The JORC Code

- JORC is a voluntary committee with the responsibility for preparing and updating the Australasian Code for Public Reporting of Exploration Results Mineral Resources and Ore Reserves, The JORC Code.
- The JORC Code – Australasian Code for Reporting of Exploration Results, Mineral Resources, and Ore Reserves.
- Applicable to all solid minerals including coal, diamonds, other gemstones, and industrial minerals.
- Incorporated into the listing rules of both the Australian Securities Exchange and New Zealand Stock Exchange.

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The JORC Code—What it Does

- Sets minimum standards for public reporting (in Australia and New Zealand) of Exploration Results, Mineral Resources, and Ore Reserves.
- Provides a mandatory system for classification of tonnage/grade estimates according to geological confidence and technical/economic considerations.
- Requires Public Reports to be based on work undertaken by a Competent Person; describes the qualifications and type of experience required to be a Competent Person.
- Provides extensive guidelines on the criteria to be considered when preparing reports on Exploration Results, Mineral Resources, and Ore Reserves.

The JORC Code what it does not do

- Regulate the procedures used by Competent Persons to estimate and classify Mineral Resources and Ore Reserves:
  - It is a Code for reporting.
- Regulate companies’ internal classification or reporting systems.
- JORC (the committee) does not deal with breaches of the Code:
  - Breaches by companies are dealt with by ASX.
  - Breaches by individuals are dealt with under the code of ethics of AIG, AusIMM, or the Recognised Professional Organisation (RPO).
The 2012 JORC Code
READ THE CODE!!!!


The JORC Code—Principles Based, Not Prescriptive (Clause 4)

Transparency
clear unambiguous presentation

Materiality
all reasonable information expected

Competence
based on work by Competent Person

JORC Compliant Reports
JORC Code: Competence

- Public Reports detailing Exploration Results, Mineral Resources, and Ore Reserves must be prepared by or under the direction of, and signed by, a Competent Person(s).

- A Competent Person:
  - Is a minerals industry professional who is a member or fellow of the AusIMM or AIG, or of a “Recognised Professional Organisation”.
  - Has a minimum of five years relevant experience to that mineralisation style or deposit type and the activity they are undertaking.

- Resource and Reserve estimates can be, and often are, signed-off by more than one Competent Person e.g.: resources by a geologist and reserves by a geologist and an engineer.

2012 JORC Code: Relationship between Exploration Results, Mineral Resources, and Ore Reserves

...diagram...
## Mineral Resource Classification—Confidence Statements

<table>
<thead>
<tr>
<th>Classification</th>
<th>That part of a Mineral Resource for which:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inferred</td>
<td>Tonnage, grade and mineral content can be estimated with lower confidence than an Indicated Resource. Geological evidence is sufficient to <strong>imply but not verify geological and grade continuity</strong>.</td>
</tr>
<tr>
<td>Indicated</td>
<td>Tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with sufficient confidence to allow the application of Modifying Factors for evaluation of economic viability. The sampling locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for <strong>continuity to be assumed</strong>.</td>
</tr>
<tr>
<td>Measured</td>
<td>Tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a sufficient confidence to support detailed mine planning. The sampling locations are spaced closely enough to <strong>confirm geological and grade continuity</strong>.</td>
</tr>
</tbody>
</table>

**Continuity is important**

**Continuity is between not around**

## 2012 JORC Code—Important Terms

**Significant project:**

- “An exploration or mineral development project that has or could have a significant influence on the market value or operations of the listed company, and/or has specific prominence in Public Reports and announcements.” (Appendix 1).

  Similar to the definition of a ‘material mining project’ in ASX Listing Rules

**Material change:**

- “A material change could be a change in the estimated tonnage or grade or in the classification of the Mineral Resources or Ore Reserves. Whether there has been a material change in relation to a significant project must be considered by taking into account all of the relevant circumstances, including the style of mineralisation. This includes considering whether the change in estimates is likely to have a material effect on the price or value of the company’s securities.” (Guideline to Clause 5).

**‘if not, why not’:**

- “means that each item listed in the relevant section of Table 1 must be discussed and if it is not discussed then the Competent Person must explain why it has been omitted from the documentation.” (Guideline to Clause 5).
Important Changes in 2012 JORC Code
Public Reports

To comply with both the 2012 JORC Code and the ASX listing rules for significant projects (material mining projects in ASX listing rules) when reporting initial results or estimates, or reporting results or estimates which have materially changed from when they were last reported, enhanced reporting requirements apply.

Reporting for significant projects

For these significant projects (material mining projects in ASX listing rules) projects when reporting initial results or estimates or reporting results or estimates which have materially changed from when they were last reported, the following information needs to be prepared:

• Competent Person’s internal documentation (always required).
• Public report addressing all material matters and all those points identified as requiring prominent reporting in ASX Listing Rules 5.7, 5.8, and 5.9, in the body of the public report.
• As an appendix to the public report, a completed Table 1 for the relevant sections of the table as identified in the JORC Code and the ASX Listing Rules, on an “if not, why not” basis.
‘if not, why not’

• “means that each item listed in the relevant section of Table 1 must be discussed and if it is not discussed then the Competent Person must explain why it has been omitted from the documentation.” (Guideline to Clause 5).

• Reporting on an ‘if not, why not’ basis is to ensure that it is clear to an investor whether items have been considered and deemed of low consequence or are not yet addressed or resolved.

• These additional reporting requirements appear in:
  – Clause 19 for Exploration Results
  – Clause 27 for Mineral Resources
  – Clause 35 for Ore Reserves

Other key changes in the 2012 Code

• Competent Person attributions — Clause 9.
• Exploration Target — now defined in the revised Clause 17.
• At least a study at Pre-Feasibility level required for an Ore Reserve declaration — Clause 29.
• Technical studies definitions — Clauses 37, 38, 39, and 40.
• Metal equivalents — Clause 50.
• In situ or ‘in ground’ values — Clause 51.
• Additional guidance on reporting requirements for Competent Persons — Table 1 body of table.
• Note there are other wording changes and these can be ascertained from the clause by clause comparison available on the JORC website.
Securities Exchange Listing Rules

• Public reports made via the ASX or other stock exchange need to consider the rules of the exchange as well as the JORC Code

+ Listing Rules (For example, in Australia refer to ASX Listing Rules & Guidance note 31)
+ Corporations Law – reasonable grounds
= Public Reporting that meets all requirements

The current ASX Listing Rules contain:

• Requirements parallel with the 2012 JORC Code, for the reporting of initial or materially changed Exploration Results, Mineral Resources, or Ore Reserves, but there are several subtle differences.
• Requirements additional to the 2012 JORC Code including:
  – Reporting of historical estimates and foreign estimates of mineralisation for material mining projects.
  – Reporting of production targets.
  – The requirements for Annual Reporting of Mineral Resources and Ores Reserves.
  – Some Competent Person Requirements.
Many of you will remember this next slide from a talk at Maitland in 2009 – The JORC Code and Coal

1999 Guidelines
2km spacing indicated (1km extrapolation)

2003 Guidelines
1km spacing indicated (500m extrapolation)

Where did the Reserves go? No longer have continuous Indicated Resources to be modified to Probable Reserves.
2014 Edition of the Australian Guidelines for the Estimation and Classification of Coal Resources

Now it’s up to the Competent Person!

Frequently Asked Questions

A joint ASX, ASIC, JORC initiative:

‘ASX mining reporting - frequently asked questions’ are downloadable from ASX and JORC websites:


or as a pdf:

Acknowledgements

JORC is a voluntary committee, so thanks to my JORC colleagues for preparation of some of the material included in this presentation and to JORC and its parent bodies for their support:

And my CRIRSCO colleagues:

A strategic partner of

And to my employer for my time and travel