

Facts

- Oct 17, 2012 News release with results of a PEA on an exploration target
- Oct 17, 2012 IIROC instructed company to issue a retracting news release
- Oct 18, 2012 Filed a technical report on SEDAR that included the PEA on an exploration target
- Nov 1, 2012 Posted on their website the technical report, a corporate presentation and fact sheet that included the PEA on an exploration target

BCSC settlement agreement:

- Admitted to breaching NI 43-101 by disclosing the results of an economic analysis on an exploration target [s. 2.3(1)(b)]
- Each director (3) agreed to pay the Commission \$20,000
- Agreed to complete a course of study on the requirements NI 43-101

Prefeasibility Study Without Declaring Mineral Reserves

PFS but no reserves – What's up with that?

PFS is sufficient to qualify reserves – if the PFS is positive

Positive PFS but no reserves – potentially misleading

- Contrary to the concept of a PFS
- Failure to qualify reserves after a positive PFS is material information
- Company may start treating mineral resources as reserves

Possible solution – disclose the reasons for no reserves

- Marginal or negative economics
- Unresolved permitting or tenure issues
- Unique issue (long term hydrologic models)
- etc.

Mineral Reserves No Longer Viable

Guidance from CRIRSCO (Nov 2013)

Clause 29

If re-evaluation indicates that any part of the mineral reserves is no longer viable, such mineral reserves must be re-classified as mineral resources

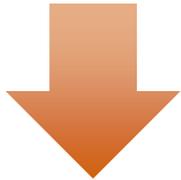
It is not intended that re-classification from mineral reserves to mineral resources or vice versa should be applied as a result of changes expected to be of a short term or temporary nature. Examples of such situations might be commodity price fluctuations expected to be of short duration, mine emergency of a non-permanent nature, transport strike etc.

We may see more announcements like this ...

Goldcorp Inc. - Revised LOM plan for Peñasquito (Jan 8, 2014)

Changes to:

- Metal price and exchange rate assumptions
- Mineral resource block model
- Pit shell assumptions
- Cut-off grade
- Mine plan



Reduction to:

- Ultimate pit design
- Mineral reserves due to lower-grade material re-classified as resources
- Projected mine life reduced from 19 years to 13 years

Barrick - \$1,100/oz for estimating reserves



REUTERS

UPDATE 2-Barrick to re-calculate gold reserves at \$1,100 -CEO

Thu Jan 23, 2014 5:26pm EST

By Nicole Mordant and Allison Martell

Jan 23 (Reuters) - Barrick Gold Corp will use a lower-than-expected gold price to estimate its bullion reserves, its chief executive said on Thursday, making some of its in-the-ground gold uneconomical to mine and may result in asset writedowns.

The world's biggest gold producer will re-calculate its reserves at a gold price of \$1,100, down from \$1,500 a year ago, resulting in a decrease in its reserve base, CEO Jamie Sokalsky said.

Production Decision

Production decision without reserves – Risky?

Production decision: (s. 4.2(6) of Companion Policy 43-101CP)

- Doesn't trigger a technical report to support the decision
- Is the responsibility of the company and its management and board of directors
- Is typically based on at least a prefeasibility study establishing mineral reserves which reduces the risk of economic and technical failure
- Without disclosing the added risks the company may be misleading investors

How to avoid making misleading disclosure

All written disclosure by the Company about the production decision should state:

- Company has not based its production decision on mineral reserves demonstrating economic feasibility and technical viability
- Historically, such projects have a much higher risk of economic and technical failure
- Such failure would have a material adverse impact on the company's future profitability

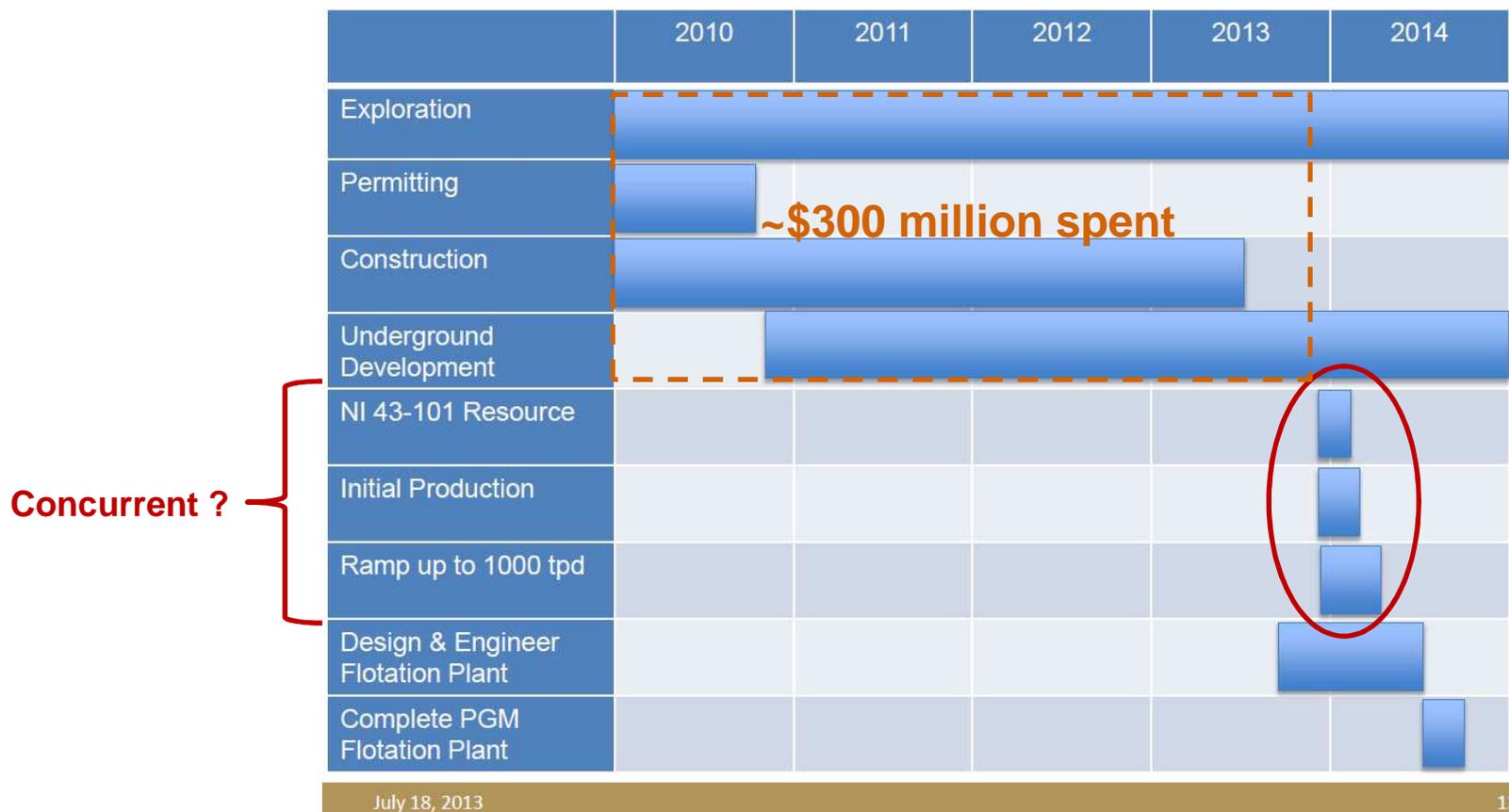
Quarterly MD&A

- Disclose the production decision and state that there's no technical report supporting it

If you build it, ounces will come ... or maybe not



Serra Pelada DEVELOPMENT TIMELINE



Prospectus – Cautionary statements (Aug 6, 2013)

Investors should not rely on:

- *Company's decision to go into production ... as being indicative of the existence of ... a mineral resource estimate ... there isn't one*
- *terms of the Sandstorm Agreement to establish economics of the deposit*
- *projected throughput rates to draw conclusions about economics ... economic viability and technical feasibility have not been demonstrated*
- *corporate presentations to draw conclusions about the quantity, grade, or metal content of the deposit*
- *any third party analyst estimates*

Corporate Presentation Exercise

Take a Chance Mining Ltd.

Exercise: Corporate presentation

Take 10 min. to review the corporate presentation and identify any specific disclosure concerns

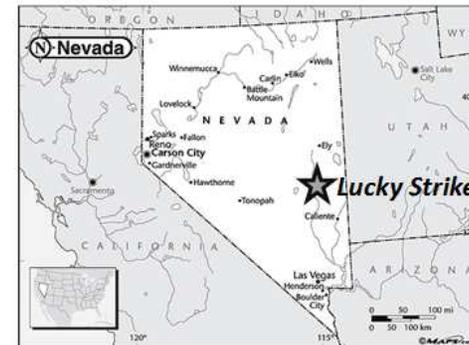


Take a Chance Mining Ltd.

TSX-V: "BBB", OTCBB: "BAD"

Lucky Strike Gold Project

An exceptional project being fast-tracked to production



Corporate Presentation
March 2014

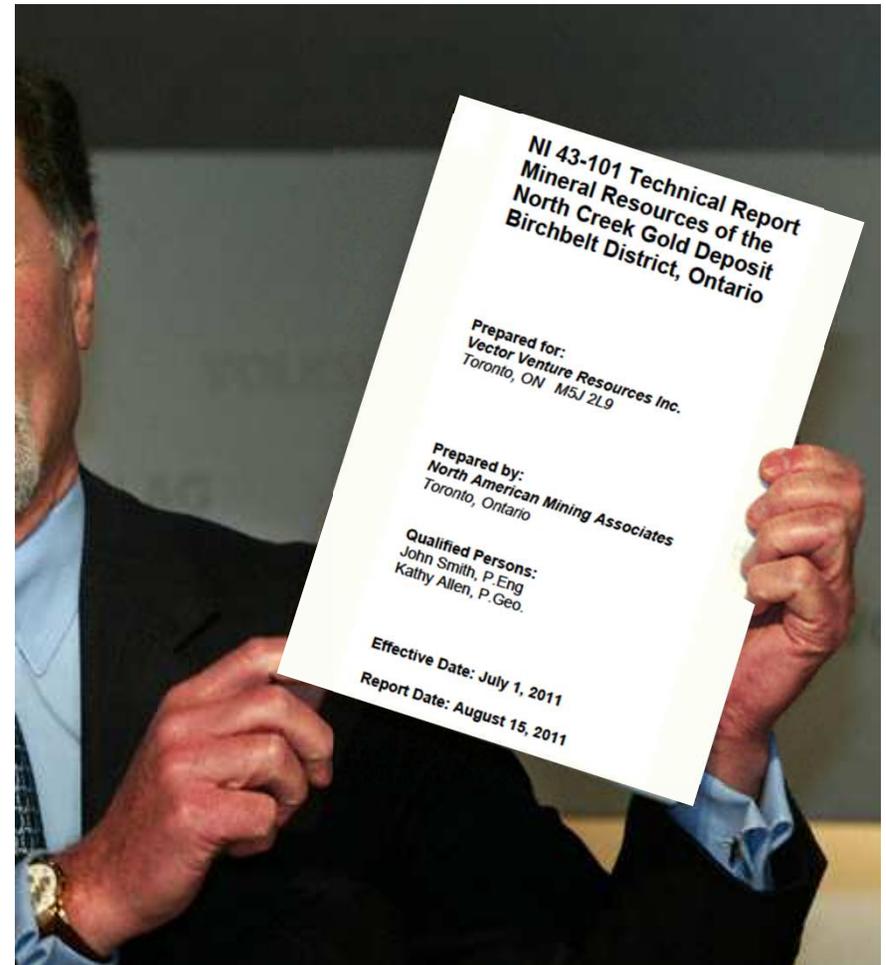
Technical Report

Basics

Technical report

Supports a mining company's most important asset:

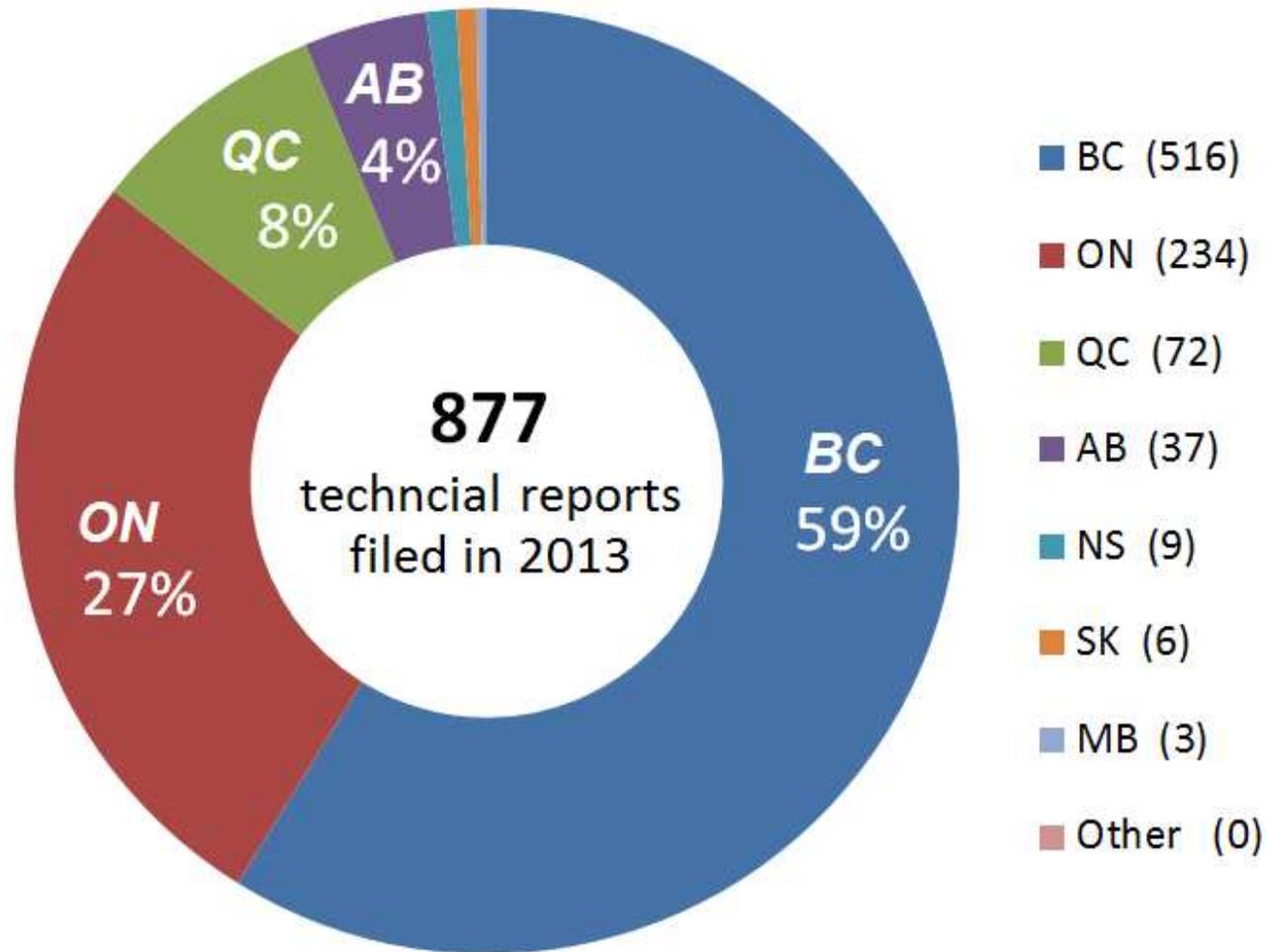
its material mineral properties and the resources and reserves they contain



Technical reports filed per year (2007 – 2013)



Technical reports filed in 2013 by jurisdiction



5 Ws (and 1 H) of technical reports

- Who** Prepared by QPs, often independent of the company and the property
- What** Current summary of material technical information on a material property
- When** Triggered by milestone events and filed within a specific timeframe
- Where** Filed publically on SEDAR
- Why** Supports a company's technical disclosure and assists investor's decisions
- How** Must follow prescribed Form 43-101F1 and requirements of NI 43-101

“Milestones” trigger technical reports

Property Milestones

1st time disclosure of:

- Mineral resources
- Mineral reserves
- Preliminary economic assessment (PEA)

Material change of the above

“Success or revision driven triggers”

Company Milestones

1st time reporting in Canada

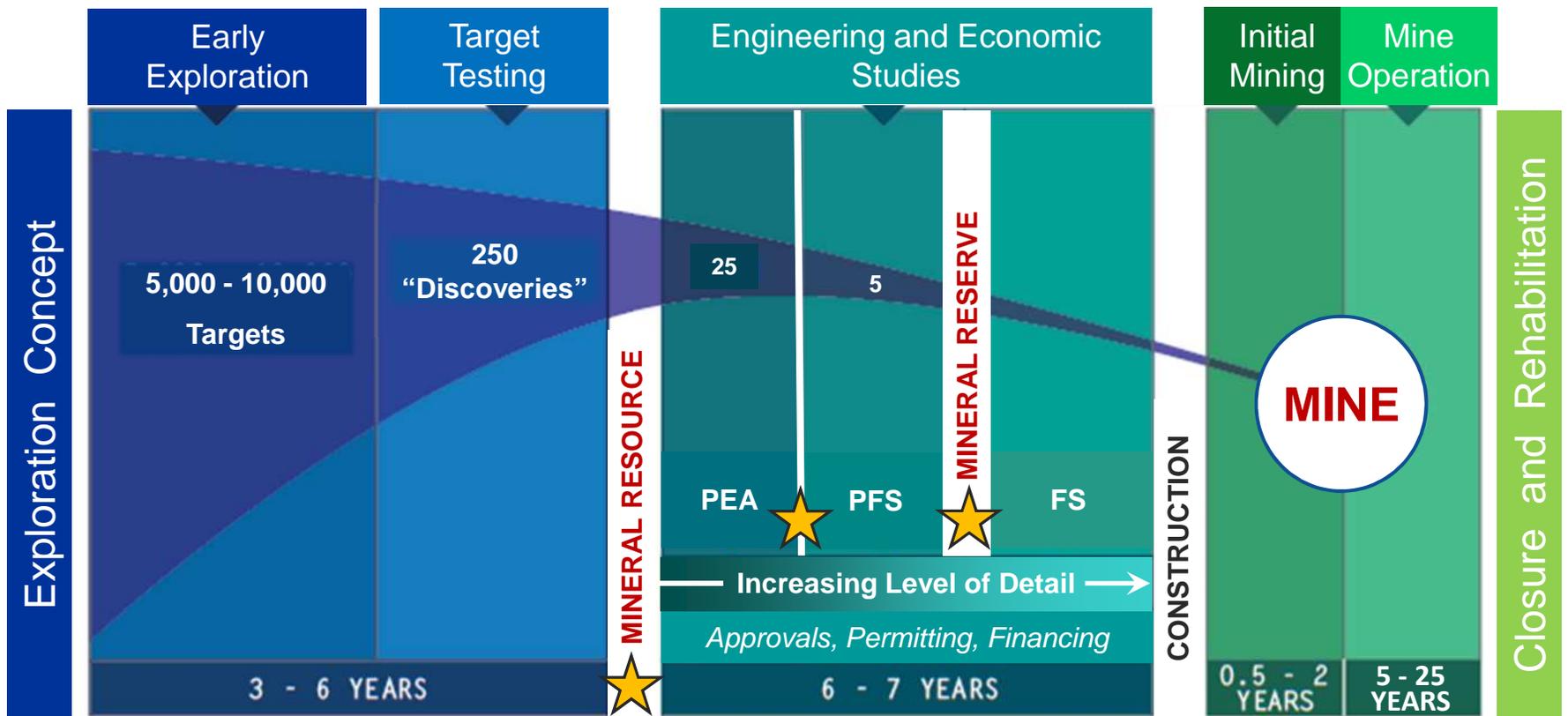
Filing of any of the following documents:

(where the material technical information is not already supported by a technical report)

- Preliminary (long form) prospectus
- Preliminary short form prospectus
- Information or proxy circular
- Offering memorandum
- Rights offering circular
- Annual information form
- Valuation
- TSX Venture offering document
- Take-over bid circular

“Event driven triggers”

Exploration process and the “success or revision triggers”



★ Technical report “success or revision” trigger

Graphic after “Drug Discovery and Development Process”
Innovation.org

Properties with multiple mineral deposits

Can a company file separate technical reports for different deposits on the same property?

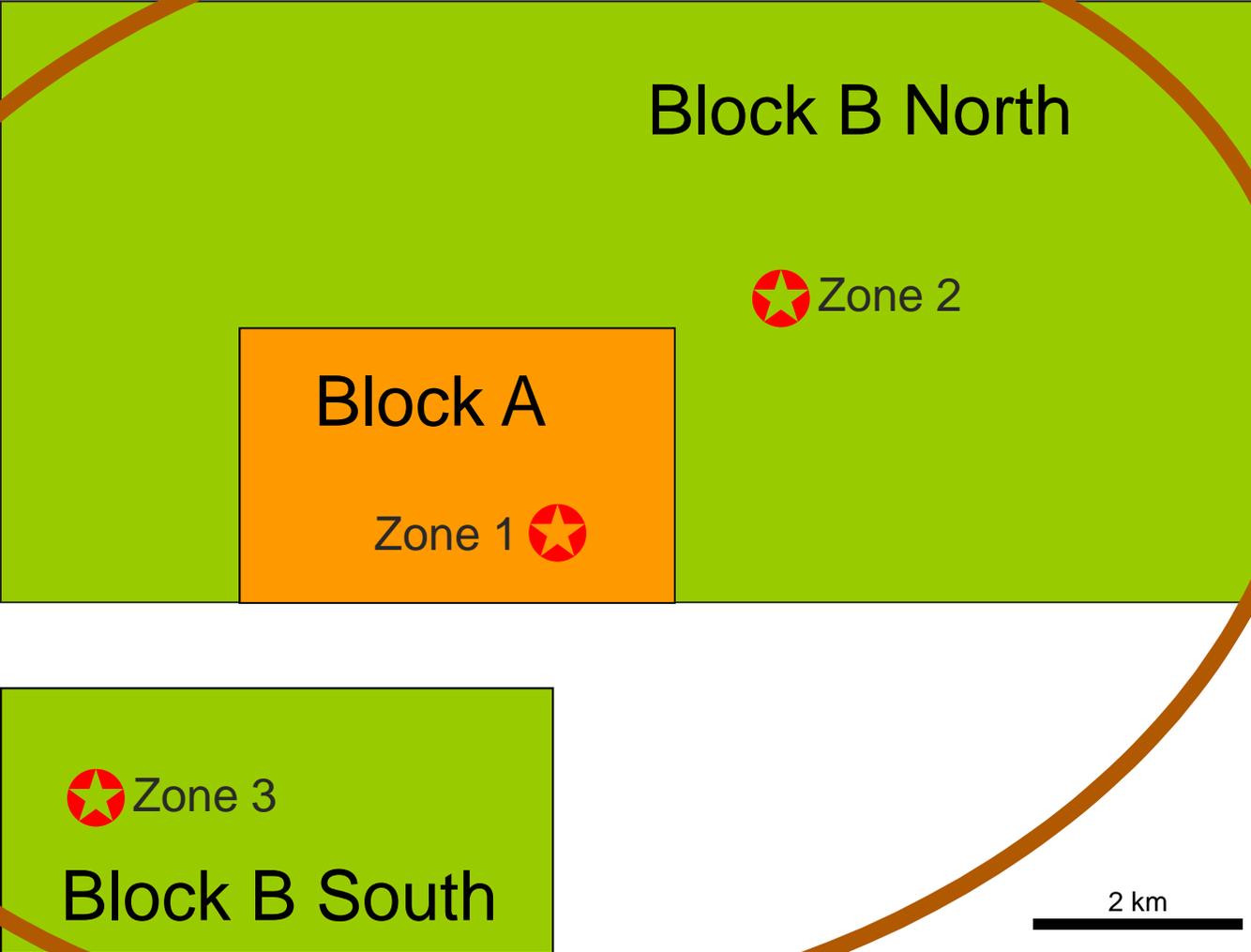
No (generally)

Companion Policy says:

- s. 1.1(6) - a property includes claims that are contiguous or in such close proximity that any **underlying deposits would likely be developed using common infrastructure**
- s. 4.2(8) - a technical report when filed must be complete and current and there **should only be one current technical report on a property at any point in time**

Single technical report

Technical Report



Independent technical reports



s. 5.3

ALL QPs must be independent if:

- First-time reporting issuer in Canada
- Preliminary long form prospectus
- 1st time disclosure of a mineral resource, mineral reserve, or PEA
- >100% change to an existing mineral resource or mineral reserve

Exemption from independence for “producing issuers”

- *Gross revenue > \$30 million in recent fiscal year; and*
- *Gross revenue > \$90 million in last three fiscal years*

How big should a technical report be?

General rule of thumb:

- Technical report provides material information at a “summary-level”
- Focus on what's important for the stage of development of the property
- Try and keep the “body” (Items 2-26) between 50 - 150 pages
 - (Median = 110 pages for reports from the last 5 years)
- Limit the pages of appendices
- Try to keep the file size under 10 Mb, if possible

4,740 pages (report is only 54 pages)



Description	Pages ▾	Filing Date
Technical Report (NI 43 - 101)	4740	2010-11-12

267 Mb (report is only 41 pages)

May 6 2011

[Technical report \(NI 43-101\) - English](#)

PDF

267339 K

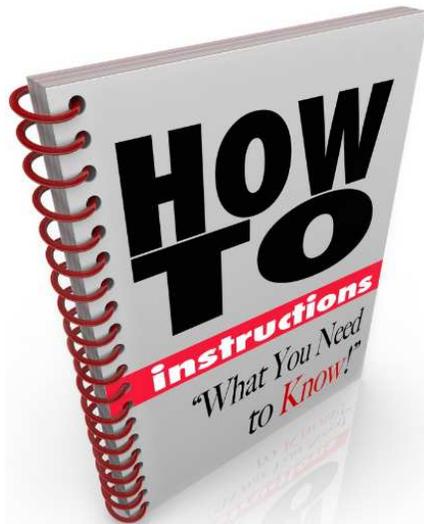
Technical Report

Disclosure Pitfalls & Practical Guidance

Technical report disclosure pitfalls

- ☹ **Summary**
- ☹ **Reliance on other experts**
- ☹ **Data verification**
- ☹ **Mineral resource estimates**
- ☹ **Environmental studies and social impact**
- ☹ **Capital and operating costs**
- ☹ **Economic analysis**
- ☹ **Interpretation and conclusions**
- ☹ **QP certificates**

Don't forget to read the Instructions



1. Summary of material information about the property
2. Look at NI 43-101 definitions and rules
3. Should be understandable to a reasonable investor
4. Items 1 to 14 and 23 to 27 for all properties plus 15 to 22 for “advanced properties”
5. Stand-alone document (replaces previous report) may summarize existing information, but take responsibility
6. QP determines the level of detail necessary in the report
7. Limited disclaimers for information by non-QP expert
8. Appendices may be used - but keep them short
9. Remember to file the QP certificates and consents

Item 1: Summary – Pitfalls

The summary is a key part of any technical report

Briefly summarize the “key findings” relative to the property’s stage of development

- Property description and ownership
- Exploration and drilling status
- Data verification and site visit
- Mineral resource and reserve estimates (if applicable)
- Mining studies and economic analysis (if applicable)
- QP’s conclusions and recommendations

Generally, the summary is about 5% of the technical report

Item 3: Reliance on other experts – Pitfalls

Opinions of an expert for non-technical information

1. May rely on a report or opinion related to:

- Legal, political, environmental, or tax matters

Identify:

- Report, opinion, or statement
- Date and author
- Section of the technical report to which the reliance applies

2. May also rely on a report or opinion related to:

- Valuations for diamonds and gemstones
- Pricing for commodities where pricing not publicly available

Identify:

- Qualifications of expert, potential risks and any verification by the QP

Example: Reliance on property title opinion

Mineral Tenure

The QPs have not reviewed the mineral tenure, nor independently verified the legal status, ownership of the Project area or underlying property agreements. The QPs have fully relied upon, and disclaims responsibility for, information derived from legal experts for this information through the following document:

Letter from Clark Wilson LLP titled XYZ Resources Ltd. – Mineral Claim Title dated October 29, 2013

Information from this letter and memos has been used in Section 4 of this technical report.

Article: *“Preparing content of a technical report - reasonably relying on others”*
– G. Gosson, Nov 2007 CIM Magazine

Item 12: Data verification – Pitfalls

Level of verification needs to reflect how the data is used in the technical report

Describe data verification by the QP

- Steps taken by the QP to verify the data used in the technical report
- Any limitations on data verification, or failure to verify, and the reasons why
- QP's **opinion** on the adequacy of the data for the purposes used in the technical report

QP's opinion on data verification

- *“Based on the data verification performed, the collar coordinates, downhole surveys, lithologies, and assay results are considered suitable to support the mineral resource estimation.”*

Examples: Types of data verification

Database check

- Drill collar coordinates
- Down-hole deviations
- Lithology and alteration
- Assay data
- Error check

Site visit due diligence

- Drill collar locations
- Logging and sampling facilities
- Core storage
- Inspection of drill core mineralization
- Independent sampling, if appropriate
- Laboratory visit, if appropriate

“Trust, but verify.”

-Reagan

Item 14: Mineral resource estimates – Pitfalls

Key assumptions, parameters, and methods

- (a) Provide the key assumptions, parameters, and methods to support the basis for estimating the mineral resource

Unanswered questions:

- How were “reasonable prospects” assessed?
- What cut-off grade was used to estimate the mineral resource?
- What was the assumed metal price, mining scenario, process recovery, ...?

Remember:

- *With multiple cut-off grades, highlight the base-case cut-off grade*
- *Each cut-off must meet the test of “reasonable prospects of economic extraction”*

What are “reasonable prospects of economic extraction”?

Judgement by the QP about the realistic and justifiable technical and economic factors likely to influence the prospect of economic extraction



CIM Guidance – December 15, 2009

- *Use of mine planning tools, such as open pit design algorithms, to limit the extent of mineralization is valid for advanced mineral resource statements (i.e. M+I) but may not be appropriate, or required, for earlier stage mineral resource statements (i.e. Inferred)*
- *For early stage assessments the QP may choose to demonstrate “reasonable prospects for economic extraction” by comparing the deposit’s attributes to analogous mine operations*

Most consultants use a pit shell to assess “reasonable prospects” for open pit mineral resources

Example: Reasonable prospects discussion

Assessing Reasonable Prospects for Economic Extraction

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

Technical and economic parameters for assessing reasonable prospects:

<i>Gold Price</i>	<i>US\$1300/oz</i>
<i>Silver Price</i>	<i>US\$22/oz</i>
<i>Gold Recovery</i>	<i>85%</i>
<i>Silver Recovery</i>	<i>45%</i>
<i>Exchange Rate</i>	<i>US\$:C\$: 1 to 1</i>
<i>Mining Cost</i>	<i>\$1.50/tonne</i>
<i>Processing Cost</i>	<i>\$7.25/tonne</i>
<i>G&A Cost</i>	<i>\$1.05/tonne</i>
<i>Pit Slope</i>	<i>45 degrees</i>

What is a reasonable metal price?

CIM guidance on metal price assumptions

- Consider the stage of development (resource vs. reserve vs. production)
- Long term average
- Industry/peer consensus
- Margin over world cash cost curve
- Contract price



Commonly used standard

- Lesser of the 3-year trailing average or current spot price

Item 20: Environmental studies, permitting and social or community impact – Pitfalls

“Social license” and mine closure

- (d) Social requirements for the project and status of negotiations with local communities
- (e) Mine closure requirements and reclamation costs

Unanswered questions:

- What about relocation of the village?
- How is the company dealing with surface rights issues?
- Is there an exploration agreement with the local First Nation?

Social license and local “approval” is critical for moving projects forward

Example: Environmental and social issues

Table 4-1: Environment and Social Aspects

Preliminary Indication of Significance of Environmental and Social Aspects				
Factor	Aspect	Preliminary Assessment of Significance		
		Low	Medium	High
Sustainability	Sustainability		X	
Social Factors	Local Communities		X	
	Public Health and Safety		X	
	<u>Culture and Heritage</u>			X
Biophysical Factors	Terrestrial Flora and Vegetation	X		
	Terrestrial Fauna	X		
	Biodiversity		X	
	Conservation Values	X		
	<u>Landform and Soils, Erosion</u>			X
	Surface Water Quantity		X	
	Groundwater Quantity	X		
Pollution Prevention Factors	Air – Greenhouse Gas Emissions		X	
	Air -Dust		X	
	Air – Other Emissions		X	
	Noise and Vibration		X	
	Light	X	X	
	Liquid and Solid Waste Disposal		X	
	<u>Geochemical</u>			X
	Surface Water Quality		X	
	Groundwater Quality		X	

Item 21: Capital and operating costs – Pitfalls

Components of cost estimates and their basis explained

Provide a **summary table** of cost estimates with major components and **explain and justify** the basis for the cost estimates

Unanswered questions:

- What are the main components of the capital cost estimate?
- How was the operating cost estimate determined?
- What about the cost of the railway described in the Infrastructure section of the technical report?

*Provide more context and justification for the estimated costs
– not just a number*

Example: Basis for cost estimates

Table 21-3: Basis of Estimate Summary

Item	Estimate Basis
Equipment	
Major Equipment	Multiple budget quotations using general engineering specifications and data sheets based on the design criteria and process flow diagrams. Also includes single source pricing from select designated suppliers. Tank costs are based on quotes from equipment suppliers for specific CIC and ADR tanks, and/or steel take offs and steel prices using sizes specified in the design criteria.
Minor Equipment	Budget quotations based on brief specifications and/or process flow diagram information. Where quotations were not received costing used from previous similar projects was used.
Materials	
Concrete	Preliminary concrete quantities are estimated based on the GA drawings and experience with similar projects. A 5% allowance is added in the build-up for spillage and over pour. Unit rate costs are based on contractor quoted pricing from suppliers in Ontario. The concrete unit rates include batching costs, aggregate crushing and screening, rebar, forming, pouring and finishing. Structural backfill quantities were estimated by JDS using basic engineering and experience.
Structural Steelwork	Structural steel quantities are estimated based on the GA drawings and experience with similar projects. Unit rate costs for supply are based on budgetary quotations from steel fabricator in Ontario. Construction and erection hours are based on experience with similar projects.

Item 22: Economic analysis – Pitfalls

Taxes and sensitivity analysis

- (d) summary of the **taxes**, royalties, and government levies
- (e) sensitivity analysis using commodity price, grade, capital and operating costs, and the impact of the results

Unanswered questions:

- What are the applicable taxes and their impact on the economics?
- What are the base case assumptions?
- What about the impact of decreasing metal prices?

It may be potentially misleading to report only:

- “before-tax” economic outcomes
- “positive” price sensitivity analysis

Item 25: Interpretation and conclusions – Pitfalls

Risks, uncertainties and potential impacts

Discuss any **significant risks and uncertainties**, and their **potential impacts**, on the project's potential economic viability or continued viability

Unanswered questions:

- What about the ability to obtain water rights?
- What about the proposed novel processing technology?
- What about the letter from the village about stopping the project?

Consider a table showing the risks, mitigating factors and opportunities

Example: Risks and potential impacts

Mineral resources

Table 25.1: Relevant Risks and Opportunities

Project Element	Economic Risk Level	Comment
RESOURCES		
<u>Database</u>		
Exploration Data Sufficiency/Adequacy	Low	Silver Valley mineralization is historically very continuous. Additional drilling is recommended to confirm untested areas of the South Vein.
Assaying	Low	Recent drilling programs have had modern QA/QC and support historic results.
<u>Surveying</u>	Moderate	Collar surveys are potentially inaccurate due to survey methods. Down hole surveys need confirmation using alternative methods such as gyroscope for validation.
Geology	Low	Geology is sufficiently understood to direct drilling and future resource expansion.
<u>Geology and Resource Modeling</u>		
<u>Geological modeling</u>	Moderate	Absolute location of veins could be affected by potentially inaccurate down hole surveys of deep core holes. This was largely mitigated by the location of the veins in the 2011/12 test mining campaign.
Resource modeling approach	Low	Variography was not applied to the estimate. Resource risk is considered low but requires validation and upgrade of some areas from additional drilling.
Geostatistical analysis	Low	
Resource estimate	Low	

Example: Risks, outcomes and mitigating factors

Project economics

Table 25.1: Project Risks as Currently Identified

Risk	Explanation	Potential Outcome	Possible Risk Mitigation
Metal prices	Metal prices have a significant impact on the economic viability of the project.	In the Mid Case, a 20% drop in metal price takes the project from having a PT-NPV _{8%} of \$412M down to \$100M.	Current strong demand for metals make it possible to forward sell production to take the risk out of metal price volatility. This can be done for all or a portion of production.
Dilution	Dilution is a significant risk to the project viability based on a longhole mining method	A drop in mill head grade would have a serious impact on project economics. A 1% drop in overall head grade equates to a Mid Case reduce of \$11M in PT-NPV _{8%} .	Increased definition drilling and modifications to the mining method, if necessary, as greater understanding of the deposit is gained. Training of operators to ensure accurate longhole drilling
OPEX and CAPEX	Costs are based on many factors and assumptions that need to be verified at the next level of study. The diesel price was linked to its historical relationship with metal prices in this study and was assumed to be \$0.75/litre.	Costs could increase or decrease. A 1% change in OPEX or CAPEX changes the PT-NPV _{8%} by approximately \$4M and \$3M respectively.	Improved cost estimation as appropriate for the next level of study. Enter into contracts to lock in prices.

QP certificate – Pitfalls

Follow the requirements as set out in s. 8.1(2) of NI 43-101

A certificate must state information for all of points (a) through (i)

Remember:

- Sign and date the certificate
- Discuss your “relevant experience” for the purposes of the technical report
- Each section of the technical report needs to have a QP taking responsibility

*Include all the required statements
Certificates are one of the first things checked by the regulator*

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

Deficient Example:

I have practiced my profession continuously since graduation from university in 1984.

Better Example:

I have worked as a professional geologist for 30 years since graduation from university. 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 precious and base metal projects in Canada, Africa, Chile and Mexico; and*
- 1995 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.*

Reviews by Commission Staff

Technical reviews by the regulator

Continuous disclosure (CD) reviews

Typical documents examined

- Website (all of it)
- News releases (past year)
- MD&A (past year)
- AIF (if filed)
- Technical reports (most recent ones)
- Social media sites (posted or linked to the company's website)
- Bullboards and chat rooms (investor reaction)

Technical reviews by the regulator

Prospectus reviews

Typical documents examined

- Prospectus
 - Technical information
 - Use of proceeds
- Documents incorporated by reference into the prospectus
 - AIF, news releases, MD&A, etc.
- Technical reports (most recent ones)
- Website (all of it)

So what if I don't comply?

NI 43-101 is enforceable under the Securities Act

Some of the possible outcomes:

- News release clarifying and/or retracting the disclosure
- Company placed on Refilings and Errors list
- Company placed on Default list (can't raise new money)
- Cease Trade Order (trading stops)
- Enforcement order under the Act
- Class action lawsuit under civil liability provisions of the Act
- Professional liability and disciplinary action (QPs)
- Securities Act charges (5 years/ \$5 million fine)
- Criminal Code charges (up to 14 years)

Key action items for mining companies

- Understand all your disclosure obligations
- Be aware of CIM standards and best practices
- Avoid the common mistakes and pitfalls
- Review and discuss technical disclosure with your QP

Don't let this happen to you!

- Missed deadlines
- Public retraction or clarification
- Withdrawn financings

Thank You!

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Graphic after IKEA