
South African Representative, CRIRSCO

Moscow May 30 2017
Presentation Agenda

• Objective of CRIRSCO
• CRIRSCO Members
• International Reporting Template
• UNFC 2009
• Mapping UNFC 2009 Template/PRMS
To promote best practice in the international public reporting of Mineral Exploration Results, Mineral Resources and Mineral Reserves.

CRIRSCO is an international advisory body without legal authority, relying on its constituent members to ensure regulatory and disciplinary oversight at a national level.

It recognises the truly global nature of the minerals industry and the agreed need for international consensus on reporting standards.
<table>
<thead>
<tr>
<th>Region</th>
<th>Member</th>
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<tbody>
<tr>
<td>Australasia:</td>
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<td>Brazil:</td>
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<td>Canada:</td>
<td>CIM</td>
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<td>Chile:</td>
<td>COMISIÓN MINERA DE CHILE</td>
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<td>South Africa:</td>
<td>SAMREC</td>
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<td>United States:</td>
<td>SME Guide</td>
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INTERNATIONAL REPORTING TEMPLATE

for the public reporting of

EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES

NOVEMBER 2013
Purpose

• Advisory only

• National Standards/Codes take precedence

• Model for development of new codes
Fundamental Framework

Increasing level of geological knowledge and confidence

MINERAL RESOURCES
- Inferred
- Indicated
- Measured

MINERAL RESERVES
- Probable
- Proved

Consideration of mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social, and governmental factors (the "Modifying Factors").
Generic, Principle based
3 Axis
Economic and Social,
Feasibility,
Geological
Numerical code

Applied directly or as harmonizing tool
Re-Oriented Figure Showing the CRIRSCO Categories (Shaded) and Additional Categories in Other Systems

- **Production**
  - Mineral Reserves
    - Proved
    - Probable
  - Mineral Resources
    - Measured
    - Indicated
    - Inferred
  - Discovered Not Economic *
  - Discovered Unrecoverable *
  - Exploration Results
  - Undiscovered Unrecoverable *

Increasing geological knowledge and confidence

*Not part of the Template but may be used for internal project management*

Economic and Feasibility Modifying Factors
Categories of Mineralisation not in CRIRSCO Framework
Comparison of the Petroleum Resource Management System (PRMS) and the CRIRSCO Template

Petroleum (SPE/WPOC/AAPG/SPEE 2007)

Minerals (CRIRSCO 2013)

Range of Technical Uncertainty

Marginal Contingent Resources

Sub-Marginal Contingent Resources

Marginal Contingent Resources

PRODUCTION

RESERVES

1P

2P

3P

Marginal Contingent Resources

CONTINGENT
RESOURCES

1C

2C

3C

Sub-Marginal Contingent Resources

UNRECOVERABLE

PROSPECTIVE
RESOURCES

Low Estimate

Best Estimate

High Estimate

Low Recoverable

Best Recoverable

High Recoverable

*Not part of the Template but may be used for internal project management*
Non-economic mineralization

• Need for management of inventory
  - Company level
  - Country level
  - Global level

• Definitions must be consistent
Non-economic Mineralization

- Corporate mineral inventory management
  - exploration target definition
  - development options
  - purchase price accounting
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<td>Exploration Results</td>
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<td>E3 F3 G4</td>
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</table>
• Generic classification system applicable to Fossil Energy and Mineral Reserves and Nuclear fuels;

• Provides a single framework on which to build international energy and mineral studies;

• Allows for non-economic mineralisation

• Now applicable to renewable energy

Important tool for harmonized generic terminology at a level suitable for global communication
ALL SLIDES

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