

# JORC Code Seminars 2009

Parmelia Hilton, Perth, Western Australia

19 May 2009

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**ASIC**

Australian Securities & Investments Commission



# JORC Code matters

Peter Stoker Chairman JORC

- The JORC Code
- Companies Updates now incorporated in the downloadable version of The JORC Code
- Example Reports
- International Reporting Developments

# The 2004 JORC Code

*READ THE  
CODE!!!!*

Australasian Code for  
Reporting of Exploration Results,  
Mineral Resources and Ore Reserves

~ **The JORC Code** ~  
2004 Edition

**AusImm**  
AUSTRALASIAN INSTITUTE OF MINING & METALLURGY

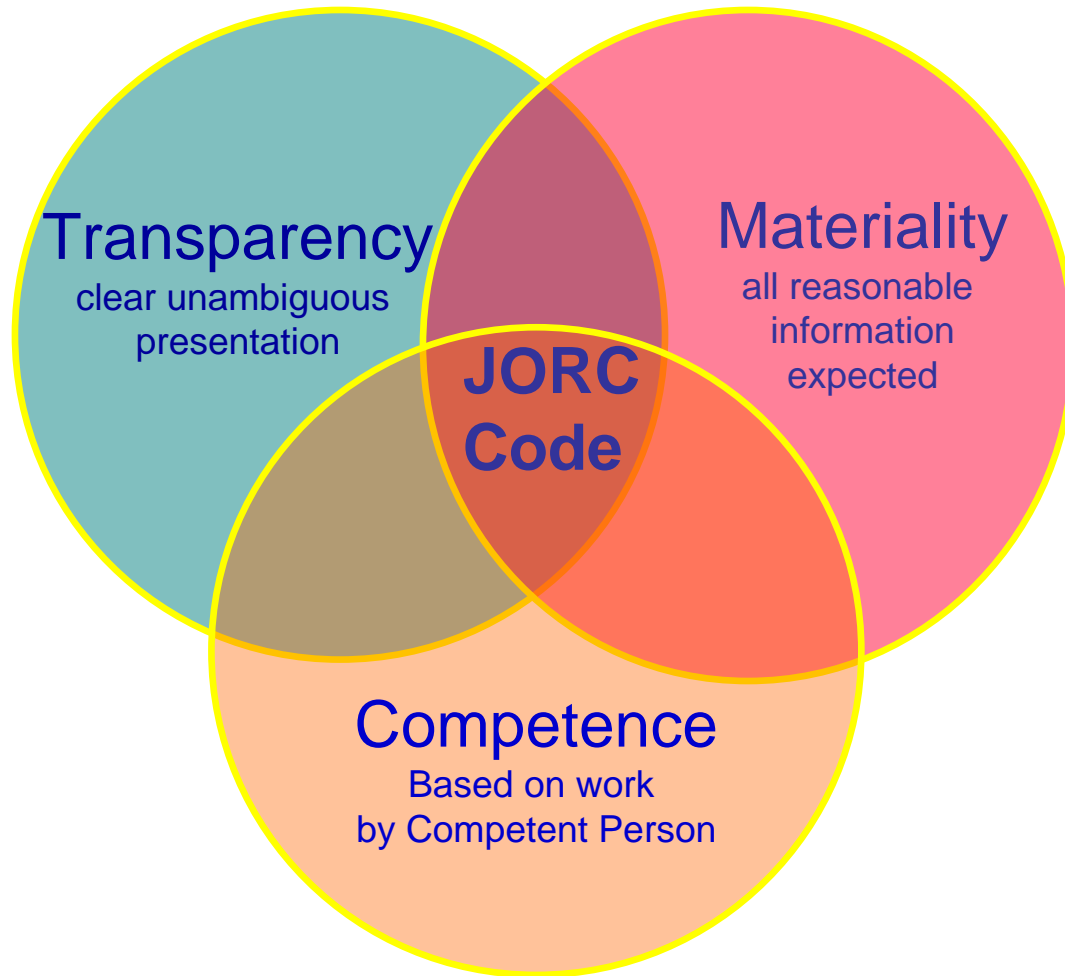


Effective December 2004

Prepared by:  
The Joint Ore Reserves Committee of The Australasian Institute of  
Mining and Metallurgy, Australian Institute of Geoscientists and  
Minerals Council of Australia (JORC)

# JORC Code - Principles based

JORC is a principles based Code not a prescriptive Code.  
The principles in Clause 4, 2004 JORC Code are:



# Companies Updates relevant to The JORC Code are now available (consolidated) with the Code on the JORC website

**These ASX Companies Updates provide guidance on the application of The JORC Code**

Since 2004, after extensive discussion with JORC, ASX has issued four Companies Updates of relevance to interpreting the JORC Code and its use in Public Reporting.

A copy of these ASX Companies Updates has been appended to both versions of the Code and will automatically download with them from the JORC website.

**Readers of The JORC Code are advised to consult these Updates.**

# How many of these Companies Updates are relevant to the use of The JORC Code in public Reporting?

- Companies Update 05/04 in March 2004 dealt with non JORC Code compliant reporting,
- Companies Update 03/07 in May 2007 dealt with metal equivalents, reporting of Inferred Resources and Competent Persons Consent Forms, and
- Companies Update 11/07 in November 2007 dealt reporting of historical estimates.
- Companies Update 03/08 in May 2008 dealt with the inappropriateness of reporting in ground or in situ values, as well as more general advice on other matters.

# JORC Seminar

## Example Reports

# Extracts from the December Quarterly Report and the public presentation of the quarterly results for New Asia Mining & Energy Limited (NAMEL) ASX Announcement 31 January 2008

NAMEL is pleased to announce increased gold reserves and resources at Harapan Kecil and Emas Sur deposits. The reserves and resources have been **calculated** and have resulted in an increase of Reserves by 100,000 oz and resources by 200,000 oz. The current JORC compliant resources and reserves are listed in the following table.

**“calculated”?**

**Reserves and resources are estimates, not calculations!**

**Implies a lack of understanding of the Code**

**Is that all?**

**Is there any other material information which should be reported?**

# Extracts from the December Quarterly Report and the public presentation of the quarterly results for New Asia Mining & Energy Limited (NAMEL) ASX Announcement 31 January 2008

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**It is this report which must be compliant not the reserves and resources.**

**Is that all?**

**Is there any other material information which should be reported?**

# Extracts from the December Quarterly Report of New Asia Mining & Energy Limited (NAMEL)

NAMEL is pleased to announce increased gold reserves and resources at Harapan Kecil and Emas Sur. The reserves and resources have been re-estimated using the five year historical average gold price and have resulted in an increase of Reserves by 200,000 oz and resources by 300,000 oz. The current JORC compliant resources and reserves are listed in the following table.

- **Source of price**
- **Is that reasonable?**

# Extracts from the December Quarterly Report of New Asia Mining & Energy Limited (NAMEL)

The current JORC compliant resources and reserves are listed in the following table.

## NAMEL JORC Compliant Reserves and Resources 31 December 2008

Deposit	Reserves			Resources		
	Tonnes Mt	Grade g/t Au	Ounces MOz	Tonnes Mt	Grade g/t Au	Ounces MOz
Harapan Kecil	10.5	1.54	0.5199	34.5	0.94	1.0427
Emas Sur				6.1	1.03	0.202

**Do the published resources include the reserves? Statement required**

**No separate categories**

**“Proved”! has the company read the Code?**

The current proven and probable reserves compares to the previous stated reserves of 6.7 million tonnes grading 1.49 g/t for 0.31 million ounces.

# Extracts from the December Quarterly Report of New Asia Mining & Energy Limited (NAMEL)

The total reserves and resources at Harapan Kecil are now 45 million tonnes of 1.8 g/t gold containing 1.56 million ounces of gold.

Infill drilling at Emas Sur has recently been completed and newly completed initial Indicative Resource estimates will add 150,000 oz to resources in the coming year from Emas Sur. Metallurgical test work has commenced on the Harapan Kecil ore with the aim of re-categorising some more of the resources in these areas to reserves.

**We will return to this statement later, and also to this.**

- Reserves and Resources are not additive, but**
- Appears the Mineral Resources are exclusive of those Resources modified to produce the Ore Reserves.**

Extracts from the December Quarterly Report for New Asia Mining & Energy Limited (NAMEL) ASX Announcement 31 January 2008

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**NAMEL JORC Compliant Reserves and Resources 31December 2008**

Deposit	Reserves			Resources		
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Iva Mine  
Chief Executive Officer  
31 January 2009

So this is  
what we  
have:

So what's  
missing?

The Competent  
Person's  
statement for  
one thing.

**Sorry there was one, but as we have seen today commonly there is not.**

**And clearly it is not!**

**Actually “The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves”, have they read the 2004 Code?**

*The information in this report as it relates to ore reserves, mineral resources or mineralisation is reported in accordance with the Aus.IMM "Australian Code for reporting of Identified Mineral Resources and Ore Reserves" and is based on information compiled by Denim Ibo, a member of the Indonesian Association of Geologists, and who has consented in writing to the inclusion in this report of the numbers based on the information in the form and context in which it appears.*

**The Indonesian Association of Geologists is not (yet) a ROPO, so Mr Ibo cannot be a Competent Person as required by the JORC Code.**

# Why not use the guidance in Clause 8 for the Competent Person Statement?

This fictitious report is loosely based on actual reports; in the form presented here it has several of the common deficiencies noted by ASX:

- Competent Person's statement – missing or deficient
- Failure to state resource category
- Failure to state reserve category
- It also includes unsatisfactory target statements and unacceptable use of the word "ore"

Lets return to those statements.

# Extracts from the December Quarterly Report of New Asia Mining & Energy Limited (NAMEL)

Infill drilling at Emas Sur has recently been completed and newly completed **initial Indicative Resource estimates** will add 150,000 oz to resources in the coming year from Emas Sur.

Metallurgical test work has commenced on **the Harapan Kecil ore** with the aim of re-categorising some more of the resources in these areas to reserves.

**What are these “initial Indicative Resource estimates”? Not Mineral Resources so should be a clause 18 exploration target.**

**The word ore implies economic viability and can only be used in association with Ore Reserves not resources or exploration results (exception “iron ore” which is common English)**

# JORC Seminar

## Exploration Results

# Reporting of Exploration Results

- In the 2004 JORC Code there is a requirement for a Competent Person to take responsibility for the documentation on which Public Reports of Exploration Results are based, see Clauses 8 & 9.
- Exploration Results is defined in Clause 16 as “Exploration Results include data and information generated by exploration programmes that may be of use to investors”.
- The manner of Public Reporting of Exploration Results is specified in Clause 17. This includes specific (and somewhat prescriptive) material previously included within the ASX Listing Rules and transferred to the 2004 JORC Code.

# Clause 17. Reporting of Exploration Results

“Public Reports of Exploration Results must contain sufficient information to allow a considered and balanced judgement of their significance. Reports must include relevant information such as exploration context, type and method of sampling, sampling intervals and methods, relevant sample locations, distribution, dimensions and relative location of all relevant assay data, data aggregation methods, land tenure status plus information on any of the other criteria listed in Table 1 that are material to an assessment.

Public Reports of Exploration Results must not be presented so as to unreasonably imply that potentially economic mineralisation has been discovered.

If true widths of mineralisation are not reported, an appropriate qualification must be included in the Public Report.”

# Clause 17. Reporting of Exploration Results (ctd)

“Where assay and analytical results are reported, they must be reported using one of the following methods, selected as the most appropriate by the Competent Person:

- either by listing all results, along with sample intervals (or size, in the case of bulk samples), or
- by reporting weighted average grades of mineralised zones, indicating clearly how the grades were calculated.

Reporting of selected information such as isolated assays, isolated drill holes, assays of panned concentrates or supergene enriched soils or surface samples, without placing them in perspective is unacceptable.

*Table 1 is a check list and guideline to which those preparing reports on Exploration Results, Mineral Resources and Ore Reserves should refer. The check list is not prescriptive and, as always, relevance and materiality are overriding principles which determine what information should be publicly reported.”*

# Clause 17. What does this mean in practice?

Prior to 2004, when there was no specific definition of Exploration Results in The JORC Code, the ASX Listing Rules contained some prescriptive clauses relating to reporting of drilling results. This material was simplified and included in the 2004 JORC Code as part of clause 17.

The advice in the Code is simply an expression the transparency and materiality principles as applied to Exploration Results. That is, clear and unambiguous reporting with all the information reasonably required and expected.

Table 1 provides a checklist of the information which should be mentioned.

**So balanced reporting is essential!**

Example - If you drill 12 holes and two hit reasonable mineralisation, that is what the investor has a right to know.

*That is not:*

Inya Dreams Mines NL (IDM) hit “ore” grade in two holes at the Last Chance “Mine” during the quarter. These intersections include some spectacularly high copper grades with several 1m samples over 10% Cu, up to a maximum lab assay of 29% Cu. Results included 7 m @ 5.59% Cu from 6 - 21 m in one hole . These holes indicate the presence of ore and have encouraged IDM to undertake a scoping study for a 1Mtpa open cut copper mine utilizing solvent extraction treatment technology to produce cathode copper on site.

Example - If you drill 12 holes and two hit reasonable mineralisation, that is what the investor has a right to know.

*Rather:*

Multi-Minerals Corporation Limited (MMC) drilled 12 diamond holes at the Last Chance oxide copper prospect. Two of the holes intersected intervals of greater than 1% copper mineralisation near the top of the holes. While weakly mineralised the remaining holes did not contain any intervals greater than 0.5% Cu, see the following table for drill hole details. MMC is re-evaluating the prospect to assess whether there are structural and secondary enrichment controls on the mineralisation and whether to continue with the farm in agreement with IDM.

# MMC Drilling on Last Chance Deposit

A table which includes the following should be inserted:

- **Drill Hole Name, Hole Length**
- **Collar Location: N, E, RL**
- **Orientation: Azimuth, Dip, Downhole survey indicator**
- **Intersection From, To, Down Hole Length**
- **Estimated True Width**
- **Cu assay & gold assay.**

The report includes this information for individual splits and intersections and the basis on which the intersection is selected. The following example does not include all this information:

# Drilling report Last Chance

For full Copper (Cu) and Gold (Au) results see assay sheets attached.

Hole LCRC 14 (included as an example here)

Copper 20 m @ 2.24% Cu from 6 - 26 m

Hole LCRC 15

Copper 15 m @ 1.99 % Cu from 12 - 27 m

Including 6 m @ 3.72 % Cu from 13 - 19 m

In order to be consistent with previous reporting at Last Chance, the drill intersections reported above have been calculated on the basis of a copper cutoff grade of 0.2% with an allowance of up to 4m of internal waste. Calculated Au grades Where reported are also reported for relevant intersections. All analyses were carried out at internationally recognized, independent, assay laboratories. Quality assurance for the analyses is provided by continual analysis of known standards, blanks and duplicate samples, inserted by the company.

MMC is assessing whether there is a structural or other controls to the mineralisation and is unable to estimated the true widths of mineralisation at this stage of the program.

Last Chance Drill Hole: LCRC 14

Collar: 20025N; 1200E; 523.4RL,

Azimuth 270; Dip -65

Depth of Hole: 28 metres

From	To	LENGTH	Cu%	Au g/t
0	1	1	0.03	-
1	2	1	0.03	-
2	3	1	0.04	-
3	4	1	0.1	-
4	5	1	0.11	-
5	6	1	0.16	-
6	7	1	0.27	0.24
7	8	1	0.25	0.12
8	9	1	0.15	-
9	10	1	0.17	-
10	11	1	0.2	-
11	12	1	0.18	0.2
12	13	1	0.43	0.26
13	14	1	0.79	0.29
14	15	1	1.62	0.35
15	16	1	1.62	0.54
16	17	1	2.67	0.32
17	18	1	1.53	0.54
18	19	1	29	0.89
19	20	1	1.29	0.14
20	21	1	1.37	0.1
21	22	1	0.19	0.12
22	23	1	0.24	0.22
23	24	1	1.17	0.18
24	25	1	1.69	0.5
25	26	1	0.21	0.28
26	27	1	0.09	-
27	28	1	0.07	-

# What does balanced reporting mean?

## balanced - not selective reporting

### *Reports must:*

- contain sufficient information to allow a considered and balanced judgement of the significance of results
- not be presented so as to unreasonably imply that potentially economic mineralisation has been discovered (don't use "ore")
- include true widths of mineralisation, if not an appropriate qualification must be included
- report assay results *using the most appropriate* method (choice of two!) selected by the Competent Person:
  - either by listing all results, along with sample intervals (or size, in the case of bulk samples), or
  - by reporting weighted average grades of mineralised zones, indicating clearly how the grades were calculated.

# International Developments Of significance to the JORC Code

# International Developments

*CRIRSCO - Committee for Mineral Reserves International Reporting Standards*

The umbrella organisation of national reporting organisations –

Australia, South Africa, Canada, UK, Ireland & Western Europe, USA and Chile

- *CRIRSCO is currently a taskforce of ICMM, but has recently established a strategic partnership for the next two years.*
- *CRIRSCO & IASB definitions for future IFRS*
- *CRIRSCO & SPE mapping minerals & oil and gas definitions*
- *CRIRSCO & UNECE revising framework & mapping definitions*
- *CRIRSCO & other National Codes (Russia & China)*
- *National & International Reporting Codes*

# Conclusions

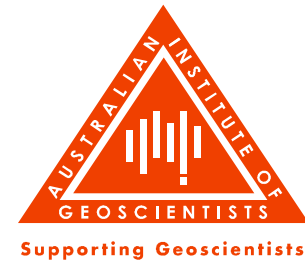
The JORC Code is a principles based Code.

The initiatives contained in the ASX Companies Updates are based on better disclosure to ensure informed investors, they have resulted from cooperation between JORC and the ASX.

Australia is participating in attempts to globalise reporting standards and their application

# Acknowledgements

To my JORC & CRIRSCO colleagues for assistance and support and some of the slides and JORC parents which are:



Preparing this talk and attending the seminar was supported by :



**JORC Seminar**  
**Supplementary Slides**

# Public Reports

- There are examples of reports that may not appear to be in accordance with the JORC Code
- *'They should do something'* is the cry
- But who is "*they*" and how do we know if they are doing something?
- The most important *they* is ***YOU***.
- What should you do? Look on the JORC website for advice. But don't expect someone else to do it for you. It is our industry and we all must ensure the standards are kept high.

# CRIRSCO and ICMM

- CRIRSCO is currently a Taskforce of the ICMM, but CRIRSCO and ICMM have reached agreement to form a strategic partnership for the next two years
- This will allow CRIRSCO's International activities to continue as adequate funding to support these activities is assured for another two years .

***ICMM- International Council on Mining and Metals***

# CRIRSCO and IASB

- CRIRSCO and the IASB Extractive Industries Working Group (EIWG) have been in close consultation for over four years common understanding on the definitions of Resources and Reserves that the IASB may adopt in the new International Financial Reporting Standards (IFRS).
- It would appear that the IASB will recommend adoption of definitions that will encompass both Minerals and Oil and Gas, hence CRIRSCO's engagement with the SPE in mapping the two systems definitions.
- From this engagement with IASB and SPE it seems that the IASB EIWG may recommend adoption of the mapped CRIRSCO and SPE definitions in the soon to be released EIWG discussion document in preference to the UNFC definitions.

***IASB - International Accounting Standards***

***SPE – Society of Petroleum Engineers***

***UNFC - United Nations Framework Classification***

# CRIRSCO and SPE

- CRIRSCO at the request of IASB Extractive Industries Working Group and the UNECE have worked jointly with the Society of Petroleum Engineers (SPE) on the possibility of convergence between resource / reserve definitions for the minerals and the petroleum industries and the development of a set of high common definitions.
- The outcome is a mapping document which maps the equivalence to the CRIRSCO Template with the SPE PRMS (available on the CRIRSCO website).

***UNECE – United Nations Economic Commission for Europe***

***PRMS – Petroleum Resources Management System***

# CRIRSCO & UNECE

- In 1999 CMMI/CRIRSCO reached agreement with UNECE that CMMI (CRIRSCO) definitions would be incorporated in UNFC for those categories of resources and reserves used for market-related reporting
- In 2003 an updated UNFC changed resource/reserve definitions with input from hydrocarbon industry, resulting in inconsistencies with the CRIRSCO definitions, which were omitted
- CRIRSCO re-engaged with the UNECE in an effort to produce, definitions and guidelines based on the CRIRSCO Template that are compatible with the needs of the users of the UNFC
- Few individual companies use UNFC, but it is accepted as a basis for reporting by some governments, sometimes with significant modification.

# National and International Reporting Standards

- JORC Code (Australasia) - 2004
- SAMREC Code (South Africa) - 2007 Updated Code issued
- The Reporting Code (UK/W Europe) - 2008, Updated Code issued
- Chilean Code (Chile) - issued 2004, implemented fully 2008.
- Peruvian Code (Peru) - issued 2004
- CIM Definition Standards 2005 (with NI 43 -101 and best practices guidelines), NI43-101 being revised currently
- Philippines PMRC - issued December 2007
- SME Guidelines (USA) - issued 2007
- CRIRSCO International Reporting Template - issued 2006
- Industry Guide 7 (USA - SEC) - completely different style
- Russia - Classification of Reserves of Mineral Deposits and Prognostic Resources of Solid Minerals - 11 Dec 2006 (in force from 1 Jan 2008), Protocol to map with CRIRSCO agreed
- China - Solid Mineral Reserve Classification 1999, being revised
- UNECE Framework Classification (Some international Governments)

# CRIRSCO & other National Codes

- Mapping the **Russian** reporting classifications against the CRIRSCO Template, being undertaken by CRIRSCO and GKZ. A protocol outlining that process issued in October 2008
- New **Chinese** reporting system to be released shortly and CRIRSCO has proposed mapping these classifications against the CRIRSCO Template to be undertaken by CRIRSCO and representatives from China.

# "In ground" values - discussion

Companies report 'in-ground value' apparently in an attempt to convey the significance of exploration results or deposits by converting the result or deposit to a dollar amount.

'In-ground value' has little to no relationship to economic viability, value or potential returns to investors.

It may therefore be misleading.

In determining project viability it is necessary to include all reasonable Modifying Factors (mining, metallurgical, economic, marketing, legal, environmental, social and governmental considerations) to determine the economic value that can be extracted from the mineralisation.

"In-ground" value ***implies*** economic viability without considering the application of these Modifying Factors.

# "In ground" values - discussion

The words 'ore' and 'reserves' must not be used in describing Mineral Resource Estimates as the terms imply economic viability and are only appropriate when all Modifying Factors have been considered (*JORC Code Clause 27*).

Inferred Resources cannot be directly converted to Ore Reserves.

It is possible that portions of Indicated and Measured Resources may not convert to Ore Reserves nor contribute to the Net Present Value of a given mineralised body at the time of evaluation.

# Do not report “in ground” value

Consequently use of the terms ‘in-ground value’ or ‘in situ value’ is contrary to the intent of Clause 27 of the Code, and

ASX has indicated ‘in-ground value’ or ‘in situ value’ should not be reported by companies.

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