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**15TH
ANNIVERSARY**

Keith Whitchurch, PT SMG Consultants

The Principals of the JORC Code



Introduction

K.D. Whitchurch, A.D.S. Gillies and G.D. Just. A geostatistical approach to coal resource classification. *Proceedings, Pacific Rim Congress, Aus.Inst.Min.Met*, August, 1987,p.475-482.

- Who/What is JORC
- The reason for JORC – a short history
- Definitions in the JORC code
- The Principals of the JORC code

Who or What is JORC

What/Who is JORC

Joint Ore Reserves Committee (JORC)

- JORC is a volunteer committee of:
 - The Australasian Institute of Mining and Metallurgy
 - Minerals Council of Australia
 - Australian Institute of Geoscientists
- Representation by invitation from:
 - Australian Stock Exchange
 - Securities Institute of Australia
 - Others if deemed appropriate
- In continuous existence for more than 30 years

What/Who is JORC

Joint Ore Reserves Committee (JORC)

- JORC produces the JORC Code
- The JORC Code is one of the more successful Industry Codes in the world
- It has been the model for other national Resource and Reserves Codes
- Incorporated into the ASX Listing Rules (as Appendix 5A) in 1989
- Updated regularly

What the JORC Code does

- Sets minimum standards for public reporting (in Australia & 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 Reason for the JORC Code

Purpose of the JORC Code

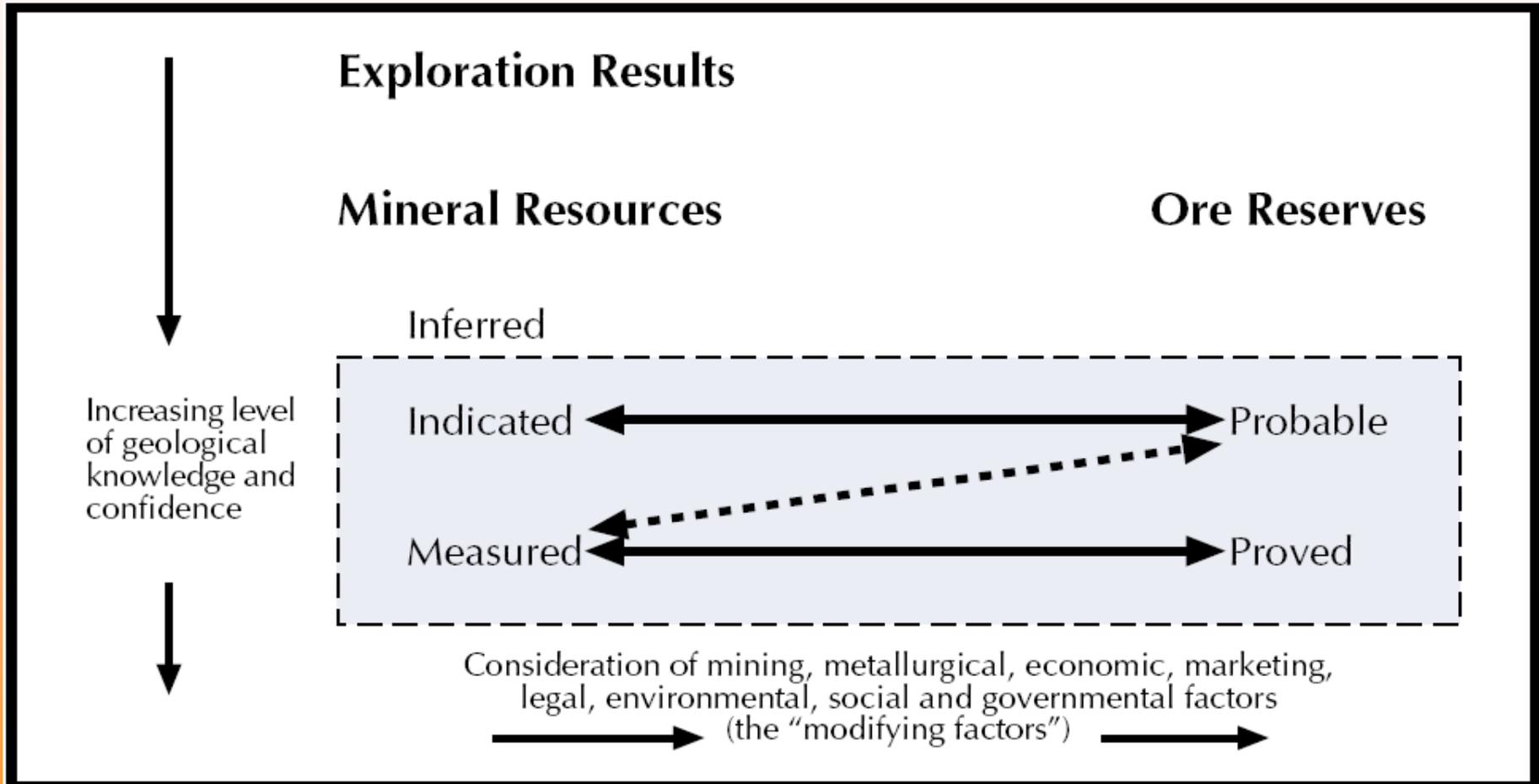
- In the early 1970s, the Melbourne Stock Exchange and the Federal Government requested that the leading industry associations develop a Code for reporting of tonnage and grade
- This followed the Poseidon Boom & Bust – misleading statements by companies leading to investor lack of confidence and declining share prices.
- Various codes leading to the QLD and NSW code for reporting of Coal Resources in 1986

A Brief History of the JORC code.

- First released, 1989; latest edition 2004 (with updates)
- Mandatory reporting standard for companies reporting to Australian Stock Exchange and New Zealand Stock Exchange.
- Highly influential in developing international reporting standards
- Bre-x/Busan provided substantial impetus for wider implementation (NI43-101)

Definitions of the JORC Code

General relationship between Exploration Results, Mineral Resources & Ore Reserves



Points of Observation

- Points of observation are sample points of the deposit e.g. Drill holes, Outcrops, trenches
- A point of observation included for Resource classification must be have a reliability consistent with the resource category it supports.
- Outcrops – generally only for inferred.
- Measured Resources
 - Cored holes with Geophysical logs
 - Touch coring without geophysics will generally not support measured Resources (SMGC opinion)

The Principals of the JORC Code

Principles of the JORC Code

■ **Competence**

- public reports based on work undertaken by Competent Persons

■ **Materiality**

- all the information reasonably required and expected

■ **Transparency**

- clear and unambiguous presentation of information

- The company making the JORC statement must satisfy themselves that the person is Competent to prepare the statement

A 'Competent Person' must have a minimum of five years experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which that person is undertaking.

Competence

- Geologist – Resources
- Engineer – Reserves
- Do not assume all coal is the same

Competent Person Statement

In releasing Public Reports entities must to do the following:

- Disclose the name(s) of the Competent Person or Persons, state whether the Competent Person is a full-time employee of the company, and, if not, name the Competent Person's employer;
- Ensure that the Competent Person has a minimum of five years' experience which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity which that person is undertaking; and
- Ensure that the Public Report is issued with the prior written consent of the Competent Person or Persons as to the form and context in which it appears.

Competent Persons Consent Form

Screen 1 of 7

[Letterhead of Competent Person or Competent Person's employer]

Competent Person's Consent Form

Pursuant to the requirements of ASX Listing Rule 5.6 and clause 8 of the 2004 JORC Code (Written Consent Statement)

Report Description

.....

.....

(insert name or heading of report to be publicly released) ("Report")

.....

.....
(insert name of company releasing the Report)

.....

.....
(insert name of the deposit to which the Report refers)

If there is insufficient space, complete the following sheet and sign it in the same manner as this original sheet.

.....

Screen 2 of 7

.....
(Date of Report)

Statement

I,

.....

..... confirm that:

(insert full name)

- I have read and understood the requirements of the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("2004 JORC Code").
- I am a Competent Person as defined by the 2004 JORC Code, having five years experience which is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Member or Fellow of *The Australasian Institute of Mining and Metallurgy* or the *Australian Institute of Geoscientists* or a 'Recognised Overseas Professional Organisation' ("ROPO") included in a list promulgated by ASX from time to time.
- I have reviewed the Report to which this Consent Statement applies.

Competent Persons Consent Form

Screen 3 of 7

• I am a full time employee of
..... (insert company name)

OR

• I am a consultant working for
..... (insert company name) and have
been engaged by
(insert company name) to prepare the documentation for
..... (insert deposit name) on which
the Report is based, for the period ended (insert date of
resource/reserve statement)

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Exploration Results, Mineral Resources and/or Ore Reserves (select as appropriate).

CONSENT

Screen 4 of 7

I consent to the release of the Report and this Consent Statement by the directors of:

.....
.....
(insert reporting company name)

Signature of Competent Person:

Date:

Professional Membership:
(insert organisation name)

Membership Number:

Signature of Witness:

Print Witness Name and Residence (eg. Town/Suburb):

Materiality

- All the information reasonably required and expected
- For example
 - Basis of density measurement
 - Basis of quality testing (ASTM /ISO)
 - Laboratory used
 - Core recovery
 - Thickness determination method
 - Geophysically logged/ Touch cored
 - Economic parameters used for Ultimate pit limits
 - Geotechnical support for pit design

Transparency

- Clear and unambiguous presentation of data

		<i>Maximum</i>	<i>Minimum</i>
<i>Coal Recovery %</i>		100	21
<i>Total Moisture % ar</i>		43.3	33.9
<i>Inherent Moisture % ad</i>		29.0	12.6
<i>Ash % ad</i>		13.3	1.4
<i>Total Sulphur % ad</i>		0.37	0.11
<i>CV kcal/kg ad</i>		5,924	4,043
<i>RD g/cm³ ad</i>		1.44	1.29

Non Compliance with the JORC Code

ASX Review of JORC code Compliance

6 month to march 31 2009

- An estimated 5,200 announcements were reviewed by ASXMS for compliance with the JORC Code during the six month period of the review.
- 312 (6.0%) of those announcements were found to contain a total of 333 instances of material non-compliant reporting by 246 entities.
- The most common breach was a deficient or missing Competent Person Statement (176 instances or 52.9% of total breaches).

ASX Review of JORC code Compliance 6 month to march 31 2009

JORC Code Clause	Issue	Instances of non-compliance
8	Competent Person Statement - deficient or missing	176
17	Insufficient information on results - lack of drill hole information	12
18	Exploration target statements reported incorrectly	41
25	Combined or unspecified categories of Resources	80
33	Combined or unspecified categories of Reserves	11
In-ground and in-situ values	Use of in-ground values or insufficient information to explain equivalent calculations	5
Non-JORC reporting – historical and foreign	Reporting historic /foreign Resources and Reserves	5
Various	Miscellaneous	3
	Total	333

Thank You