

JORC Code matters

Peter Stoker Chairman JORC

- Companies Updates since May 2007
- International Reporting Developments
- Reporting of Uranium - Additional guidance

Companies Updates relevant to Interpreting the JORC Code

How many of these 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 and Competent Persons Consent Forms, and
- Companies Update 11/07 in November 2007 dealt reporting of historical estimates.
- Companies Update 03/08

Companies Update 03/08

Issued in May 2008, ASX reported on its monitoring of Public Reports and the deficiencies noted, highlighting the following:

- Reporting of “in ground or in situ” values
- Reporting historical or non-JORC compliant reporting of estimates
- Competent Person statements
- Reporting exploration targets
- Lack of drill hole information
- Combining categories of resources and reserves
- Incorrect use of reserves or resources to describe results.

There is significant new advice on the inappropriateness of reporting “in-ground” values.

"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.

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 now a taskforce of ICMM*
- *CRIRSCO & IASB definitions for IFRS*
- *CRIRSCO & SPE mapping minerals & oil and gas definitions*
- *CRIRSCO & UNECE mapping definitions*
- Other Codes and International Developments
- National & International Reporting Codes

Uranium Reporting

BULLETIN

General Article

Resource Estimates for In Situ Leach Uranium Projects and Reporting Under the JORC Code

by A.D. McKay¹, P. Stoker², K.F. Bampton³ & I.B. Lambert⁴

1. Introduction

The Uranium Industry Framework (UIF) was established in August 2005 by the Minister for Industry, Tourism and Resources, the Hon. Ian Macfarlane. The Steering Group comprised senior representatives of the uranium industry; the Commonwealth, South Australian and Northern Territory governments; and the Northern Land Council.

The report of the UIF Steering Group, was released by the Minister in November 2006 and made 20 recommendations

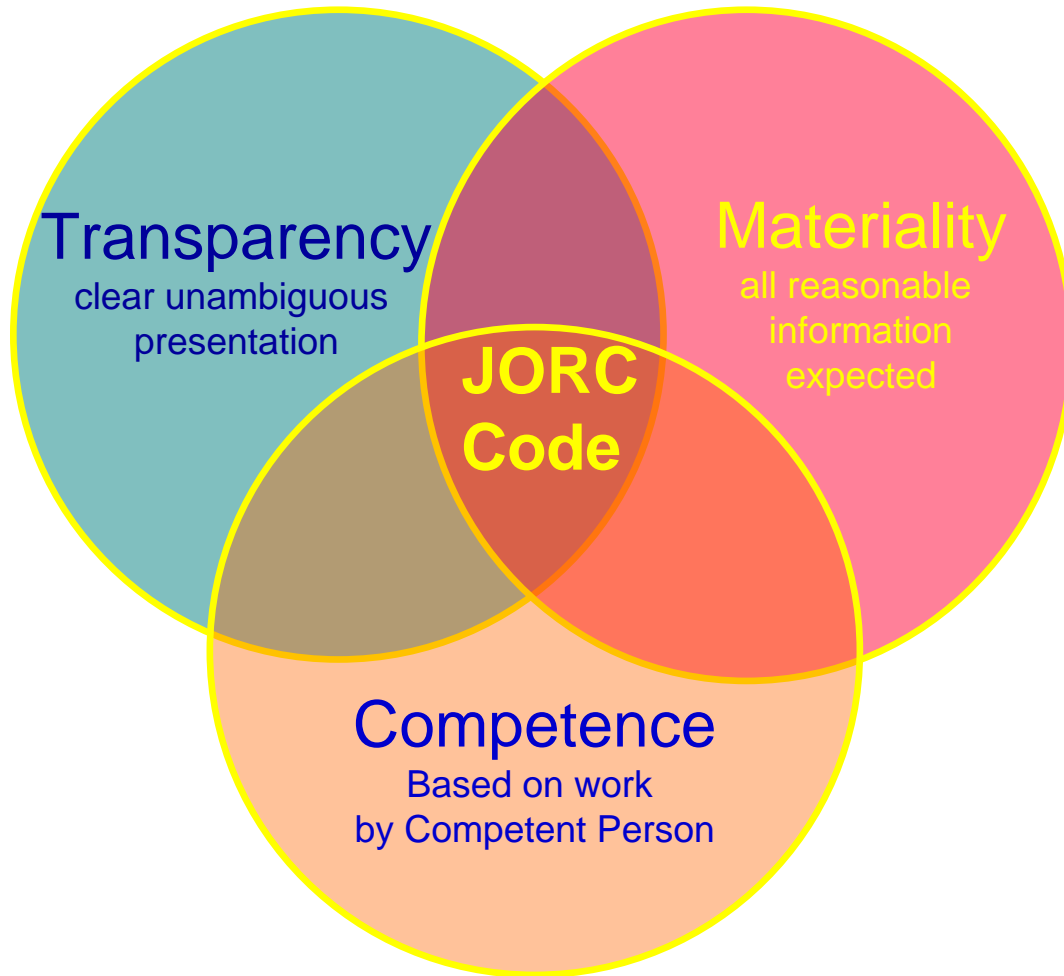
Operation of the JORC Code

The JORC Code aims to ensure that **Public Reports*** on Exploration Results, Mineral Resources and Ore Reserves contain all the information which investors and their advisers would reasonably require for the purpose of making a balanced judgement regarding the results and estimates being reported. It is important to note that the term Public Reports takes a wide meaning.

adherence to the JORC Code, which in Clause 8 requires the identification of the Competent Person who 'signs off' on resource and reserve disclosures. The company is required to obtain that person's consent to the use of the information provided for the report in the form in which it is issued. That gives a role of central and publicly visible responsibility to the reporting geologist or other mining professional. The JORC Code does not regulate the procedures used

JORC Code - Principles based

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



Uranium Reporting

The JORC Committee is of the view that if the Code principles are followed by Competent Persons and Companies then no special instructions are required as, if the Competent Person is competent, then there is no need for additional prescriptive reporting requirements for Uranium (or any other mineral for that matter).

As for all minerals, reporting of Uranium Exploration Results, Mineral Resources and Ore Reserves relies on a Competent Person having the required relevant experience and following the principles of the JORC Code when preparing the documentation on which companies base their Public Reports.

Importance of the Competent Person

The JORC Code regulates the estimator - the Competent Person, not the estimation, therefore it relies on the Competent Person rather than prescribing how to estimate or precisely what to report

Requirement for membership of The AusIMM, AIG or ROPO provides mechanism to make Competent Person accountable.

Uranium Reporting

key points from Table 1

- JORC considers the current guidance adequate
 - to illustrate this an annotated version of Table 1 from the JORC Code with comments specific to Uranium has been prepared (it is available on the JORC website).
- Table 1 is necessarily generic
 - The table provided is an example of how this generic approach could be translated to specifically address some of the Uranium related issues.
- The Competent Person must judge the materiality of these issues.
- Apply common sense; if in doubt - discuss with peers.

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

The JORC Code Principles are adequate for the reporting of Uranium, what is required is for these to be applied by Competent Persons.

Acknowledgements

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Supplementary Slides

CRIRSCO and ICMM

- **CRIRSCO and the ICMM have reached agreement and CRIRSCO is now a taskforce of the ICMM**
- **This will allow CRIRSCO's International activities to continue as adequate funding to support the activities is assured for the next two years**

ICMM- International Council on Mining and Metals

CRIRSCO and IASB

- CRIRSCO and the IASB Extractive Industries Working Group have been in close consultation for over three years seeking agreement on the definitions of Resources and Reserves the IASB may adopt in the new International Financial Reporting Standards.
- The IASB is hoping to adopt high level definitions that will encompass both Minerals and Oil and Gas, hence CRIRSCO's engagement with the SPE in mapping the CRIRSCO Template and the SPE PRMS systems' definitions.
- This engagement with IASB and SPE appears likely that the IASB will recommend adoption of the mapped CRIRSCO and SPE definitions and not the UNFC system.

IASB - International Accounting Standards

SPE – Society of Petroleum Engineers

PRMS – Petroleum Reserves Management System

UNFC - United Nations Framework Classification

CRIRSCO and SPE

- CRIRSCO at the request of IASB Extractive Industries Working Group and the UN-ECE 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

UN-ECE - 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
- CRIRSCO has re-engaged with the UNECE to lead efforts 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.

CMMI - Council of Mining and Metallurgical Institutions – now defunct

National and International Reporting Standards

- JORC Code (Australasia) - 2004
- SAMREC Code (South Africa) - 2007 Updated Code issued
- The Reporting Code (UK/W Europe) - 2003, Exposure Draft revised PERC Code issued in June 2008.
- 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)
- 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)
- China - Solid Mineral Reserve Classification 1999
- UN-ECE Framework Classification (International Governments)

International Developments

- **USA**
 - **SME Reserves Working Group**
Recommendations Concerning Estimation and Reporting of Mineral Resources and Mineral Reserves
 - **Aimed at resolving differences with SEC!!!**
 - **Issued Revised Guideline in 2007**
- **Chile & Peru**
 - **New JORC based codes**
- **Philippines**
 - **New JORC / CRIRSCO based PMRC Code has been issued and adopted by PSX.**
- **South Africa**
 - **2007 SAMREC Code released**
- **UK and Western Europe**
 - **Exposure draft of PERC Code issued in June 2008.**

International Developments

- Mapping the **Russian** and **Chinese** reporting classifications against the CRIRSCO Template, being undertaken by CRIRSCO and representatives from those countries.

Uranium - Data Collection

key points from Table 1

- Data collection (QA/QC),
- Sample representivity
- Selection of measurement techniques
- Calibration of tools
- knowledge of what you are actually sampling and how this relates to the economically extractable mineral is critical,
- This is specific for the deposit and requires careful attention by the Competent Person

Geology

key points from Table 1

- As with all mineral deposits the geological interpretation, and the controls on the mineralisation is critical,
 - Basic structure, stratigraphy, continuity etc
- For uranium deposits mineralogy, geo-metallurgy and hydro-metallurgy are also critical,
- Where ISL is being considered the physical properties of the rock (including porosity and permeability) are also important,
- For potential ISL deposits the hydrogeological regime should be understood.

Modifying Factors

key points from Table 1

- Metallurgical characterisation is particularly pertinent to Uranium
 - Confirmation of the mineralogy, associations (eg acid consumers) and test the amenability to the chosen process and hence the recovery
- Mining design and recovery leading to cost/revenue assumption are equally critical
 - These will depend on the physical properties of the rock - the assumptions should be tested.

Modifying Factors continued

- Market – including the political overlay
 - you may have a great *in situ* deposit but if the government will not let you develop it - is it a Resource?
 - The lack of Government approval would not allow demonstration “**at the time of reporting that extraction could reasonably be justified**”.

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