澳大拉西亚勘查结果、矿产资源量与矿石储量报告规范

JORC
Joint Ore Reserves Committee

JORC规范

2012中文版

AUSTRALIAN INSTITUTE OF GEOSCIENTISTS
Supporting Geoscientists

AusIMM
THE MINERALS INSTITUTE

Minerals Council of Australia

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由澳大拉西亚矿业与冶金学会、澳大利亚地质科学家学会
及澳大利亚矿产理事会组成的矿石储量联合委员会(JORC)发布

本《JORC规范2012中文版》是依照原文翻译而成，仅供参考。正式使用，以英文版为准。

澳大拉西亚勘查结果、矿产资源量与矿石储量报告规范

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2012中文版

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·北　京·

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2012 年版 JORC 规范中文译本前言

过去 15 年来，中国矿业界有很多专业人士与专业机构都翻译过 JORC 规范。2013 年，澳大利亚秦皇翻译公司总经理、首席翻译 Charles Qin (秦潞山)教授为矿石储量联合委员会及其主管机构(澳大利亚矿产理事会、澳大拉西亚采矿与冶金学会和澳大利亚地质科学家学会)首次翻译了 2012 年版的 JORC 规范。

2013 年底和 2014 年由艾思凯全球矿业卓越中心在北京组织举办的 JORC 规范培训课，采用的就是这个翻译版本。在培训过程中，与会者发现英文原文与中文翻译在某些地方存在细微差别，或者说某些词语可以通过不同方式来翻译。

为此，艾思凯全球矿业卓越中心创会主席朱洋扬先生在中国众多个人与组织的协助下，就中文译文进行了全面的咨询与讨论。在长达五个月的时间里，中国经验丰富的多个专家小组认真审查了中文译文，并在整理汇总后，向审查组递交了建议版本。中方各专家小组最终给出的建议方案，交由具备中国经验的澳大利亚审查组分析研究。各方认为，本版官方中文稿译文体现出 JORC 规范的英文原意与精神；然而，若翻译与英文原文存在不一致，请以英文版为准。

JORC 在此感谢澳大利亚秦皇翻译公司总经理兼首席翻译 Charles Qin (秦潞山)教授，澳大拉西亚采矿与冶金学会院士、艾思凯全球矿业卓越中心（艾思科矿产资源勘探开发(北京)有限公司分支机构）创会主席朱洋扬先生，澳大拉西亚采矿与冶金学会荣誉院士(注册专业人士)、JORC 副主席兼 AMC 顾问有限公司首席地质学家彼得·斯托克(Peter Stoker)先生，感谢他们领导组织 JORC 规范的首次官方中文翻译工作。

JORC 非常感谢以下机构在翻译工作过程中给与经济支持与实物支持：

JORC 主管机构(澳大利亚矿产理事会、澳大拉西亚采矿与冶金学会和澳大利亚地质科学家协会)、中国矿业联合会(CMA)、艾思凯全球矿业卓越中心(GMCoE，艾思科矿产资源勘探开发(北京)有限公司分支机构)、AMC 顾问有限公司、澳大利亚秦皇翻译公司、中国五矿集团公司、中国煤炭地质总局、中国恩菲工程技术有限公司、江苏省有色金属华东地质勘查局、西北有色地质勘查局以及河南省地质矿产勘查开发局。

JORC 感谢所有参加审校团队的专家小组的人员：

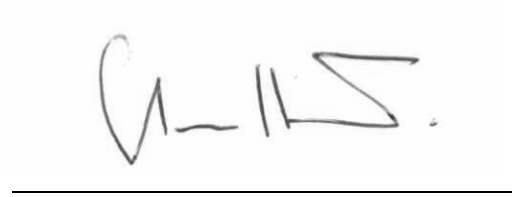
中国五矿集团公司的王炯辉(澳大拉西亚采矿与冶金学会院士)、林龙华、李秋实(澳大拉西亚采矿与冶金学会会员)、陈析璆、余宇星、河南省地质矿产勘查开发局的左景勋 (澳大拉西亚采矿与冶金学会院士)、樊克峰(澳大拉西亚采矿与冶金学会院士、西北有色地质勘查局的任小华(澳大拉西亚采矿与冶金学会院士)、高航校、刘樟乐、江苏省有色金属华东地质勘查局的马春(澳大拉西亚采矿与冶金学会院士)、叶水泉、 秦新龙(澳大拉西亚采矿与冶金学会会员)、王武名(澳大拉西亚采矿与冶金学会会员)、胡建、中国恩菲工程技术有限公司的熊小放(澳大拉西亚采矿与冶金学会院士)、郭旭东、周　坤(澳大拉西亚采矿与冶金学会会员)、谢志勤、刘育明、邓朝安、朱瑞军(加拿大矿业、冶金与石油学会会员)、李　勇、中国煤炭地质总局的孙升林(澳大拉西亚采矿与冶金学会院士)、宁树正、中化地质矿山总局的袁从建、德恒律师事务所陈巍、国检珠宝培训中心杨立信 以及来自澳大利亚 SKR New

Investment Pty Ltd 公司的 Shuang Kui Ren(澳大拉西亚采矿与冶金学会会员)、CSA Global Pty Ltd 的 Bielin Shi(史别林)(澳大拉西亚采矿与冶金学会会员)和 CITIC Resources Holdings Limited 的 Xiao Zhenmin(肖振民)(澳大拉西亚采矿与冶金学会院士、注册专业人士)。

JORC 感谢以下人员的宝贵建议：

中华人民共和国国土资源部咨询研究中心特邀咨询委员、研究员李裕伟先生，中华人民共和国国土资源部储量司王蓓女士，中国工程院裴荣富院士、陈毓川院士，中国地质科学院矿产资源所副所长毛景文先生，中国矿业联合会常务副会长王家华先生，中国矿业联合会副会长兼秘书长陈先达先生，中国矿业联合会副会长兼总工程师刘玉强先生。

JORC 衷心希望，2012 年版 JORC 规范的官方中文翻译版能够加强 JORC 规范(CRIRSCO[①]报告规范与标准系列中的成员)与中国报告体系之间的相互了解。JORC 与 CRIRSCO 致力于鼓励和帮助中国加入 CRIRSCO。



矿石储量联合委员会（JORC）主席
史蒂夫·亨特**(Steve Hunt)**
澳大利亚地质科学家学会会员

矿石储量联合委员会（JORC）副主席
JORC 驻 CRIRSCO 代表
彼得·斯多克(Peter Stoker)
澳大拉西亚采矿与冶金学会荣誉院士(注册专业人士)

① 矿石储量国际报告标准委员会现有成员包括：澳大拉西亚、加拿大、智利、欧洲、俄罗斯、南非与美国。

Preface to the Chinese Translation of the 2012 JORC Code

The JORC Code has been translated into Chinese numerous times in the last 15 years by many professionals working in the Chinese mining industry and institutions. The 2012 JORC Code was first translated for the Joint Ore Reserves Committee and its parent bodies (the Minerals Council of Australia, The Australasian Institute of Mining and Metallurgy, and the Australian Institute of Geoscientists), by Charles Qin, the Managing Director and Chief Interpreter of Chin Communications in 2013.

That translation was used during JORC Code training courses in Beijing held in late 2013 and 2014 organised by XK Global Mining Center of Excellence. It became apparent during those courses that the intended English meaning and the translated Chinese words were in some cases subtly different or could be interpreted in different ways.

As a result a comprehensive consultation and discussion program was established by Zhu Yang Yang, the Founding Chairman of XK Global Mining Center of Excellence with assistance from many individuals and organisations in China. Over a five month period panels of experienced Chinese professionals reviewed sections of the translation and made recommendations which were consolidated and provided to a review panel. The final recommendations from the Chinese review were considered by an Australian based panel with Chinese experience. This official Chinese translation is considered to reflect the original English meaning and sprit of the JORC Code, but as always in the event of any differences resulting from the translation the English version takes precedence.

JORC would like to thank Prof. Charles Qin, the Managing Director and Chief Interpreter of Chin Communications, Mr. Zhu Yang Yang FAusIMM, the Founding Chairman of XK Global Mining Center of Excellence, a subsidiary of Exco Resources Beijing Co., Ltd, and Mr. Peter Stoker HonFAusIMM(CP), the Deputy Chairman of JORC and Principal Geologist of AMC Consultants Pty Ltd, for their leadership and organisation of this first official translation of JORC Code into the Chinese language.

JORC is very appreciative of the financial and in-kind support of the following organisations in the development of the translation:

The parent bodies of JORC (the Minerals Council of Australia, The Australasian Institute of Mining and Metallurgy, and the Australian Institute of Geoscientists), China Mining Association (CMA), XK Global Mining Center of Excellence (GMCoE, a subsidiary of Exco Resources Beijing Co., Ltd), AMC Consultants Pty Ltd, Chin Communications, China Minmetals Corporation, China National Administration of Coal Geology, China ENFI Engineering Corporation, East China Mineral Exploration & Development Bureau, Northwest Mining and Geology Group Co., Ltd for Nonferrous Metals and Henan Bureau of Geo-Exploration and Mineral Development.

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Wang Jiong Hui FAusIMM, Lin Long Hua, Li Qiu Shi MAusIMM, Chen Xi Qiu, Yu Yu Xing from China

Minmetals Corporation, Zuo Jing Xun FAusIMM, Fan Ke Feng FAusIMM Henan Bureau of Geo-Exploration and Mineral Development, Ren Xiao Hua FAusIMM, Gao hang Xiao, Liu Zhang Le from Northwest Mining and Geology Group Co., Ltd for Nonferrous Metals, Ma Chun FAusIMM, Ye Shui Quan, Qin Xin Long MAusIMM, Wang Wu Ming MAusIMM, Hu Jian East China Mineral Exploration & Development Bureau, Xiong Xiao Fang FAusIMM, Guo Xu Dong, Zhou Kun MAusIMM, Xie Zhi Qin, Liu Yu Ming, Deng Chao An, Zhu Rui Jun MCIM, Li Yong from China ENFI Engineering Corporation, Sun Sheng Lin FAusIMM, Ning Shu Zheng from China National Administration of Coal Geology , Yuan Cong Jian from China Chemical Geology and Mine Bureau, Chen Wei from DeHeng Law Offices , Yang Li Xin from National Gemological Training Centre, and from Australia; Shuang Kui Ren MAusIMM from SKR New Investment Pty Ltd, Bielin Shi MAusIMM from CSA Global Pty Ltd , and Xiao Zhenmin FAusIMM(CP) from CITIC Resources Holdings Limited.

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JORC hopes that this official Chinese translation of the 2012 JORC Code will enhance mutual understanding of the JORC Code (one of the CRIRSCO① family of Reporting Codes and standards) and the Chinese reporting system. JORC and CRIRSCO are committed to providing encouragement and assistance to China to join CRIRSCO.

Steve Hunt MAIG
Chairman JORC
JORC
Joint Ore Reserves Committee

Peter Stoker HonFAusIMM(CP)
Deputy Chairman JORC
JORC Representative on CRIRSCO
JORC
Joint Ore Reserves Committee

① Committee for Mineral Reserves International Reporting Standards, whose members currently include: Australasia, Canada, Chile, Europe, Russia, South Africa and the United States of America.

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前言 Foreword

1. 《澳大拉西亚勘查结果、矿产资源量与矿石储量报告规范》(以下简称“JORC 规范”或“本规范”)对澳大拉西亚勘查结果、矿产资源量和矿石储量的公开报告规定了最低标准、建议和指南。矿石储量联合委员会(JORC)成立于 1971 年，在 1989 年首次发布第一版 JORC 规范之前，曾发表过一系列涉及矿石储量分类和公开报告建议的报告。

The *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves* (the 'JORC Code' or 'the Code') sets out minimum standards, recommendations and guidelines for Public Reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves. The Joint Ore Reserves Committee ('JORC') was established in 1971 and published several reports containing recommendations on the classification and Public Reporting of Ore Reserves prior to the release of the first edition of the JORC Code in 1989.

本规范曾于 1992 年、1996 年、1999 年、2004 年进行修订更新，此次 2012 版取代之前所有的版本。

Revised and updated editions of the Code were issued in 1992, 1996, 1999, and 2004. This 2012 edition supersedes all previous editions.

矿石储量国际报告标准委员会(CRIRSCO)自 1994 年起即致力于创建一套矿产资源量和矿产(矿石)储量报告的国际标准定义，以反映不断演变的 JORC 规范定义。最初 CRIRSCO 是矿业与冶金协会理事会(CMMI)下属的一个委员会。

Since 1994, the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) has worked to create a set of standard international definitions for reporting Mineral Resources and Mineral (Ore) Reserves, based on the evolving JORC Code's definitions. CRIRSCO was initially a committee of the Council of Mining and Metallurgical Institutions (CMMI).

来自澳大利亚、加拿大、南非、美国和英国的代表于 1997 年就资源量与储量报告的标准定义达成了临时协议，随后在 1998 年又达成协议，同意在联合国欧洲经济委员会(UN-ECE)起草编制的《矿产储量和资源量国际分类框架——固体燃料和矿物商品》中，采纳 CMMI 的定义。

Representatives of bodies from Australia, Canada, South Africa, USA and the UK reached provisional agreement on standard definitions for reporting resources and reserves in 1997. This was followed in 1998 by an agreement to incorporate the CMMI definitions into the International Framework Classification for Reserves and Resources – Solid Fuels and Mineral Commodities, developed by the United Nations Economic Commission for Europe (UN-ECE).

2002 年，CMMI 宣布解散，但 CRIRSCO 作为一个单独的实体继续存在，目前与国际矿业与金属理事会(ICMM)建立了合作伙伴关系。在 CRIRSCO 倡议下，以 JORC 规范为主要蓝本开发了一个模板，以协助各国根据世界最佳实践来制订本国规范。在 2009 版的 UNFC 中，将该模板作为一项特定商品规范纳入。

CMMI was disbanded in 2002 but CRIRSCO remained as a separate entity and now has a relationship with the International Council on Mining and Metals (ICMM). An initiative was commenced by CRIRSCO to develop a Template, largely based on the JORC Code, that was designed to assist countries to develop their own code in line with world best practice. The Template has been recognised as a commodity-specific code in UNFC 2009.

CRIRSCO 的成员单位为负责制定矿产报告规范或标准和准则的各国报告组织(NRO)。这些 NRO 是：澳大拉西亚(JORC)、加拿大(CIM 储量定义常务委员会)、智利(全国委员会)、欧洲(PERC)、俄罗斯(NAEN)、南非(SAMCODES)、美国(SME)。在 CRIRSCO/CMMI 倡议的推动下，在世界范围内广泛采用同一报告标准的努力取得了长足的进展。在本版 JORC 规范中，术语定义与 CRIRSCO 于 2012 年 10 月修订的标准定义保持一致。

CRIRSCO's members are National Reporting Organisations (NROs) who are responsible for developing mineral reporting codes or standards and guidelines. The NROs are: Australasia (JORC), Canada (CIM Standing Committee on Reserve Definitions), Chile (National Committee), Europe (PERC), Russia (NAEN), South Africa (SAMCODES) and USA (SME). As a result of the CRIRSCO/CMMI initiative, considerable progress has been made towards widespread adoption of consistent reporting standards throughout the world. In this edition of the JORC Code defined terms are aligned to the CRIRSCO Standard Definitions as revised in October 2012.

导言 Introduction

2. 在本版 JORC 规范中，重要术语及其定义用**粗体字**突出表示，而置于相关规范条款后的指南则采用缩进*斜体字*。指南不是本规范的组成部分，而是为了向读者提供协助和指导，在解释本规范时起辅助理解的作用。

   In this edition of the JORC Code, important terms and their definitions are highlighted in bold text. The guidelines are placed after the respective Code Clauses using indented italics. Guidelines are not part of the Code but are intended to provide assistance and guidance to readers and should be considered persuasive when interpreting the Code.

3. 本规范已被澳大拉西亚矿业与冶金学会(AusIMM)和澳大利亚地质科学家学会(AIG)所采纳，对这些组织的成员单位具有约束力。本规范作为一项良好实践，得到了澳大利亚矿产理事会和澳大拉西亚金融服务业学会的认可。本规范还被澳大利亚证券交易所(ASX)及新西兰证券交易所(NZX)采用，并纳入其上市规则之中。

   The Code has been adopted by The Australasian Institute of Mining and Metallurgy (The AusIMM) and the Australian Institute of Geoscientists (AIG) and is binding on members of those organisations. The Code is endorsed by the Minerals Council of Australia and the Financial Services Institute of Australasia as a contribution to good practice. The Code has also been adopted by and included in the listing rules of the Australian Securities Exchange (ASX) and the New Zealand Stock Exchange (NZX).

规范采用普通字体，指南采用缩进斜体，定义采用粗体字。

ASX 和 NZX 分别于 1989 年和 1992 年将本规范纳入其上市规则中。这些上市规则规定：凡是含有勘查靶区、勘查结果、矿产资源量或矿石储量表述的公开报告，均必须依据本规范的要求编制。本规范的纳入，对需要向 ASX 和 NZX 报告的采矿或勘探公司提出了某些特殊要求。上市规则中对一些与公开报告相关，但未纳入 JORC 规范范畴的其他问题也做了专门的说明。

The ASX and NZX have, since 1989 and 1992 respectively, incorporated the Code into their listing rules. Under these listing rules, a Public Report must be prepared in accordance with the Code if it includes a statement on Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves. The incorporation of the Code imposes certain specific requirements on mining or exploration companies reporting to the ASX and NZX. There remain a number of other issues outside of the JORC Code associated with Public Reports that are addressed specifically within the listing rules.

有鉴于此，强烈建议本规范的使用者应熟悉相关交易所上市规则中关于勘查结果、矿产资源量和矿石储量公开报告的要求。

As such, it is strongly recommended that users of the Code familiarise themselves with the listing rules of the relevant exchange that relates to Public Reporting of Exploration Results, Mineral Resources and Ore Reserves.

对于初次或已发生实质性改变的勘查结果、矿产资源量或矿石储量公开报告，JORC 规范要求在公开报告中注明为编制该公开报告提供文件依据的合资格人的姓名。公开报告或附件必须说明，合资格人对公开报告基于其提供的信息而纳入的各个事项，在形式和内容上均表示认可，同时还必须注明合资格人所在公司或雇主的名称。

For Public Reports of initial or materially changed Exploration Results, Mineral Resources or Ore Reserves the JORC Code requires the Competent Person, on whose documentation the Public Report is based, to be named in the Public Report. The Public Report or attached statement must say that the Competent Person consents to the inclusion in the Public Report of the matters based on their information in the form and context in which it appears, and must include the name of the Competent Person's firm or employer.

本规范的使用者应参见第 9 条。

Users of the Code should refer to Clause 9.

范围 Scope

4. 指导 JORC 规范运作和使用的原则是透明性、实质性和合资格性。

The principles governing the operation and application of the JORC Code are Transparency, Materiality and Competence.

- **透明性，要求向公开报告的读者提供充足信息，且信息的表达应该是清晰的和不模糊的，以便读者理解报告，而不会被所提供的信息或因为遗漏了合资格人所知的实质性的信息而误导。**
  Transparency requires that the reader of a Public Report is provided with sufficient information, the presentation of which is clear and unambiguous, to understand the report and not be misled by this information or by omission of material information that is known to the Competent Person.

- **实质性，要求公开报告包含所有相关信息。这些信息是投资者及其专业顾问为了对所报告的勘查结果、矿产资源量或矿石储量做出合乎逻辑和综合的判断所合理要求和合理预期看到的信息。如果相关信息没有提供，则必须提供合理的解释。**
  Materiality requires that a Public Report contains all the relevant information that investors and their professional advisers would reasonably require, and reasonably expect to find in the report, for the purpose of making a reasoned and balanced judgement regarding the Exploration Results, Mineral Resources or Ore Reserves being reported. Where relevant information is not supplied an explanation must be provided to justify its exclusion.

- **合资格性，要求公开报告应以具备相应资格、富有经验的工作人员(合资格人)负责完成的工作为依据，此类合资格人必须遵守具有强制性的专业道德规范。**
  Competence requires that the Public Report be based on work that is the responsibility of suitably qualified and experienced persons who are subject to an enforceable professional code of ethics (the Competent Person).

透明性和实质性是本规范的指导原则，合资格人必须对勘查结果、矿产资源量或矿石储量报告所依据的重要假定做出解释性说明。
Transparency and Materiality are guiding principles of the Code, and the Competent Person must provide explanatory commentary on the material assumptions underlying the declaration of Exploration Results, Mineral Resources or Ore Reserves.

需要特别指出，合资格人员必须考虑到，衡量实质性的标准为是否包含了与勘查结果、矿产资源量或矿石储量有关的各个方面的信息,这些信息是投资者或其顾问合理预期的对合资格人员应给出的明确说明。若对某个重大问题加以说明或不做说明可能影响到公众对矿点的认知或价值判断，合资格人员不准对此保持缄默。In particular, the Competent Person must consider that the benchmark of Materiality is that which includes all aspects relating to the Exploration Results, Mineral Resources or Ore Reserves that an investor or their advisers would reasonably expect to see explicit comment on from the Competent Person. The Competent Person must not remain silent on any material aspect for which the presence or absence of comment could affect the public perception or value of the mineral occurrence.

5. 表 1 提供了合资格人在编制文件及起草公开报告时所应考虑的列表清单(或参照表)。

Table 1 provides a checklist or reference of criteria to be considered by the Competent Person in developing their documentation and in preparing the Public Report.

为遵守本规范的各项原则，在合资格人编制的文件中，应按照“如果没有，为什么没有”的原则，提供涉及表 1 相关各项的说明。此外，重大项目(参见附录 1“通用术语及同义词”)在首次报告勘查结果、矿产资源量或矿石储量的公开报告中，应按照“如果没有，为什么没有”的原则编制涉及表 1 相关各项的说明。若这些条项自其上次公开发布后已发生实质性改变，同样应按表 1 所示内容提供说明。报告采用“如果没有，为什么没有”原则，是为了确保让投资者明确了解，相关条项是否在经过考虑后被认定为重要性不高，还是尚未涉及，或尚未解决。

In the context of complying with the principles of the Code, comments relating to the items in the relevant sections of Table 1 should be provided on an ‘if not, why not’ basis within the Competent Person’s documentation. Additionally comments related to the relevant sections of Table 1 must be complied with on an ‘if not, why not’ basis within Public Reporting for significant projects (see Appendix 1 Generic Terms and Equivalents) when reporting Exploration Results, Mineral Resources or Ore Reserves for the first time. Table 1 also applies in instances where these items have materially changed from when they were last Publicly Reported. 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.

在本 JORC 规范中，“如果没有，为什么没有”这个短语是指表 1 相关各项均必须论述，若没有论述，则合资格人必须解释为什么在文件中未予考虑。

For the purposes of the JORC Code the phrase ‘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.

本规范第 19、27 和 35 条规定，首次或已发生实质性改变的勘查结果、矿产资源量或矿石储量估算的公开报告，应当随附一份技术摘要，按照“如果没有，为什么没有”的原则涵盖表 1 所有相关组的各项内容。

The Code requires in Clauses 19, 27 and 35 that reporting of first time or materially changed Exploration Results, Mineral Resources or Ore Reserves estimates be accompanied by a technical summary of all relevant sections of Table 1 on an ‘if not, why not’ basis as an appendix to the Public Report.

实质性改变可以是估算矿产资源量或矿石储量的吨位、品位或分级的变化。要确定重大项目是否发生了实质性改变，必须考虑到包括矿化类型等在内的所有相关情况。包括考虑估算结果的变化是否可能对公司证券的价格或价值产生实质性影响。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.

6. **公开报告是指为了向投资者或潜在投资者及其顾问提供勘查结果、矿产资源量或矿石储量方面的信息而编制的报告，包括但不限于公司年度和季度报告、新闻发布、信息备忘录、技术文件、网站发布和公开展示。**

Public Reports are reports prepared for the purpose of informing investors or potential investors and their advisers on Exploration Results, Mineral Resources or Ore Reserves. They include, but are not limited to, annual and quarterly company reports, press releases, information memoranda, technical papers, website postings and public presentations.

这些公开报告可以是向澳大利亚证券交易所和新西兰证券交易所或其他主管部门或根据法律要求提交的报告。

These Public Reports may be to the Australian Securities Exchange and the New Zealand Stock Exchange, or other regulatory authorities or as required by law.

本规范是对公开报告所要求的最低标准。JORC 同样建议将其作为其他报告的最低标准，鼓励各公司在其公开报告中，尽可能提供全面信息。

The Code is a required minimum standard for Public Reporting. JORC also recommends its adoption as a minimum standard for other reporting. Companies are encouraged to provide information in their Public Reports that is as comprehensive as possible.

本规范适用于其他公开发表的公司信息，其形式可以是在公司网站上发布的材料，及为了向股东、股票经纪人及投资分析师提供情况简介而演示的材料。本规范同样适用于其目的属于第 6 条所述内容的报告，包括但不限于：涉及勘查结果、矿产资源量或矿石储量的环境报告、信息备忘录、专家报告和技术性文件。

The Code applies to other publicly released company information in the form of postings on company websites and presentation material used in briefings for shareholders, stockbrokers and investment analysts. The Code also applies to the following reports if they have been prepared for the purposes described in Clause 6 including but not limited to: environmental statements, information memoranda, expert reports, and technical papers referring to Exploration Results, Mineral Resources or Ore Reserves.

对于发布年度简报的公司，建议简报中包含所有涉及勘查结果、矿产资源量和矿石储量的重要信息。若发布摘要信息，则应明确说明其为摘要，并应附注说明该摘要的依据符合本规范要求的公开报告或公布信息的来源。

For companies issuing concise annual reports, inclusion of all material information relating to Exploration Results, Mineral Resources and Ore Reserves is recommended. In cases where summary information is presented it should be clearly stated that it is a summary, and a reference attached giving the location of the Code-compliant Public Reports or Public Reporting on which the summary is based.

考虑到公司可能要在一个以上的司法管辖区内发布报告，符合该司法管辖区要求的标准可能不同于本规范。建议此类报告应附上声明，提醒读者注意这种情况。AusIMM 及 AIG 成员单位在其他司法管辖区内报告时，应遵循这些司法管辖区的要求。

It is recognised that companies can be required to issue reports into more than one regulatory jurisdiction, with compliance standards that may differ from this Code. It is recommended that such reports include a statement alerting the reader to this situation. Where members of The AusIMM and the AIG are required to report in other jurisdictions, they are obliged to comply with the requirements of those jurisdictions.

本规范所提及的"文件"，是指作为公开报告基础或依据的公司内部文件。

Reference in the Code to 'documentation' is to internal company documents prepared as a basis for, or to support, a Public Report.

在有些情况下，合资格人为公司内部用途或类似的非公开用途而编制的文件可能并未遵守 JORC 规范。在这种情况下，建议在文件中附上醒目声明来说明这一情况。这样，用未遵守本规范的文件来编制公开报告的可能性就会降低，因为第 9 条要求公开报告要公正地反映勘查结果、矿产资源量和/或矿石储量估算结果以及合资格人准备的支持性文件。

It is recognised that situations may arise where documentation prepared by a Competent Person for internal company or similar non-public purposes does not comply with the JORC Code. In such situations, it is recommended that the documentation includes a prominent statement to this effect. This will make it less likely that non-complying documentation will be used to compile Public Reports, since Clause 9 requires Public Reports to fairly reflect Exploration Results, Mineral Resource and/or Ore Reserve estimates, and supporting documentation, prepared by a Competent Person.

*虽然本规范及其指南(包括表 1)**尽可能**涵盖公开报告可能遇到的绝大多数情况，但在某些情况下，采用何种披露形式最为妥当，可能仍然难以决定。此类情况下,本规范的使用者及根据本规范编制报告的人员，应以本规范的意图为指导，即本规范为公开报告的最低标准，其目的在于确保此类报告包含了投资者及其专业顾问为对所报告的勘查结果、矿产资源量和矿石储量做出合理均衡判断而需合理了解，并合理希望在报告中找到的所有相关信息。*

While every effort has been made within the Code and Guidelines (including Table 1) to cover most situations likely to be encountered in Public Reporting, there may be occasions when doubt exists as to the appropriate form of disclosure. On such occasions, users of the Code and those compiling reports to comply with the Code should be guided by its intent, which is to provide a minimum standard for Public Reporting, and to ensure that such reporting contains all information that investors and their professional advisers would reasonably require, and reasonably expect to find in the report, for the purpose of making a reasoned and balanced judgement regarding the Exploration Results, Mineral Resources or Ore Reserves being reported.

JORC 规范是公开报告规范，而非规定合资格人该如何估算矿产资源量或矿石储量的规范。因此，术语"JORC 合规"指的是报告方式，而不是估算量。使用"JORC 合规"来描述资源量或估算结果，可能会起误导作用。对"JORC 合规"应当这样解释："按照 JORC 规范报告，并经 JORC 规范所定义的合资格人评价(或以该合资格人编制的文件为依据)"。

The JORC Code is a Code for Public Reporting not a Code that regulates the manner in which a Competent Person estimates Mineral Resources or Ore Reserves. The term 'JORC compliant' therefore refers to the manner of reporting not to the estimates. Use of the words 'JORC compliant' to describe resources or estimates is potentially misleading. The words 'JORC compliant' should be interpreted to mean: 'Reported in accordance with the JORC Code and estimated (or based on documentation prepared) by a Competent Person as defined by the JORC Code'.

7. 本规范适用于包括金刚石、其它宝石、工业矿物和煤炭等澳大利亚证券交易所与新西兰证券交易所要求公开报告勘查结果、矿产资源量和矿石储量的所有固体矿产。
The Code is applicable to all solid minerals, including diamonds, other gemstones, industrial minerals and coal, for which Public Reporting of Exploration Results, Mineral Resources and Ore Reserves is required by the Australian Securities Exchange and the New Zealand Stock Exchange.

JORC 规范已被《矿产、石油资产和证券技术评价和/或评估独立专家报告规范与准则(VALMIN)》所引用，作为勘查结果、矿产资源量和矿石储量公开报告的适用标准。JORC 规范中提及"技术和经济研究"和"可行性研究"时，不应视为 VALMIN 规范中所定义的"技术评估"或"估值"。

The JORC Code is cited by the 'Code and Guidelines for Technical Assessment and/or Valuation of Mineral and Petroleum Assets and Mineral and Petroleum Securities for Independent Expert Reports' (the 'VALMIN Code') as the applicable standard for the Public Reporting of Exploration Results, Mineral Resources and Ore Reserves. References to 'technical and economic studies' and 'feasibility studies' in the JORC Code are not intended as references to Technical Assessments or Valuations as defined in the VALMIN Code.

8. JORC 认为需要不定期对本规范及其指南进行进一步审订。
JORC recognises that further review of the Code and Guidelines will be required from time to time.

合资格和责任 Competence and Responsibility

9. 提交涉及公司勘查靶区、勘查结果、矿产资源量或矿石储量的公开报告，是公司通过其董事会应承担的责任。任何此类报告都必须以合资格人准备的信息和支持性文件为基础，并公正反映此类信息和支持性文件。公司发布公开报告时，应披露合资格人的姓名，指明合资格人是否为公司的全职员工，如果不是，则应注明合资格人的雇主。

A Public Report concerning a company's Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is the responsibility of the company acting through its Board of Directors. Any such report must be based on, and fairly reflect, the information and supporting documentation prepared by a Competent Person. A company issuing a Public Report shall disclose the name(s) of the Competent Person, state whether the Competent Person is a full-time employee of the company, and, if not, name the Competent Person's employer.

根据透明性原则，公开报告必须披露合资格人或相关方的潜在利益冲突。在公开报告中，还必须披露合资格人与制作此报告的公司之间的其他关系。公开报告发布时，必须征得合资格人对报告形式和语境表示认同的事先书面同意。

Any potential for a conflict of interest by the Competent Person or a related party must be disclosed in accordance with the Transparency principle. Any other relationship of the Competent Person with the Company making the report must also be disclosed in the Public Report. The report must be issued with the prior written consent of the Competent Person as to the form and context in which it appears.

若公司重新发布以前取得合资格人书面同意后发布过的信息，则必须说明原始报告名称、负责原始报告合资格人的姓名，并说明原始公开报告的日期并给出原始公开报告的出处，以便公众查阅。以下情形，公司无需征得合资格人对报告形式和语境表示认同的事先书面同意，但必须满足下列条件：

Where a company is re-issuing information previously issued with the written consent of the Competent Person, it must state the original report name, the name(s) of the Competent Person responsible for the original report, and state the date and reference the location of the original source public report for public access. In these circumstances the Company is not required to obtain the Competent Person's prior written consent as to the form and context in which the information appears, provided:

- 公司在随后的公开表述中确认，没有发现任何会实质性影响已经包含在相关市场公告中信息的新信息或数据。若所发布信息为矿产资源量或矿石储量的评价结果，则公司确认支撑相关市场公告中此类评价结果的所有重大假定和技术参数仍然适用，且未发生实质性改变。

  The company confirms in the subsequent public presentation that it is not aware of any new information or data that materially affects the information included in the relevant market announcement. In the case of estimates of Mineral Resources or Ore Reserves, the company confirms that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

- 公司确认，表达合资格人研究结果的形式和内容未发生实质性改变。需要注意的是，对随后的公开表述而言，确保形式和语境未发生实质性改变，是公司通过其董事会所应承担的责任。

  The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified. Note that for the subsequent public presentation it is

the responsibility of the company acting through its Board of Directors to ensure the form and context has not been materially altered.

放宽对取得合资格人事先书面同意的要求，不适用于第 15 条所述的矿产资源量和矿石储量的年度报告要求。

This relaxation of the requirement to obtain the Competent Person's prior written consent does not apply to the requirements for annual reporting of Mineral Resources and Ore Reserves contained in Clause 15.

所有此类公开披露，应经过公司的专门审查，以确保表达合资格人研究结果的形式和内容未发生实质性改变，并确保根据近期获取的数据，对以前发布的勘查结果、矿产资源量或矿石储量仍然有效。

All such public disclosure should be specifically reviewed by the company to ensure that the form and context in which the Competent Person's findings are presented have not been materially modified, and to ensure that the previously issued Exploration Results, Mineral Resources or Ore Reserve remain valid in the light of any more recently-acquired data.

有关合规声明的适当格式，请参见附录 3 范例。

Examples of appropriate forms of compliance statements are provided in Appendix 3.

为协助合资格人和公司遵守上述要求，我们设计了合资格人同意书，内容涵盖了本规范的要求。合资格人同意书请见附录 2。

In order to assist Competent Persons and companies to comply with these requirements a Competent Person's Consent Form has been devised that incorporates the requirements of the Code. The Competent Person's Consent Form is provided in Appendix 2.

按照所提供的格式或采用类似格式填写同意书，既是一项良好实践，又能随时证明已经取得了规定的事先同意。

The completion of a consent form, whether in the format provided or in an equivalent form, is recommended as good practice and provides readily available evidence that the required prior consent has been obtained.

合资格人同意书或其他形式的合资格人书面同意证明，应由公司及合资格人妥善保管，以确保在需要时可以及时提供书面同意。

The Competent Person's Consent Form(s), or other evidence of the Competent Person's written consent, should be retained by the company and the Competent Person to ensure that the written consent can be promptly provided if required.

10. 勘查结果、矿产资源量和矿石储量公开报告所依据的详细介绍勘查结果、矿产资源量和矿石储量估算的文件，必须由合资格人或在其指导下完成，并由合资格人签字。若公开报告中涉及勘

查靶区，则文件也必须由合资格人或在其指导下完成，并由合资格人签字。此类文件必须客观地陈述所报告的各项内容。

Documentation detailing Exploration Results, Mineral Resource and Ore Reserve estimates, on which a Public Report on Exploration Results, Mineral Resources and Ore Reserves is based, must be prepared by, or under the direction of, and signed by, a Competent Person. If an Exploration Target is included in a Public Report, documentation must also be prepared by, or under the direction of, and signed by, a Competent Person. The documentation must provide a fair representation of the matters being reported.

11. **“合资格人(Competent Person)”是指澳大拉西亚矿业与冶金学会或澳大利亚地质科学家学会或 JORC 与 ASX 网站公布的“认可专业机构”(RPO)的会员或院士。这些组织具备行之有效的纪律处分措施，包括暂停或开除某个会员的权力。**

A ‘Competent Person’ is a minerals industry professional who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy, or of the Australian Institute of Geoscientists, or of a ‘Recognised Professional Organisation’ (RPO), as included in a list available on the JORC and ASX websites. These organisations have enforceable disciplinary processes including the powers to suspend or expel a member.

合资格人必须拥有至少五年与所涉矿化类型或矿床类型及所从事工作相关的经验。

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

若合资格人负责编制勘查结果文件，则其相关经验必须是在勘查领域。若合资格人进行矿产资源量估算或监督矿产资源量估算，则相关工作经验必须是在矿产资源量的估算、评估和评价方面。若合资格人进行矿石储量估算或监督矿石储量估算，则相关工作经验必须是在矿石储量的估算、评估、评价及经济开采方面。

If the Competent Person is preparing documentation on Exploration Results, the relevant experience must be in exploration. If the Competent Person is estimating, or supervising the estimation of Mineral Resources, the relevant experience must be in the estimation, assessment and evaluation of Mineral Resources. If the Competent Person is estimating, or supervising the estimation of Ore Reserves, the relevant experience must be in the estimation, assessment, evaluation and economic extraction of Ore Reserves.

> *“合资格人”定义中的关键修饰词是“相关”。确定什么是相关工作经验很难，往往需要根据常识来判断。例如，在估算脉状金矿化矿产资源量时，任何块金效应高的脉状矿化(如锡、铀等)方面的经验，就可能是相关经验，而块状贱金属矿床方面的经验就不属于相关经验。再举一个例子：要成为砂金矿床矿石储量估算的合资格人，则需要在此类矿化的评价和经济开采方面具备相当(至少五年)的经验。这是因为金在冲积层中的特点不同，含矿沉积物如宿主沉积物的金颗粒大小不同，以及金的品位低。非砂金矿床方面的经验可能就未必是合适的相关经验。*

The key qualifier in the definition of a Competent Person is the word 'relevant'. Determination of what constitutes relevant experience can be a difficult area and common sense has to be exercised. For example, in estimating Mineral Resources for vein gold mineralisation, experience in a high-nugget, vein-type mineralisation (such as tin, uranium, etc) may be relevant, whereas experience in (say) massive base metal deposits may not be. As a second example, to qualify as a Competent Person in the estimation of Ore Reserves for alluvial gold deposits, considerable (at least five years) experience in the evaluation and economic extraction of this type of mineralisation may be needed. This is due to the properties of gold in alluvial systems, the particle sizing of the host sediment, and the low grades involved. Experience with placer deposits containing minerals other than gold may not necessarily provide appropriate relevant experience.

关键词"相关"也意味着，若某个在其他类型矿床方面拥有相关经验，则对其而言，并非在每个矿床类型都必须具备五年经验才能成为合资格人。例如，某人在多种金属硬岩矿床的矿产资源量估算方面具备(比如说)20 年经验，那么要成为合资格人，可能就未必要求在(比如说)斑岩铜矿方面拥有五年经验。其他矿床类型的相关经验也可算作所要求的斑岩铜矿经验。

The key word 'relevant' also means that it is not always necessary for a person to have five years experience in each and every type of deposit to act as a Competent Person if that person has relevant experience in other deposit types. For example, a person with (say) 20 years experience in estimating Mineral Resources for a variety of metalliferous hard-rock deposit types may not require five years specific experience in (say) porphyry copper deposits to act as a Competent Person. Relevant experience in the other deposit types could count towards the required experience in relation to porphyry copper deposits.

除了在矿化类型方面的经验外，负责整理勘查结果或估算矿产资源量的合资格人，还应在所研究的矿床方面拥有充分的取样和化验技术经验，才能发现可能会影响数据可靠性的问题。同时，对适用于该矿床类型的提取和加工技术具备一定的判别能力也很重要。

In addition to experience in the style of mineralisation, a Competent Person taking responsibility for the compilation of Exploration Results or Mineral Resource estimates should have sufficient experience in the sampling and analytical techniques relevant to the deposit under consideration to be aware of problems that could affect the reliability of data. Some appreciation of extraction and processing techniques applicable to that deposit type may also be important.

总体而言，作为合资格人应清楚地认识到，他们面对的是同行，因此应在所考虑的矿种、矿床类型和相关方面充分表明自己的合资格性。若无把握，应向具有适当经验的同行征求意见，或者拒绝担任合资格人。

As a general guide, a person being called upon to act as Competent Person should be clearly satisfied in their own minds that they could face their peers and demonstrate competence in the commodity, type of deposit and situation under consideration. If doubt exists, the person should

either seek opinions from appropriately experienced peers or should decline to act as a Competent Person.

矿产资源量估算通常是团队工作(如某一个人或团队采集数据，而另一个人或团队负责估算)。矿石储量估算几乎都是涉及许多技术学科的团队工作。建议在分工职责明确的团队里，要分清楚各个合资格人及其具体工作，以及其对该具体工作所承担的责任。若只有一个合资格人签署矿产资源量或矿石储量文件，则该人员应负责按照本规范来准备整个文件。在这种情况下，对于全部或部分由他人准备的矿产资源量或矿石储量估算文件与支持性文件，承担总体责任的合资格人务必落实其他人所承担的工作达到了合格标准。
Estimation of Mineral Resources may be a team effort (for example, involving one person or team collecting the data and another person or team preparing the estimate). Estimation of Ore Reserves is very commonly a team effort involving several technical disciplines. It is recommended that, where there is clear division of responsibility within a team, each Competent Person and his or her contribution should be identified, and responsibility accepted for that particular contribution. If only one Competent Person signs the Mineral Resource or Ore Reserve documentation, that person is responsible and accountable for the whole of the documentation under the Code. It is important in this situation that the Competent Person accepting overall responsibility for a Mineral Resource or Ore Reserve estimate and supporting documentation prepared in whole or in part by others, is satisfied that the work of the other contributors is acceptable.

若合资格人的专业工作引起投诉，将根据其所属专业组织的纪律处分条例加以处理。
Complaints made with respect to the professional work of a Competent Person will be dealt with under the disciplinary procedures of the professional organisation to which the Competent Person belongs.

在澳大利亚证券交易所或新西兰证券交易所上市且拥有海外权益的公司，若要报告由非 AusIMM、AIG 或 RPO 会员编制的海外勘查结果、矿产资源量或矿石储量估算，则该公司有必要指定一名或多名合资格人来承担勘查结果、矿产资源量或矿石储量估算的责任。行使这项职能的合资格人应该认识到，根据澳大利亚证券交易所和/或新西兰证券交易所上市规则的规定，该合资格人要对估算与支持性文件承担起全部责任，而不应该将其简单视为盖"橡皮图章"的手续。
When an Australian Securities Exchange or New Zealand Stock Exchange listed company with overseas interests wishes to report overseas Exploration Results, Mineral Resource or Ore Reserve estimates prepared by a person who is not a member of The AusIMM, the AIG or a RPO, it is necessary for the company to nominate a Competent Person or Persons to take responsibility for the Exploration Results, Mineral Resource or Ore Reserve estimate. The Competent Person undertaking this activity should appreciate that they are accepting full responsibility for the estimate and supporting documentation under Australian Securities Exchange and/or the New Zealand Stock Exchange listing rules and should not treat the procedure merely as a 'rubber-stamping' exercise.

报告术语 Reporting Terminology

12. 勘查结果、矿产资源量或矿石储量的公开报告，必须且只能使用图 1 所列的术语。
Public Reports dealing with Exploration Results, Mineral Resources or Ore Reserves must only use the terms set out in Figure 1.

图 1 为吨位和品位的估算建立分级框架，以反映不同的地质可靠程度及不同的技术和经济评价程度。矿产资源量主要根据地学信息及一部分其它学科信息加以估算。矿石储量作为推定矿产资源量和确定的矿产资源量经过转换的部分(参照图 1 虚线示意图)，要求考虑影响采掘的转换因素，且在大多数情况下应结合其它相关的学科来进行估算。

Figure 1 sets out the framework for classifying tonnage and grade estimates to reflect different levels of geological confidence and different degrees of technical and economic evaluation. Mineral Resources can be estimated on the basis of geoscientific information with some input from other disciplines. Ore Reserves, which are a modified sub-set of the Indicated and Measured Mineral Resources (shown within the dashed outline in Figure 1), require consideration of the Modifying Factors affecting extraction, and should in most instances be estimated with input from a range of disciplines.

“转换因素”是指用于将矿产资源量转化为矿石储量的考虑因素，包括但不限于采矿、加工、冶金、基础设施、经济、市场、法律、环境、社会和政府等方面的因素。
‘Modifying Factors’ are considerations used to convert Mineral Resources to Ore Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.

确定的矿产资源量可转化成证实的矿石储量或可信的矿石储量。从矿产资源量转为矿石储量时所考虑的部分或全部转换因素如果存在不确定性，合资格人可将确定的矿产资源量转成可信的矿石储量。这种关系在图 1 中用虚线箭头表示。虽然虚线箭头的方向包含一个垂直分量，但在本例中并不代表地质认知或可靠程度有所下降。这种情况下，对这些转换因素应做充分解释。

Measured Mineral Resources may be converted to either Proved Ore Reserves or Probable Ore Reserves. The Competent Person may convert Measured Mineral Resources to Probable Ore Reserves because of uncertainties associated with some or all of the Modifying Factors which are taken into account in the conversion from Mineral Resources to Ore Reserves. This relationship is shown by the broken arrow in Figure 1. Although the trend of the broken arrow includes a vertical component, it does not, in this instance, imply a reduction in the level of geological knowledge or confidence. In such a situation these Modifying Factors should be fully explained.

亦请参阅第32 条的指南。
Refer also to the guidelines to Clause 32.

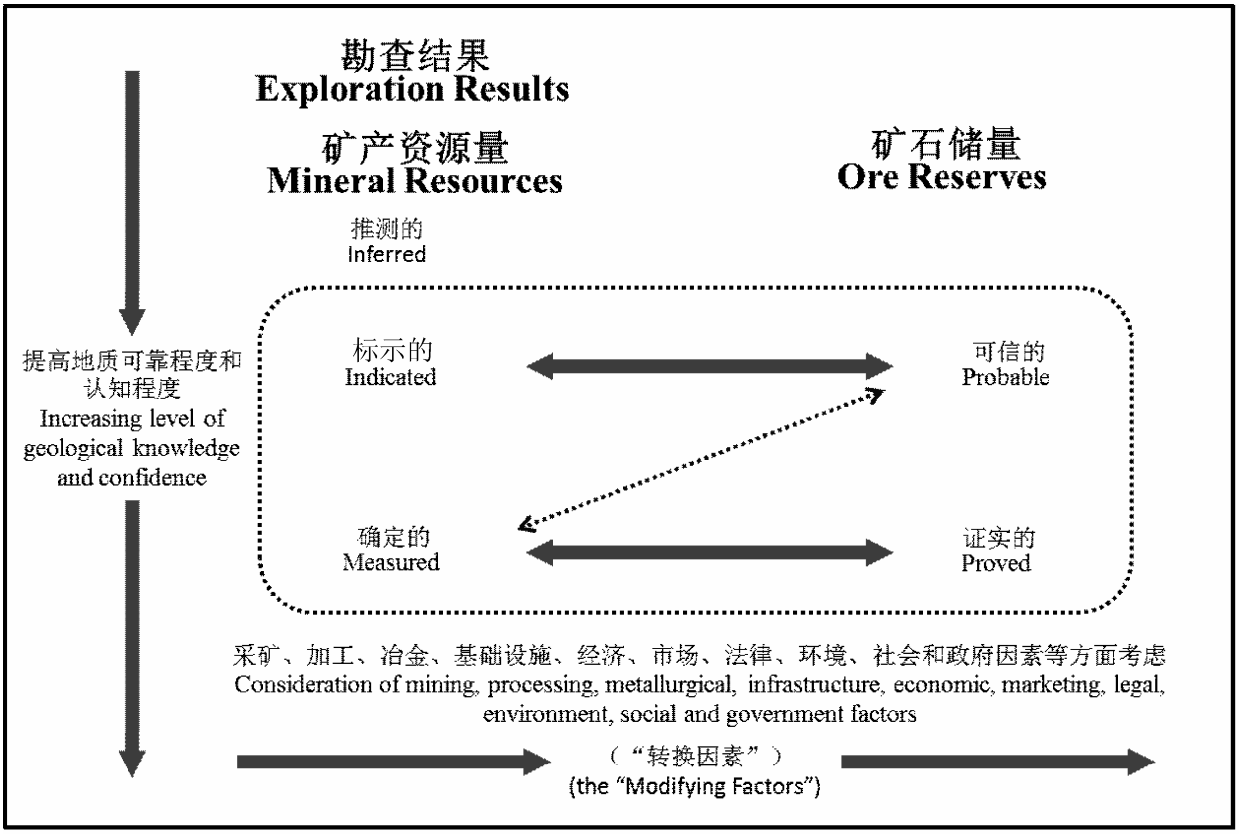

图 1 勘查结果、矿产资源量和矿石储量之间的一般性关系

Figure 1 General relationship between Exploration Results, Mineral Resources and Ore Reserves.

报告的一般性要求 Reporting General

13. 在公司的勘查结果、矿产资源量或矿石储量的公开报告中，必须包括对矿化类型和特征的描述。
Public Reports concerning a company's Exploration Results, Mineral Resources or Ore Reserves must include a description of the style and nature of the mineralisation.

14. 公司必须披露所有涉及的勘查结果、矿产资源量或矿石储量，同时披露这些信息可能对公司的经济价值产生的影响。公司必须及时报告矿产资源量或矿石储量的任何实质性改变。
A company must disclose all relevant information concerning Exploration Results, Mineral Resources or Ore Reserves that could materially influence the economic value of those Exploration Results, Mineral Resources or Ore Reserves to the company. A company must promptly report any material changes in its Mineral Resources or Ore Reserves.

15. 公司每年必须对其矿产资源量和矿石储量进行复核并公开报告。公司必须在矿产资源量和矿石储量的公开报告中指明复核日期，且必须注明每份矿产资源量和矿石储量声明的有效期。发布

更新后的矿产资源量和矿石储量时，对于之前报告的矿产资源量和矿石储量所发生的任何实质性改变，公司必须加以说明。

Companies must review and publically report their Mineral Resources and Ore Reserves annually. The annual review date must be nominated by the Company in its Public Reports of Mineral Resources and Ore Reserves and the effective date of each Mineral Resource and Ore Reserve statement must be shown. The Company must discuss any material changes to previously reported Mineral Resources and Ore Reserves at the time of publishing updated Mineral Resources and Ore Reserves.

16. 本规范中，适当情况下“品质”可以代替“品位”，“体积”可以代替“吨位”。(参见附录 1 “通用术语及同义词”。)

Throughout the Code, if appropriate, ‘quality’ may be substituted for ‘grade’ and ‘volume’ may be substituted for ‘tonnage’. (Refer to Appendix 1 Generic Terms and Equivalents.)

17. 众所周知，公司按照目标规模和类型来论述和探讨勘查靶区属于惯例做法。但是，公开报告里的任何此类论述均必须遵照以下要求。

It is recognised that it is common practice for a company to comment on and discuss its exploration in terms of target size and type. However, any such comment in a Public Report must comply with the following requirements.

勘查靶区是指对某一确定地质背景条件内某一矿床勘查潜力的描述或预测，以吨位范围和品位(或质量)的范围来表述，对此种涉及矿化的描述或预测，因尚未开展充足的勘查工作故不能估算其蕴含的矿产资源量。

An Exploration Target is a statement or estimate of the exploration potential of a mineral deposit in a defined geological setting where the statement or estimate, quoted as a range of tonnes and a range of grade (or quality), relates to mineralisation for which there has been insufficient exploration to estimate a Mineral Resource.

对有关勘查靶区的任何此类信息的表述，应使其不致被误认或曲解为矿产资源量或矿石储量。在此种情况下，不准使用“资源量”或“储量”这两个术语。声明中若提及目标的潜在数量和品位，必须以范围方式表达，且必须包括：

Any such information relating to an Exploration Target must be expressed so that it cannot be misrepresented or misconstrued as an estimate of a Mineral Resource or Ore Reserve. The terms Resource or Reserve must not be used in this context. In any statement referring to potential quantity and grade of the target, these must both be expressed as ranges and must include:

- 对此声明的依据的详细解释，包括对目前已完成勘查工作程度的具体描述，以及
  a detailed explanation of the basis for the statement, including specific description of the level of exploration activity already completed, and

- 在公开报告中首次提及勘查靶区的段落中加入一个澄清声明，说明潜在数量与品位属概念性质，因勘查不充分而无法估算矿产资源量。而且，进一步勘查能否导致对“矿产资源量”的估算，也不确定。
  a clarification statement within the same paragraph as the first reference of the Exploration Target in the Public Report, stating that the potential quantity and grade is conceptual in nature, that there has been insufficient exploration to estimate a Mineral Resource and that it is uncertain if further exploration will result in the estimation of a Mineral Resource.

鉴于支持性数据的不确定性，在公开报告中不准以“标题声明”来报告勘查靶区吨位或品位。
Given the level of uncertainty surrounding the supporting data, an Exploration Target tonnage or grade must not be reported as a ‘headline statement’ in a Public Report.

若公开报告内含有勘查靶区，则必须详细说明为检验勘查靶区有效性而计划的勘查活动，并指明这些勘查活动的预计完成时限。
If a Public Report includes an Exploration Target the proposed exploration activities designed to test the validity of the exploration target must be detailed and the timeframe within which those activities are expected to be completed must be specified.

若勘查靶区以图件（如剖面图和平面图）或图表方式显示，必须随附符合上述要求的文字。
If an Exploration Target is shown pictorially (for instance as cross sections or maps) or with a graph, it must be accompanied by text that meets the requirements above.

含有勘查靶区的公开报告，必须随附负责勘查靶区展示形式和内容的合资格人的声明。
A Public Report that includes an Exploration Target must be accompanied by a Competent Person statement taking responsibility for the form and context in which the Exploration Target appears.

对勘查靶区的所有披露内容，均必须说明勘查靶区是基于实际勘查结果还是拟议的勘查计划。若勘查靶区声明含有涉及吨位和品位范围的信息，必须表述为大致值。说明性文字必须解释用以描述勘查靶区的品位、吨位范围是通过何种方法来判定的。
All disclosures of an Exploration Target must clarify whether the target is based on actual Exploration Results or on proposed exploration programmes. Where the Exploration Target statement includes information relating to ranges of tonnages and grades these must be represented as approximations. The explanatory text must include a description of the process used to determine the grade and tonnage ranges used to describe the Exploration Target.

若勘查靶区基于勘查结果，则还应摘要说明所掌握的相关勘查数据与勘查结果的性质，包括披露现有钻孔或采样间距及相关平面图或剖面图。在随后更新或修改的勘查靶区声明中，合资格人应论述已完成勘查工作对潜在规模或品质形成的实质性改变。
For an Exploration Target based on Exploration Results, a summary of the relevant exploration data available and the nature of the results should also be stated, including a disclosure of the

current drill hole or sampling spacing and relevant plans or sections. In any subsequent upgraded or modified statements on the Exploration Target, the Competent Person should discuss any material changes to potential scale or quality arising from completed exploration activities.

勘查结果报告 Reporting of Exploration Results

18. **勘查结果包括勘探工作中产生的、可供投资者使用但不作为矿产资源量或矿石储量正式报告部分的数据和信息。**
Exploration Results include data and information generated by mineral exploration programmes that might be of use to investors but which do not form part of a declaration of Mineral Resources or Ore Reserves.

勘查初期，常常会报告此类信息，但此时所采集的数据的数量通常不足以对矿产资源量做出合理估算。
The reporting of such information is common in the early stages of exploration when the quantity of data available is generally not sufficient to allow any reasonable estimates of Mineral Resources.

如果公司对未归类为矿产资源量或矿石储量的矿化勘查结果进行报告，不准赋予此矿化估算的吨位和平均品位，除非此矿化属第 17 条规定的情况且严格符合该条款的要求。
If a company reports Exploration Results in relation to mineralisation not classified as a Mineral Resource or an Ore Reserve, then estimates of tonnages and average grade must not be assigned to the mineralisation unless the situation is covered by Clause 17, and then only in strict accordance with the requirements of that Clause.

勘查结果范例包括露头取样结果、钻孔矿化段取样分析结果、地球化学和地球物理勘查结果等。
Examples of Exploration Results include results of outcropsampling, assays of drill hole intersections, geochemical results and geophysical survey results.

19. 对勘查结果的公开报告必须包含足够的信息，据之便于对勘查结果的重要性做出周全均衡的判断。报告必须包括如下相关信息，如勘查背景，取样类型和方法，相关样品间距和位置，所有相关分析数据的分布、范围和相对位置，分析方法、数据处理方法、土地矿权状况，以及有关表 1 列出的对评估具有实质意义的其他重要信息。
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, relevant sample intervals and locations, distribution, dimensions and relative location of all relevant assay data, methods of analysis, data aggregation methods, land tenure status plus information on any of the other criteria listed in Table 1 that are material to an assessment.

勘查结果公开报告的表述，不准以不合理方式暗示发现了潜在经济的矿化带。若未报告矿化的真实厚度，必须在公开报告中进行适当描述。

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.

报告化验数据和分析结果时，必须报告采用了以下哪种由合资格人选择的最适当方法：
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:

- 列出所有结果，并附样品间距(若为大样，则附样品大小)，或
  either by listing all results, along with sample intervals (or size, in the case of bulk samples), or

- 报告矿化带的加权平均品位，清楚表明品位是如何计算出来的。
  by reporting weighted average grades of mineralised zones, indicating clearly how the grades were calculated.

报告中必须含有描绘地质环境相关内容清晰的图表与图件，包括但不限于钻孔孔口位置的平面图及相应的剖面图。
Clear diagrams and maps designed to represent the geological context must be included in the report. These must include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.

不准仅报告选择性信息，如孤立的化验结果、孤立的钻孔、淘洗精样或表生富集土壤或矿点样品的化验结果，而不对这些信息做综合整体评价。
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.

> *虽然没有必要报告所有化验结果或钻孔情况，但对于未提及的数据要提供充足信息，以便报告的读者做出周全均衡的判断。若勘查结果报告并未包含所有钻孔或所有钻孔矿段，合资格人必须解释为什么认为这类信息不具相关性，或不提供这类信息的原因。*
>
> *While it is not necessary to report all assays or drill holes, it is a requirement that sufficient information about the omitted data is provided so that a considered and balanced judgement can be made by the reader of the report. Where reports of Exploration Results do not include all drill holes or all intersections of drill holes the Competent Person must provide an explanation of why this information is not considered relevant or why it has not been provided.*

根据第 4 条和第 5 条的规定，"若对某个重大问题加以说明或不做说明可能影响到公众对矿点的认知或其价值，合资格人不准对此保持缄默"。对于重大项目，在报告表 1 第 1 组和第 2 组的所有准则时，应采取"如果没有、为什么没有"的原则，最好以附件的方式随附于公开报告。若因数据不充分或不确定而影响勘查结果声明的可靠性或置信水平，则补充披露尤为重要；例如样品回收率低、化验或实验室结果可重复性差等。

As required under Clauses 4 and 5, the Competent Person must not 'remain silent on any issue for which the presence or absence of comment could impact the public perception or value of the mineral occurrence'. For significant projects the reporting of all criteria in sections 1 and 2 of Table 1 on an 'if not, why not basis' is required, preferably as an appendix to the Public Report. Additional disclosure is particularly important where inadequate or uncertain data affect the reliability of, or confidence in, a statement of Exploration Results; for example, poor sample recovery, poor repeatability of assay or laboratory results, etc.

矿产资源量报告 Reporting of Mineral Resources

20. **"矿产资源量"是指富集或赋存于地壳中具有经济意义的固体物质，其形态、品位（或质量）及数量具有最终经济开采的合理预期。矿产资源量的位置、数量、品位（或质量）、连续性及其它地质特征根据取样等特定的地质依据和认识得以确信、估计或解释。矿产资源量按地质可靠程度的提高，可分为推测的、标示的和确定的三个级别。**

A 'Mineral Resource' is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

无论资源量属于什么级别，矿产资源量报告都必须具备最终经济开采合理预期的条件（即，很可能最终经济开采）。

All reports of Mineral Resources must satisfy the requirement that there are reasonable prospects for eventual economic extraction (ie more likely than not), regardless of the classification of the resource.

矿床中不具备最终经济开采合理预期的部分不准包括在矿产资源量里。合理预期的假定依据始终是一项重要内容，且必须由合资格人必须以表 1 所列的准则为指导，在公开报告中明确披露并论述。合理预期的披露必须同时包括对边际品位确定所依据的技术和经济条件的论述。

Portions of a deposit that do not have reasonable prospects for eventual economic extraction must not be included in a Mineral Resource. The basis for the reasonable prospects assumption is always a material matter, and must be explicitly disclosed and discussed by the Competent Person within the Public

Report using the criteria listed in Table 1 for guidance. The reasonable prospects disclosure must also include a discussion of the technical and economic support for the cut-off assumptions applied.

若判断合理预期时采用了未经检验的做法，合资格人员必须在公开报告中对报告矿产资源量时拟采用的做法进行论证。
Where untested practices are applied in the determination of reasonable prospects, the use of the proposed practices for reporting of the Mineral Resource must be justified by the Competent Person in the Public Report.

对推测的、标示的和确定的所有级别的矿产资源量的估算，需要依据取样资料获得的地质依据和认识来进行；取样资料包括取样方式和间距，应根据矿点的地质、化学、物理及矿物复杂性来确定。没有取样资料，不得估算矿产资源量。
Geological evidence and knowledge required for the estimation of Mineral Resources must include sampling data of a type, and at spacings, appropriate to the geological, chemical, physical, and mineralogical complexity of the mineral occurrence, for all classifications of Inferred, Indicated and Measured Mineral Resources. A Mineral Resource cannot be estimated in the absence of sampling information.

> *"矿产资源量"一词涵盖通过勘查和取样已经查明和估算的、且通过考虑和应用转换因素可能转化为矿石储量的矿物，包括废石和尾矿。*
> *The term 'Mineral Resource' covers mineralisation, including dumps and tailings, which has been identified and estimated through exploration and sampling and within which Ore Reserves may be defined by the consideration and application of the Modifying Factors.*
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> *"最终经济开采合理预期"一词是指由合资格人考虑包括大致的采矿参数等所有很可能影响经济开采预期的因素后，所进行的评估(虽然只是初步评估)。换言之，矿产资源量并非钻探或取样后不考虑边际品位、可能的开采对象的空间位置或连续性而获得的所有矿化量。矿产资源量是能够实现的矿化量，即在假定且合理的技术、经济和开发条件下有可能全部或部分成为经济可采的矿化量。*
> *The term 'reasonable prospects for eventual economic extraction' implies an assessment (albeit preliminary) by the Competent Person in respect of all matters likely to influence the prospect of economic extraction including the approximate mining parameters. In other words, a Mineral Resource is not an inventory of all mineralisation drilled or sampled, regardless of cut-off grade, likely mining dimensions location or continuity. It is a realistic inventory of mineralisation which, under assumed and justifiable technical, economic and development conditions, might, in whole or in part, become economically extractable.*
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> *若合资格人认为合适，矿产资源量估算可以包括选定边际品位以下的物质，以确保矿产资源量所构成的矿化体具有足够大小和连续性，以便考虑用最合适的方法进行开采。矿产资源量估算文件应该清楚地指出所包含的任何贫化物质，如果认为这种处理方式具有实质性意义，公开报告应对其加以评述。*

Where considered appropriate by the Competent Person, Mineral Resource estimates may include material below the selected cut-off grade to ensure that the Mineral Resources comprise bodies of mineralisation of adequate size and continuity to properly consider the most appropriate approach to mining. Documentation of Mineral Resource estimates should clearly identify any diluting material included and Public Reports should include commentary on the matter if considered material.

前述"最终"一词的解释可视所涉及矿种或矿物的不同而不同。例如，对某些煤炭、铁矿石、铝土矿和其它大宗矿产或矿种，可以合理设想其"最终经济开采"年限超过 50 年。但对多数规模较小的矿床而言，则此概念的适用期限一般可能局限为 10 至 15 年，而且常常会短得多。任何情况下，合资格人都应披露并解释所考虑的时限。

Interpretation of the word 'eventual' in this context may vary depending on the commodity or mineral involved. For example, for some coal, iron ore, bauxite and other bulk minerals or commodities, it may be reasonable to envisage 'eventual economic extraction' as covering time periods in excess of 50 years. However for the majority of smaller deposits, application of the concept would normally be restricted to perhaps 10 to 15 years, and frequently to much shorter periods of time. In all cases, the considered time frame should be disclosed and discussed by the Competent Person.

为估算矿产资源量而对数据进行的任何调整，如特异品位处理，都应在公开报告中加以明确说明和描述。

Any adjustment made to the data for the purpose of making the Mineral Resource estimate, for example by cutting or factoring grades, should be clearly stated and described in the Public Report.

某些报告(如煤储藏量报告、提交给政府的勘查报告以及其他并非主要为投资目的而提供信息的类似报告)可能需要全面披露所有矿化，包括那些不具最终经济开采合理预期的物质。在 JORC 规范中，此类矿化的估算不作为矿产资源量或矿石储量(亦请参见第 6 条和第 42 条指南)。

Certain reports (eg inventory coal reports, exploration reports to government and other similar reports not intended primarily for providing information for investment purposes) may require full disclosure of all mineralisation, including some material that does not have reasonable prospects for eventual economic extraction. Such estimates of mineralisation would not qualify as Mineral Resources or Ore Reserves in terms of the JORC Code (refer also to the guidelines to Clauses 6 and 42).

21. **"推测的矿产资源量"是矿产资源量的一部分，其数量和品位（或质量）是根据有限的地质依据和取样来估算。地质依据足以推测但无法推定地质及品位（或质量）的连续性;地质依据为采用恰当的方法从露头、探槽、浅井、巷道及钻孔等位置收集的勘查、取样和分析测试资料。**

An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality)

continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

推测的矿产资源量其可靠程度低于标示的矿产资源量，不准转化为矿石储量。有理由预期大部分推测的矿产资源量经过继续勘查可能会升级为标示的矿产资源量。
An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to an Ore Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

若所报告的矿产资源量以推测的矿产资源量为主，则必须提供充分的支撑资料，以便使读者能够评价和评估与所报告的矿产资源量相关的风险。
Where the Mineral Resource being reported is predominantly an Inferred Mineral Resource, sufficient supporting information must be provided to enable the reader to evaluate and assess the risk associated with the reported Mineral Resource.

若推测的矿产资源量的估算采用了超出预设的取样间距但考虑矿化类型的外推法，报告必须提供充分的资料以告知读者：
In circumstances where the estimation of the Inferred Mineral Resource is presented on the basis of extrapolation beyond the nominal sampling spacing and taking into account the style of mineralisation, the report must contain sufficient information to inform the reader of:

- 资源量在采样点之外的最大外推距离；
  the maximum distance that the resource is extrapolated beyond the sample points
- 外推资源量所占的比例；
- the proportion of the resource that is based on extrapolated data
- 资源量外推距离确定的依据；
  the basis on which the resource is extrapolated to these limits
- 图示推测的矿产资源量并清楚地标出估算资源量中的外推部分。
  a diagrammatic representation of the Inferred Mineral Resource showing clearly the extrapolated part of the estimated resource.

推测的级别往往包括这样一些情况，即矿化富集体或露头已经查明，也已经完成有限的勘查工程和取样工作，但所取得的数据不足以可靠地解释地质和品位的连续性。虽然可以合理地预期大部分推测的矿产资源量经过继续勘查有可能升级为标示的矿产资源量；但由于推测的矿产资源量的不确定性，不能假定都能这样升级。
The Inferred category is intended to cover situations where a mineral concentration or occurrence has been identified and limited measurements and sampling completed, but where the data are insufficient to allow the geological and grade continuity to be confidently interpreted. While it would be reasonable to expect that the majority of Inferred Mineral Resources would upgrade to Indicated Mineral Resources

with continued exploration, due to the uncertainty of Inferred Mineral Resources, it should not be assumed that such upgrading will always occur.

推测的矿产资源量估算的可靠程度往往不足以在预可行性(第 39 条)和可行性(第 40 条)研究中使用技术和经济参数来进行详细的设计。正因如此，推测的矿产资源量和任何级别矿石储量之间都没有直接关系(参见图 1)。

Confidence in the estimate of Inferred Mineral Resources is not sufficient to allow the results of the application of technical and economic parameters to be used for detailed planning in Pre-Feasibility (Clause 39) or Feasibility (Clause 40) Studies. For this reason, there is no direct link from an Inferred Mineral Resource to any category of Ore Reserves (see Figure 1).

概略研究等技术和经济研究应用推测的矿产资源量时，应慎重行事(参见第 38 条)。

Caution should be exercised if Inferred Mineral Resources are used to support technical and economic studies such as Scoping Studies (refer to Clause 38).

22. **"标示的矿产资源量"是矿产资源量中的一部分，其数量、品位（或质量）、密度、形态及物理特征的估算有充分的可靠性，可以足够详细地应用转换因素来支持采矿计划设计和矿床经济评价。**

An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.

地质依据来自于采用适当的方法从露头、探槽、浅井、巷道和钻孔等位置收集的充分详细和可靠的勘查、采样和分析测试资料，地质依据足以推定取样点之间的地质和品位(或质量)的连续性。

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered.

标示的矿产资源量的可靠程度低于确定的矿产资源量，只能转化为可信的矿石储量。

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured

Mineral Resource and may only be converted to a Probable Ore Reserve.

当数据的类型、质量、数量和分布能够对地质结构进行可靠解释，并能推定矿化的连续性时，该矿化可被划分为标示的矿产资源量。

Mineralisation may be classified as an Indicated Mineral Resource when the nature, quality, amount and distribution of data are such as to allow confident interpretation of the geological framework and to assume continuity of mineralisation.

估算的可靠程度足以在第37 条至第40 条定义的技术和经济研究中使用转换因素。
Confidence in the estimate is sufficient to allow application of Modifying Factors within a technical and economic study as defined in Clauses 37 to 40.

23. **“确定的矿产资源量”是矿产资源量中的一部分，其数量、品位（或质量）、密度、形态及物理特征估算的可靠程度足以应用转换因素来支持详细的采矿设计和矿床经济最终评价。**
A ‘Measured Mineral Resource’ is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.

地质依据来自于采用适当的方法从露头、探槽、浅井、巷道和钻孔等位置收集的详细和可靠的勘查、采样和分析测试资料，地质依据足以确定取样点之间的地质和品位 (或品质)的连续性。
Geological evidence is derived from detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to confirm geological and grade (or quality) continuity between points of observation where data and samples are gathered.

确定的矿产资源量的可靠程度高于标示的矿产资源量或推测的矿产资源量。确定的矿产资源量可以转化为证实的矿石储量，在某些情况下只能转化为可信的矿石储量。
A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Ore Reserve or under certain circumstances to a Probable Ore Reserve.

根据合资格人的意见，在确定的矿产资源量时，如果数据的类型、质量、数量和分布不容置疑地表明矿化的吨位和品位估算结果能控制在有限的误差范围内，并且估算结果的任何变化均不大可能明显改变其潜在的经济可行性，该矿化可被划分为确定的矿产资源量。
Mineralisation may be classified as a Measured Mineral Resource when the nature, quality, amount and distribution of data are such as to leave no reasonable doubt, in the opinion of the Competent Person determining the Mineral Resource, that the tonnage and grade of the mineralisation can be estimated to within close limits, and that any variation from the estimate would be unlikely to significantly affect potential economic viability.

此级别要求对矿床的地质特征和各种控制因素有很高的可靠程度和理解程度。
This category requires a high level of confidence in, and understanding of, the geological properties and controls of the mineral deposit.

估算的可靠程度足以在第37 条至第40 条定义的技术和经济研究中使用转换因素。
Confidence in the estimate is sufficient to allow application of Modifying Factors within a technical and economic study as defined in Clauses 37 to 40.

依据各个转换因素的可靠程度，确定的矿产资源量可转化为证实的矿石储量(转换因素的可靠程度高)、可信的矿石储量(转换因素存在某些不确定性)或根本无法转化(某些转换因素可靠程度低或不可靠；或不准备开采，如地下矿内的矿柱或露天矿经济境界以外的部分)。

Depending upon the level of confidence in the various Modifying Factors it may be converted to a Proved Ore Reserve (high confidence in Modifying Factors), Probable Ore Reserve (some uncertainty in Modifying Factors) or may not be converted at all (low or no confidence in some of the Modifying Factors; or no plan to mine, eg pillars in an underground mine or outside economic pit limits).

24. 矿产资源量的合理分级取决于可用数据的数量、分布和质量以及这些数据的可靠程度。矿产资源量合理分级必须由合资格人来确定。

The choice of the appropriate category of Mineral Resource depends upon the quantity, distribution and quality of data available and the level of confidence that attaches to those data. The appropriate Mineral Resource category must be determined by a Competent Person.

矿产资源量分级是一项需要经验判断的工作，合资格人应考虑表 1 中与矿产资源量估算可靠程度相关的内容。

Mineral Resource classification is a matter for skilled judgement and a Competent Person should take into account those items in Table 1 that relate to confidence in Mineral Resource estimation.

在判定确定的矿产资源量还是标示的矿产资源量时，合资格人除了要考虑第 22 条和第 23 条与地质和品位连续性有关的两个定义中的用语外，还应斟酌考虑指南中关于确定的矿产资源量定义的一句话："……估算结果的任何变化均不大可能明显改变其潜在的经济性"。

In deciding between Measured Mineral Resources and Indicated Mineral Resources, Competent Persons may find it useful to consider, in addition to the phrases in the two definitions relating to geological and grade continuity in Clauses 22 and 23, the phrase in the guideline to the definition for Measured Mineral Resources: '... any variation from the estimate would be unlikely to significantly affect potential economic viability'.

在判定标示的矿产资源量还是推测的矿产资源量时，合资格人员除了要考虑第 21 条和第 22 条与地质和品位连续性有关的两个定义中的用语外，最好还要考虑标示的矿产资源量定义中的这一部分：" **有充分的可靠性，可以足够详细地应用转换因素来支持采矿设计和矿床经济评价***"，并注意其与指南中关于推测的矿产资源量定义的差别："推测的矿产资源量估算的可靠程度往往不足以在预可行性(第 39 条)和可行性(第 40 条)研究中使用技术和经济参数来进行详细的设计"以及"采用推测的矿产资源量来支持概略研究等技术和经济研究时，应慎重行事(参见第38 条)"。*

In deciding between Indicated Mineral Resources and Inferred Mineral Resources, Competent Persons may wish to take into account, in addition to the phrases in the two definitions in Clauses 21 and 22

*relating to geological and grade continuity, that part of the definition for Indicated Mineral Resources: '***sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit***', which contrasts with the guideline to the definition for Inferred Mineral Resources: 'Confidence in the estimate of Inferred Mineral Resources is not sufficient to allow the results of the application of technical and economic parameters to be used for detailed planning in Pre-Feasibility (Clause 39) or Feasibility (Clause 40) Studies' and 'Caution should be exercised if Inferred Mineral Resources are used to support technical and economic studies such as Scoping Studies (refer to Clause 38)'.*

为资源量分级而评价地质和品位的连续性时，合资格人应当考虑到矿化类型和边际品位问题。

The Competent Person should take into consideration issues of the style of mineralisation and cut-off grade when assessing geological and grade continuity for the purposes of classifying the resource.

估算时所选边际品位，应根据矿化类型以及可能的开采和加工开发方案来做出切实的选择。

Cut-off grades chosen for the estimation should be realistic in relation to the style of mineralisation and the anticipated mining and processing development options.

25. 矿产资源量是估算并非精确计算，估算结果取决于对矿产的位置、形态和连续性等有限的解释及可用的取样结果。所报告的吨位和品位数字应通过四舍五入得出恰当的有效位数，以体现估算结果的相对不确定性；若为推测的矿产资源量，则应冠以"大致"之类的限定语以强调矿产资源量估算的不确定性的特点，最终结果始终应表述为估算而非计算。

Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the occurrence and on the available sampling results. Reporting of tonnage and grade figures should reflect the relative uncertainty of the estimate by rounding off to appropriately significant figures and, in the case of Inferred Mineral Resources, by qualification with terms such as 'approximately' and to emphasise the imprecise nature of a Mineral Resource, the final result should always be referred to as an estimate not a calculation.

大多数情况下，四舍五入到第 2 位有效数字就可以了。例如，10,863,000 吨，品位 8.23%、可以表述为 11 百万吨、品位 8.2%。不过，有时为了恰当表达估算的不确定性，需要四舍五入到第1 位有效数字。这种情况通常出现在估算推测的矿产资源量中。

In most situations, rounding to the second significant figure should be sufficient. For example 10,863,000 tonnes at 8.23 per cent should be stated as 11 million tonnes at 8.2 per cent. There will be occasions, however, where rounding to the first significant figure may be necessary in order to convey properly the uncertainties in estimation. This would usually be the case with Inferred Mineral Resources.

合资格人在情形许可时，应对矿产资源量估算结果的相对准确性和可靠程度、加以说明，在其中至少要考虑到取样、分析和估算方面的误差。同时还应明确误差与整体估算量还是局部估算量有关，若为局部估算量，则应说明相关吨位。若不能说明相对准确性和可靠程度，则应该对其不确定性做出定性论述(见表 1)。

Competent Persons are encouraged, where appropriate, to discuss the relative accuracy and confidence level of the Mineral Resource estimates with consideration of at least sampling, analytical and estimation errors. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnage. Where a statement of the relative accuracy and confidence level is not possible, a qualitative discussion of the uncertainties should be provided in its place (refer to Table 1).

26. 矿产资源量的公开报告必须具体说明是"推测的"、"标示的"还是"确定的"中的某个级别或多个级别。除非同时对各个级别均做了详细说明，否则不能将多个级别混在一起报告。除非同时提供相应的吨位和品位，否则矿产资源量不能用所含金属或矿物含量的方式进行报告。

Public Reports of Mineral Resources must specify one or more of the categories of 'Inferred', 'Indicated' and 'Measured'. Categories must not be reported in a combined form unless details for the individual categories are also provided. Mineral Resources must not be reported in terms of contained metal or mineral content unless corresponding tonnages and grades are also presented.

矿产资源量不准与矿石储量合计。

Mineral Resources must not be aggregated with Ore Reserves.

除本规范第 17 条规定并严格遵守该条要求外，不允许公开报告本规范未涉及级别的吨位和品位。

Public Reporting of tonnages and grades outside the categories covered by the Code is not permitted unless the situation is covered by Clause 17, and then only in strict accordance with the requirements of that Clause.

本规范未涉及级别的吨位和品位的估算结果，对公司的内部计算和评估流程或许有用，但不准纳入公开报告中。

Estimates of tonnage and grade outside of the categories covered by the Code may be useful for a company in its internal calculations and evaluation processes, but their inclusion in Public Reports is not permitted.

27. 在重大项目矿产资源量的首次公开报告中，或在估算结果自上次公开报告以来已发生实质性改变时，必须提供表 1 相关条项信息的简要说明；如果表 1 所列某项具体准则内容与所报告的内容无关或没有实质性影响，必须披露这些不相关和没有实质性影响的内容，同时必须简要说明出现这种情况的原因。

In a Public Report of a Mineral Resource for a significant project for the first time, or when those estimates have materially changed from when they were last reported, a brief summary of the information in relevant sections of Table 1 must be provided or, if a particular criterion is not relevant or

material, a disclosure that it is not relevant or material and a brief explanation of why this is the case must be provided.

对于重大项目，首次报告矿产资源量估算或发生实质性改变(包括分级变化)时，更加有必要透明论述新的矿产资源量估算的依据，以便投资者恰当地了解变化的依据。如第 4 条和第 5 条所述，衡量实质性的标准是投资者或其顾问合理预期合资格人给出明确说明的那些内容，因此要求以“如果没有，为什么没有”的原则报告表 1 所列全部准则的相关内容。

For a significant project, when Mineral Resource estimates are first Publicly Reported or when a material change occurs (including classification changes), there is an increased need for transparent discussion of the basis for the new Mineral Resource estimate in order that investors are appropriately informed of the basis for the changes. As noted in Clauses 4 and 5 the benchmark of Materiality is that which an investor or their advisers would reasonably expect to see explicit comment on from the Competent Person, thus the reporting of all relevant criteria in Table 1 on an ‘if not, why not’ basis is required.

本规范在本条款中规定，应针对表 1 的相关准则组编制报告。若认定第 1 组和第 2 组准则的相关事项，已存在于当前仍然有效的公开报告中，且该报告可供参照，则针对第 3 组准则编制报告即可视为满足本条款规定。若不属于上述情况，则第 1 组和第 2 组的准则同样具有相关性，应当纳入公开报告中。

The Code specifies reporting against relevant sections of Table 1 in this Clause. This may be satisfied by reporting against section 3 on the presumption that matters related to sections 1 and 2 will already have been included in a still current Public Report and this Report can be referenced. If this is not the case then these sections are also relevant and should be included in the Public Report.

对照表1 所列准则的技术摘要，应以附件形式随附于公开报告。

The technical summary based against Table 1 criteria should be presented as an appendix to the Public Report.

若存在可能会影响矿产资源量声明的可靠性或置信水平(例如，样品采取率低、化验或实验室结果的可重复性差、体积密度质量数据不够等)的未决事项，亦应对此类事项做出报告。

Where there are as yet unresolved issues potentially impacting the reliability of, or confidence in, a statement of Mineral Resources (for example, poor sample recovery, poor repeatability of assay or laboratory results, limited information on bulk densities, etc) those unresolved issues should also be reported.

若对哪些内容需要报告存有疑问，则提供的信息宁多勿少。

If there is doubt about what should be reported, it is better to err on the side of providing too much information rather than too little.

对于表 1 所列任何准则如果有不确定之处，并可能因此导致低估或夸大矿产资源量，则应当披露此种不确定因素。

Uncertainties in any of the criteria listed in Table 1 that could lead to under- or over-statement of Mineral Resources should be disclosed.

矿产资源量估算结果有时是在参考生产数据做出调整后才报告，此类调整应在矿产资源量公开报告中明确说明，并描述调整或修改的依据。

Mineral Resource estimates are sometimes reported after adjustment from reconciliation with production data. Such adjustments should be clearly stated in a Public Report of Mineral Resources and the nature of the adjustment or modification described.

28. "矿石"和"储量"这两个词不准用于表述矿产资源量估算结果，这是由于这两个词都暗示了技术可行性和经济合理性，只有在考虑了所有相关转换因素后才适合使用。在技术可行性和经济合理性未被确定之前，报告和报表应始终以适合于矿产资源量的级别进行表述。若重新评价结果表明，矿石储量不再具备可行性，则矿石储量应该重新划归为矿产资源量，或从矿产资源量/矿石储量报表中删除。

The words 'ore' and 'reserves' must not be used in describing Mineral Resource estimates as the terms imply technical feasibility and economic viability and are only appropriate when all relevant Modifying Factors have been considered. Reports and statements should continue to refer to the appropriate category or categories of Mineral Resources until technical feasibility and economic viability have been established. If re-evaluation indicates that the Ore Reserves are no longer viable, the Ore Reserves must be reclassified as Mineral Resources or removed from Mineral Resource/Ore Reserve statements.

本条款并不是说即使出现短期或临时性的变化，或公司管理层有意决定以缺乏经济效益的方式经营时，也需要将矿石储量重新分类为矿产资源量(或反之亦然)。这类情况的例子有：预计短期内的矿产品价格波动、矿区非永久性紧急事故、运输部门罢工等。

It is not intended that re-classification from Ore Reserves to Mineral Resources or vice versa should be applied as a result of changes expected to be of a short term or temporary nature, or where company management has made a deliberate decision to operate on a non-economic basis. Examples of such situations might be commodity price fluctuations expected to be of short duration, mine emergency of a non-permanent nature, transport strike, etc.

矿石储量报告 Reporting of Ore Reserves

29. **"矿石储量"是确定的和/或标示的矿产资源量中的经济可采部分。它包括其开采过程中可能产生的矿石损失和贫化，并且通过预可行性研究或可行性研究确认这些损失和贫化是合适的，包括转换因素的采用。这些研究报告表明，在出具报告时，这部分资源量是可以被合理开采的。**

An 'Ore Reserve' is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or

extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

确定矿石储量的参照点必须予以阐明，通常是矿石送到加工厂的那一点。重要的是，如果参照点不同(比如是可销售产品参照点)，则要对其加以清楚说明，以确保读者完全了解报告所指。
The reference point at which Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

在报告新的或已发生实质性改变的矿石储量时，必须披露预可行性研究或可行性研究的主要假设条件与研究结果。The key underlying assumptions and outcomes of the Pre-Feasibility Study or Feasibility Study must be disclosed at the time of reporting of a new or materially changed Ore Reserve.

预可行性和可行性研究的定义，请参加下文第 39 条和第 40 条。
Pre-Feasibility and Feasibility Studies are defined in Clauses 39 and 40 below.

根据可靠程度的增加，矿石储量可分为可信的矿石储量和证实的矿石储量。
Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves.

在报告矿石储量时，确定矿物加工回收率的有关依据是很重要的，应包括在公开报告里。
In reporting Ore Reserves, information on estimated mineral processing recovery factors is very important, and should always be included in Public Reports.

> *矿石储量是指矿产资源量中通过采用所有转换因素之后估算出吨位和品位的部分，且负责估算的合资格人在考虑到具有实质相关性的转换因素后，认为这些估算的吨位和品位可以用作具备技术与经济可行性项目的基础。在采矿设计或采矿计划缺失的情况下，采用矿产资源量系数的方式来得出矿石储量的做法是不可接受的。*
> *Ore Reserves are those portions of Mineral Resources that, after the application of all Modifying Factors, result in an estimated tonnage and grade which, in the opinion of the Competent Person making the estimates, can be the basis of a technically and economically viable project, after taking account of material relevant Modifying Factors. Deriving an Ore Reserve without a mine design or mine plan through a process of factoring of the Mineral Resource is unacceptable.*
>
> *报告的矿石储量包括拟送去处理或不经处理直接从矿山上除去的边际经济物质及贫化物料。*
> *Ore Reserves are reported as inclusive of marginally economic material and diluting material delivered for treatment or dispatched from the mine without treatment.*

"经济可采"是指在合理的经济假设条件下开采矿石储量证明具有可行性。这会随着矿床类型、完成研究程度和各个公司财务标准的不同而不同。因此，"经济可采"一词不可能具有固定定义。

The term 'economically mineable' implies that extraction of the Ore Reserves has been demonstrated to be viable under reasonable financial assumptions. This will vary with the type of deposit, the level of study that has been carried out and the financial criteria of the individual company. For this reason, there can be no fixed definition for the term 'economically mineable'.

为了让转换因素达到规定的可靠程度，在确定矿石储量前要开展适当的可行性或预可行性研究。此类研究将用以确定在技术可行且经济合理的采矿计划与生产进度计划，并据此确定矿石储量。

In order to achieve the required level of confidence in the Modifying Factors, appropriate Feasibility or Pre-Feasibility level studies will have been carried out prior to determination of the Ore Reserves. The studies will have determined a mine plan and production schedule that is technically achievable and economically viable and from which the Ore Reserves can be derived.

"矿石储量"一词并不一定都表明开采设施已经到位或开始运行，或已经获得所需的审批或销售合同。但它的确表明，有合理的理由可以预期，这类审批或合同可以在开采计划要求的预计期限内取得。对获得所有必要政府审批手续的预期，必须以合理依据为基础。合资格人应强调并论述开采所需的、依赖于第三方才能解决的悬而未决的实质性事项。

The term 'Ore Reserves' need not necessarily signify that extraction facilities are in place or operative, or that all necessary approvals or sales contracts have been received. It does signify that there are reasonable grounds to expect that such approvals or contracts will eventuate within the anticipated time frame required by the mine plans. There must be reasonable grounds to expect that all necessary Government approvals will be received. The Competent Person should highlight and discuss any material unresolved matter that is dependent on a third party on which extraction is contingent.

若对应该报告的内容存有疑问，宁可让提供的信息宁多无少。

If there is doubt about what should be reported, it is better to err on the side of providing too much information rather than too little.

为矿石储量估算而做的任何对数据的调整，如降低或系数化矿石品位，都应在公开报告中予以明确说明和描述。

Any adjustment made to the data for the purpose of making the Ore Reserve estimate, for example by cutting or factoring grades, should be clearly stated and described in the Public Report.

有些公司倾向于在公开报告中使用术语"矿产储量"，比如在报告工业矿产时，或在澳大拉西亚以外地区报告时；此种情况下，相关公司应清楚表明该术语与本规范所定义的"矿石储量"意思相同。发布报告的公司如果愿意，也可以用"煤炭储量"和"煤炭资源量"估算来报告煤炭的"矿石储量"和"矿产资源量"。

Where companies prefer to use the term 'Mineral Reserves' in their Public Reports, eg for reporting industrial minerals or for reporting outside Australasia, they should state clearly that this is being used with the same meaning as 'Ore Reserves', defined in this Code. If preferred by the reporting company,'Ore Reserve' and 'Mineral Resource' estimates for coal may be reported as 'Coal Reserve' and 'Coal Resource' estimates.

JORC 倾向于使用术语"矿石储量"，是因为它有助于在"矿产资源量"和"矿石储量"之间划出清晰的界限，而其他一些规范则认为最好采用"矿产勘查结果"、"矿产资源量"和"矿产储量"等表达方式。

JORC prefers the term 'Ore Reserve' because it assists in maintaining a clear distinction between a 'Mineral Resource' and an 'Ore Reserve', whereas other codes feel it is better to reference Mineral Exploration Results, Mineral Resources and Mineral Reserves.

30. **"可信的矿石储量"是标示的矿产资源量中的经济可采部分，某些情况下是确定的矿产资源量的经济可采部分。适用于可信的矿石储量转换因素的可靠程度，低于用于证实的矿石储量转换因素的可靠程度。**

A 'Probable Ore Reserve' is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve.

在矿产资源量转化成矿石储量的过程中，对转换因素的可靠程度的考虑非常重要。

Consideration of the confidence level of the Modifying Factors is important in conversion of Mineral Resources to Ore Reserves.

可信的矿石储量的可靠程度低于证实的矿石储量，但其品质已足以做出矿床开发决定的基础。

A Probable Ore Reserve has a lower level of confidence than a Proved Ore Reserve but is of sufficient quality to serve as the basis for a decision on the development of the deposit.

31. **"证实的矿石储量"是确定的矿产资源量中的经济可采部分。证实的矿石储量意味着高可靠程度的转换因素。**

A 'Proved Ore Reserve' is the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors.

证实的矿石储量代表储量估算中的最高可靠程度，也意味着对地质和品位的连续性以及对转换因素的考虑均具备很高的可靠程度。由于矿化类型或其他因素，可能会导致一些矿床证实的矿石储量是无法估算得到的。

A Proved Ore Reserve represents the highest confidence category of reserve estimate and implies a high degree of confidence in geological and grade continuity, and the consideration of the Modifying Factors. The style of mineralisation or other factors could mean that Proved Ore Reserves are not achievable in some deposits.

32. 为矿石储量选择恰当级别，主要取决于矿产估算的相应可靠程度，并应事先考虑转换因素的不确定性。级别的恰当选定必须由合资格人来实施。

The choice of the appropriate category of Ore Reserve is determined primarily by the relevant level of confidence in the Mineral Resource and after considering any uncertainties in the consideration of the Modifying Factors. Allocation of the appropriate category must be made by a Competent Person.

本规范规定了标示的矿产资源量和可信的矿石储量之间以及确定的矿产资源量和证实的矿石储量之间的直接双向关系。换言之，可信的矿石储量的地质可靠程度与标示的矿产资源量的地质可靠程度相当，而证实的矿石储量的地质可靠程度与确定的矿产资源量的地质可靠程度相当。

The Code provides for a direct two-way relationship between Indicated Mineral Resources and Probable Ore Reserves and between Measured Mineral Resources and Proved Ore Reserves. In other words, the level of geological confidence for Probable Ore Reserves is similar to that required for the determination of Indicated Mineral Resources, and the level of geological confidence for Proved Ore Reserves is similar to that required for the determination of Measured Mineral Resources.

本规范规定了确定的矿产资源量和可信的矿石储量之间的双向关系，也涵盖这种情况，即在将矿产资源量转化为矿石储量时，任何转换因素的不确定性，可能会导致矿石储量的可靠程度低于相应的矿产资源量对应的可靠程度。这种转化并不意味着地质认识或可靠程度的下降。

The Code also provides for a two-way relationship between Measured Mineral Resources and Probable Ore Reserves. This is to cover a situation where uncertainties associated with any of the Modifying Factors considered when converting Mineral Resources to Ore Reserves may result in there being a lower degree of confidence in the Ore Reserves than in the corresponding Mineral Resources. Such a conversion would not imply a reduction in the level of geological knowledge or confidence.

若能将转换因素中的不确定性排除，则确定的矿产资源量得出的可信的矿石储量就可转换成证实的矿石储量。在将矿产资源量转化为矿石储量时转换因素的可靠程度不能超过对应矿产资源量内在的可靠程度。任何情况下，都不能把标示的矿产资源直接转换成证实的矿石储量(参见图1)。

A Probable Ore Reserve derived from a Measured Mineral Resource may be converted to a Proved Ore Reserve if the uncertainties in the Modifying Factors are removed. No amount of confidence in the Modifying Factors for conversion of a Mineral Resource to an Ore Reserve can override the upper level of confidence that exists in the Mineral Resource. Under no

circumstances can an Indicated Mineral Resource be converted directly to a Proved Ore Reserve (see Figure 1).

证实的矿石储量级别的应用即意味着估算中地质的、技术的和经济的最高可靠程度，达到满足生产的水平，可以用来支持开采计划和生产进度计划，会让报告的读者产生相应的期望。在把矿产资源量定为确定的级别时，也应考虑到这种期望。

Application of the category of Proved Ore Reserve implies the highest degree of geological, technical and economic confidence in the estimate at the level of production increments used to support mine planning and production scheduling, with consequent expectations in the minds of the readers of the report. These expectations should be considered when categorising a Mineral Resource as Measured.

请参照第 24 条关于矿产资源量分级的指南。

Refer also to the guidelines in Clause 24 regarding classification of Mineral Resources.

33. 矿石储量是估算并非精确计算。因此，在报告吨位和品位的估算结果的数据时，应通过四舍五入至适当的有效位数以体现估算的相对不确定性。亦请参阅第 25 条。

Ore Reserve estimates are not precise calculations. Reporting of tonnage and grade estimates should reflect the relative uncertainty of the estimate by rounding off to appropriately significant figures. Refer also to Clause 25.

为强调矿石储量估算的非精确性，最终报告结果应始终表述为估算而非计算。

To emphasise the imprecise nature of an Ore Reserve, the final result should always be referred to as an estimate and not a calculation.

考虑到估算及转换因素的不确定性，提倡合资格人在适当的情况下论述矿石储量估算的相对准确性和可靠程度。这类说明应详细指出是整体的还是局部的估算，若为局部的估算，则应表明相应的吨位。若不能说明相对准确性和可靠程度，则应该对估算的不确定性做出定性论述(见表 1)。

Competent Persons are encouraged, where appropriate, to discuss the relative accuracy and confidence level of the Ore Reserve estimates with consideration of both underlying estimation and Modifying Factor uncertainties. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnage. Where a statement of the relative accuracy and confidence level is not possible, a qualitative discussion of the uncertainties should be provided in its place (refer to Table 1).

34. 矿石储量的公开报告必须具体说明是“证实的”和“可信的”两个级别中的哪一个，或两者都有。除非同时提供各个级别储量的相关数据，否则不能将证实的和可信的矿石储量的数据混合在一起报告。除非同时提供相应的吨位和品位，否则不能在报告中公布含有的金属量或矿物量。

Public Reports of Ore Reserves must specify one or other or both of the categories of ‘Proved’ and ‘Probable’. Reports must not contain combined Proved and Probable Ore Reserve figures unless the relevant figures for

each of the categories are also provided. Reports must not present metal or mineral content figures unless corresponding tonnage and grade figures are also given.

除非属于第 17 条规定的情况，并严格符合第 17 条的要求，否则不允许公开报告本规范未涉及的级别的吨位和品位。

Public Reporting of tonnage and grade outside the categories covered by the Code is not permitted unless the situation is covered by Clause 17, and then only in strict accordance with the requirements of that Clause.

本规范未涉及级别的吨位和品位的估算，对公司的内部计算和评估流程或许有用，但若纳入公开报告则可能造成混淆，因此，不准纳入公开报告中。

Estimates of tonnage and grade outside of the categories covered by the Code may be useful for a company in its internal calculations and evaluation processes, but their inclusion in Public Reports could cause confusion, and is not permitted.

矿石储量可能包含不属于原始矿产资源量的物料(贫化)。若要通过比较矿产资源量和矿石储量来得出结论，则有必要考虑二者之间的这一根本性差别，且应谨慎从事。

Ore Reserves may incorporate material (dilution) that is not part of the original Mineral Resource. It is essential that this fundamental difference between Mineral Resources and Ore Reserves is considered and caution exercised if attempting to draw conclusions from a comparison of the two.

若公开报告修订后的矿石储量和矿产资源量声明，则公司必须论述与之前估算相比的实质性改变，并提供充分说明，以便读者理解发生重大变化的依据。

When revised Ore Reserve and Mineral Resource statements are publicly reported, the Company must discuss any material changes from the previous estimate, and supply sufficient comment to enable the basis for significant changes to be understood by the reader.

35. 在重大项目矿石储量估算的首次公开报告中，或在估算结果自上次报告以来已发生实质性改变时，必须提供表 1 相关组信息的简要说明；若表 1 中没有相关或实质的具体准则，则必须披露其不具备相关的或非实质性的，并简要解释为什么会出现这种情况。

In a Public Report of an Ore Reserve estimate for a significant project for the first time, or when those estimates have materially changed from when they were last reported, a brief summary of the information in relevant sections of Table 1 must be provided or, if a particular criterion is not relevant or material, a disclosure that it is not relevant or material and a brief explanation of why this is the case must be provided.

对于重大项目，首次报告矿石储量估算或发生实质性改变(包括分级变化)时，更有必要透明地论述矿石储量新估算结果的依据，以便投资者恰当了解这些变化的依据。如第 4 条和第 5 条所述，衡量详实实质性的标准是合资格人对此给出了投资者或其顾问合理预期的明确的说明，并要求对照表 1 中所有相关准则，以“如果没有，为什么没有”的原则进行报告。

For a significant project, when Ore Reserve estimates are first Publicly Reported or when a material change occurs (including classification changes), there is an increased need for transparent discussion of the basis for the new Ore Reserve estimate in order that investors are appropriately informed of the basis for the changes. As noted in Clauses 4 and 5 the benchmark of Materiality is that which an investor or their advisers would reasonably expect to see explicit comment on from the Competent Person, thus the reporting of all criteria in Table 1 on an 'if not, why not' basis is required.

本规范在本条款中规定，应针对表 1 的相关准则组编制报告。若认定第 1 组、第 2 组和第 3 组准则的相关事项，已存在于当前仍然有效的公开报告中，且该报告可以直接引用，则针对第 4 组准则做出报告可视为满足本条款规定的要求。若不属于上述情况，则第 1 组、第 2 组和第 3 组的准则同样具有相关性，应当纳入公开报告中一并报告。

The Code specifies reporting against relevant sections of Table 1 in this Clause. This may be satisfied by reporting against section 4 on the presumption that matters related to sections 1, 2 and 3 will already have been included in a still current Public Report and this Report can be referenced. If this is not the case then these sections are also relevant and should be included in the Public Report.

针对表1 准则的技术摘要，应以附件形式随附于公开报告。

The Technical summary based against Table 1 criteria should be presented as an appendix to the Public Report.

若存在可能会影响矿石储量声明的真实性或可靠性(如有限的地质工程信息、复杂的矿石选冶特性、许可手续报批不确定等)的未决事项，亦应对此类事项做出报告。

Where there are as yet unresolved issues potentially impacting the reliability of, or confidence in, a statement of Ore Reserves (for example, limited geotechnical information, complex orebody metallurgy, uncertainty in the permitting process, etc) those unresolved issues should also be reported.

若对哪些内容需要报告存有疑问，则提供的信息宁多勿少。

If there is doubt about what should be reported, it is better to err on the side of providing too much information rather than too little.

对于表 1 中任何准则存在的可能导致低估或过高估矿石储量的不确定因素应当予以披露。

Uncertainties in any of the criteria listed in Table 1 that could lead to under- or over- statement of Ore Reserves should be disclosed.

矿石储量估算有时会根据生产数据校正后进行报告。此类调整应在矿石储量公开报告中明确说明，并对此予以描述。

Ore Reserve estimates are sometimes reported after adjustment from reconciliation with production data. Such adjustments should be clearly stated in a Public Report of Ore Reserves and the nature of the adjustment or modification described.

36. 若同时报告矿产资源量和矿石储量数字，则报告中必须明确声明，矿产资源量是否包含矿石储量。

In situations where figures for both Mineral Resources and Ore Reserves are reported, a statement must be included in the report which clearly indicates whether the Mineral Resources are inclusive of, or additional to the Ore Reserves.

矿石储量估算结果不准与矿产资源量估算结果合并计算后作为单一的合并数据进行报告。

Ore Reserve estimates must not be aggregated with Mineral Resource estimates to report a single combined figure.

某些情况下，在报告矿产资源量时把矿石储量包括在内，而在另外一些情况下，报告的矿产资源量则是对矿石储量的补充。具体采用的是哪种报告形式，必须明确说明。澄清性说明可采用以下适当形式：

In some situations there are reasons for reporting Mineral Resources inclusive of Ore Reserves and in other situations for reporting Mineral Resources additional to Ore Reserves. It must be made clear which form of reporting has been adopted. Appropriate forms of clarifying statements may be:

- *"确定的和标示的矿产资源量包括那些转换成矿石储量的矿产资源量。"或者*
  The Measured and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce the Ore Reserves.' or
- *"确定的和标示的矿产资源量是矿石储量以外的补充资源量。"*
  The Measured and Indicated Mineral Resources are additional to the Ore Reserves.'

对于第一种情况，由于经济或其他原因而未能转化成矿石储量的确定的和标示的矿产资源量，则报告中应包含这些尚未转化的矿产资源量的相关细节。这样有助于报告的读者判断这些尚未转化的确定的和标示的矿产资源量，最终是否可能转化成矿石储量。

In the former case, if any Measured and Indicated Mineral Resources have not been modified to produce Ore Reserves for economic or other reasons, the relevant details of these unmodified Mineral Resources should be included in the report. This is to assist the reader of the report in making a judgement of the likelihood of the unmodified Measured and Indicated Mineral Resources eventually being converted to Ore Reserves.

根据定义，推测的矿产资源量一般是对矿石储量的补充，但作为贫化物料包含在矿石储量中的除外。

Inferred Mineral Resources are by definition generally additional to Ore Reserves except where included as dilution in the Ore Reserves.

出于第 34 条指南及本节所述的原因，所报告的矿石储量不准与所报告的矿产资源量合计(如在图表、数字或表格中)。合并计算的结果具有误导性，可能被误解或误用，造成对公司前景的不实印象。

For reasons stated in the guidelines to Clause 34 and in this paragraph, the reported Ore Reserve estimates must not be aggregated with the reported Mineral Resource estimates (eg in graphs, figures or tables). The resulting total is misleading and is capable of being misunderstood or of being misused to give a false impression of a company's prospects.

技术研究 Technical Studies

37. 本规范纳入下述定义，旨在当使用这些术语进行报告时，能对所想表述的内容提供清楚的表达。本规范纳入了概略研究(Scoping Study)的定义，这是因为该术语常常出现在公开报告中。但要注意的是，第 29 条规定，在公开报告矿石储量之前，须先完成预可行性研究或可行性研究。不准仅依据完成的概略研究就发布矿石储量报告。

These definitions are included in the Code to provide clarity on what is expected when reporting using these terms. The definition of a Scoping Study has been included because of the common usage of the term in Public Reports. However attention is drawn to the requirement for a Pre-Feasibility Study or a Feasibility study to have been completed for the Public Reporting of an Ore Reserve in Clause 29. An Ore Reserve must not be reported based on the completion of a Scoping Study.

38. **概略研究是指对矿产资源的潜在可行性进行粗略的技术与经济研究。该研究将对就实际情况而假定的转换因素以及与运作相关的其它因素进行适当评估，以显示在报告时可以合理判断是否推进至预可行性研究阶段。**

A Scoping Study is an order of magnitude technical and economic study of the potential viability of Mineral Resources. It includes appropriate assessments of realistically assumed Modifying Factors together with any other relevant operational factors that are necessary to demonstrate at the time of reporting that progress to a Pre-Feasibility Study can be reasonably justified.

概略研究不准用作矿石储量估算的依据。

A Scoping Study must not be used as the basis for estimation of Ore Reserves.

若概略研究的结果，部分得到推测的矿产资源量和/或勘查靶区的支持，则公开报告必须说明推测的矿产资源量和/或勘查靶区在概略研究中的比例及相对排序。

If the outcome of a Scoping Study is partially supported by Inferred Mineral Resources and/or an Exploration Target, the Public Report must state both the proportion and relative sequencing of the Inferred Mineral Resources and/or an Exploration Target within the Scoping Study.

对于所有概略研究，研究主体必须在披露概略研究的同一段或紧随其后的一段发布警示性声明。

For all Scoping Studies, the entity must include a cautionary statement in the same paragraph as, or immediately following, the disclosure of the Scoping Study.

警示性声明示例如下：

An example cautionary statement follows:

"本报告所提及的概略研究，是基于低级别的技术与经济评价，在当前阶段尚不足以支持矿石储量的估算或确定经济合理的开发方案，也不足以保证概略研究的结论终将得以实现。"

The Scoping Study referred to in this report is based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.'

在第 20 条论述"最终经济开采的合理预期"时，本规范规定合资格人应就可能影响经济开采预期的所有技术和经济因素(包括大致的采矿参数)进行评估(即使只是初步评估)。虽然概略研究或许能够为这种评估提供基础，但本规范并未要求在报告矿产资源量前必须先完成概略研究。

In discussing 'reasonable prospects for eventual economic extraction' in Clause 20, the Code requires an assessment (albeit preliminary) in respect of all matters likely to influence the prospect of economic extraction including the approximate mining parameters by the Competent Person. While a Scoping Study may provide the basis for that assessment, the Code does not require a Scoping Study to have been completed to report a Mineral Resource.

概略研究通常是对项目进行的首次经济评价工作，其依据可以是直接搜集的项目数据，并借鉴类似的矿床或企业的数据。概略研究也经常被公司内部用于对比和规划。在报告概略研究的一般性结果时，应当谨慎行事，以确保不会暗示矿石储量已经确定，或断言开发是经济合理的。就此而言，可以对在概略研究中所采纳的矿产资源量信息和使用的方法加以说明，但不应将贫化后的吨数和品位报告为矿石储量。

Scoping Studies are commonly the first economic evaluation of a project undertaken and may be based on a combination of directly gathered project data together with assumptions borrowed from similar deposits or operations to the case envisaged. They are also commonly used internally by companies for comparative and planning purposes. Reporting the general results of a Scoping Study needs to be undertaken with care to ensure there is no implication that Ore Reserves have been established or that economic development is assured. In this regard it may be appropriate to indicate the Mineral Resource inputs to the Scoping Study and the processes applied, but it is not appropriate to report the diluted tonnes and grade as if they were Ore Reserves.

虽然在概略研究过程中，可以制定初步的开采和加工方案，但不准作为矿石储量来开发。

While initial mining and processing cases may have been developed during a Scoping Study, it must not be used to allow an Ore Reserve to be developed.

39. **初步可行性研究(预可行性研究)是一个针对矿产项目技术可行性和经济合理性而对一系列开发方案进行的综合性研究。项目已经进展到需确定合适的开采方案(就地下开采而言)和开采境界(就露天采矿而言)、以及有效矿石加工/选冶方法的阶段。该阶段研究包括一个依据合理的转换因素和其它相关因素而进行的财务分析。这些分析应足以让合资格人在报告时合理确定是否把全部或部分矿产资源量转化为矿石储量。预可行性研究的可靠程度要比可行性研究低。**

A Preliminary Feasibility Study (Pre-Feasibility Study) is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors which are sufficient for a Competent Person, acting reasonably, to determine if all or part of the Mineral Resources may be converted to an Ore Reserve at the time of reporting. A Pre-Feasibility Study is at a lower confidence level than a Feasibility Study.

如第 29 条所述，要确定有多少确定的和标示的矿产资源量可以转化成矿石储量，必须正式评估所有转换因素。

As noted in Clause 29, formal assessment of all Modifying Factors is required in order to determine how much available Measured and Indicated Mineral Resources can be converted to Ore Reserves.

预可行性研究要考虑所有转换因素的应用与描述(参见表 1 第 4 组所述)，以展示经济合理性并支持矿石储量公开报告。预可行性研究将确定首选的开采、选冶加工和基础设施方面的要求与能力，但这些事项不一定是最终定案。此外，还应充分开展对环境和社会经济影响及要求具体的评估。预可行性研究将强调指出需要在最终研究阶段进一步改善的领域。

A Pre-Feasibility Study will consider the application and description of all Modifying factors (as outlined in Table 1, section 4) to demonstrate economic viability and to support an Ore Reserve Public Report. The Pre-Feasibility Study will identify the preferred mining, processing, and infrastructure requirements and capacities, but will not yet have finalised these matters. Detailed assessments of environmental and socio-economic impacts and requirements will also be well advanced. The Pre-Feasibility Study will highlight areas that require further refinement within the final study stage.

40. **可行性研究是指对矿产项目所选定开发方案进行的全面技术与经济研究，包括对转换因素和任何其他相关运作因素进行详细的评价，以及对项目详细的财务分析，以证明在报告时该项目的开采是经济合理的(经济上可开采)。可行性研究的结果可以用于作为项目拥有者或金融机构做出最终决策的基础，以继续推进或对该项目融资。可行性研究的可靠程度比预可行性研究要高。**

A Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study.

本规范并未规定一定要开展全面可行性研究后才可以将矿产资源量转化成矿石储量，但规定了至少要已完成预可行性研究，确定了采矿计划在技术上可行和经济合理，而且已考虑了实质性转换因素。

The Code does not require that a full Feasibility Study has been undertaken to convert Mineral Resources to Ore Reserves, but it does require that at least a Pre-Feasibility Study will have been carried out that will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.

诸如"融资可行性研究"和"最终可行性研究"等术语，等同于本条款所定义的可行性研究。

Terms such as "Bankable Feasibility Study" and "Definitive Feasibility Study" are noted as being equivalent to a Feasibility Study as defined in this Clause.

可行性研究的可信度高于预可行性研究，通常采用足够严格的标准完成包括采矿、基础设施和选矿加工设计，并以此作为投资决策和支持项目融资的基础。社会、环境和政府审批、许可及协议等已经取得，或在预期的时间框架内接近最终确定。可行性研究对所有转化因素(参见表 1 第 4 组所述)的应用与描述应比预可行性研究更为详细，还可能强调诸如详细的采矿生产进度计划、施工和达产计划，以及项目执行计划等项目实施问题。

A Feasibility Study is of a higher level of confidence than a Pre-Feasibility Study and would normally contain mining, infrastructure and process designs completed with sufficient rigour to serve as the basis for an investment decision or to support project financing. Social, environmental and governmental approvals, permits and agreements will be in place, or will be approaching finalisation within the expected development timeframe. The Feasibility Study will contain the application and description of all Modifying factors (as outlined in Table 1, section 4) in a more detailed form than in the Pre-Feasibility Study, and may address implementation issues such as detailed mining schedules, construction ramp up, and project execution plans.

含矿充填物、残矿、矿柱、低品位矿化体、矿堆、废矿和尾矿报告

Reporting of Mineralised Fill, Remnants, Pillars, Low Grade Mineralisation, Stockpiles, Dumps and Tailings

41. 本规范适用于所有具有潜在经济性的含矿物料的报告。其中包括含矿充填物、残矿、矿柱、低品位矿体、矿堆、废矿和尾矿(残留物质)等，在计为矿产资源量时具有可最终经济开采的合理预期，及计为矿石储量时按常规可进行合理开采的含矿物料。除非另有说明，否则本规范的所有其他条款(包括图 1)均全部适用。

The Code applies to the reporting of all potentially economic mineralised material. This can include mineralised fill, remnants, pillars, low grade mineralisation, stockpiles, dumps and tailings (remnant materials) where there are reasonable prospects for eventual economic extraction in the case of Mineral Resources, and where extraction is reasonably justifiable in the case of Ore Reserves. Unless otherwise stated, all other Clauses of the Code (including Figure 1) apply.

本条款所述含矿物料，在报告矿产资源量和矿石储量时，均可视为与原位矿类似。其可采性应由具有相关经验的专业人士来判断。

Any mineralised material as described in this Clause can be considered to be similar to in situ mineralisation for the purposes of reporting Mineral Resources and Ore Reserves. Judgements about the mineability of such mineralised material should be made by professionals with relevant experience.

若本条款所述含矿物料矿化物质的全部或部分不具有最终经济开采的合理前景，则这部分含矿物料不能划归矿产资源量或矿石储量。若该含矿物料的一部分目前具有次经济意义，但可合理预期其将来具有经济意义，则可将其划归矿产资源量。若技术和经济研究表明在切合实际的假定条件下可以对其合理开采，则该部分含矿物料可划归矿石储量。

If there are no reasonable prospects for the eventual economic extraction of all or part of the mineralised material as described in this Clause, then this material cannot be classified as either Mineral Resources or Ore Reserves. If some portion of the mineralised material is currently sub-economic, but there is a reasonable expectation that it will become economic, then this material may be classified as a Mineral Resource. If technical and economic studies have demonstrated that economic extraction could reasonably be justified under realistically assumed conditions, then the material may be classified as an Ore Reserve.

上述指南同样适用于低品位原位矿，有时也称为"含矿废石"或"边际品位矿体"，往往都暂时堆存，直至矿山寿命结束时才予以处理。虽然可将此类矿化物合并计入矿产资源量和矿石储量总量中，但是，为了清楚地理解，建议在公众报告中对其吨位和品位估算结果单独列项。

The above guidelines apply equally to low-grade in situ mineralisation, sometimes referred to as 'mineralised waste' or 'marginal grade material', and often intended for stockpiling and

treatment towards the end of mine life. For clarity of understanding, it is recommended that tonnage and grade estimates of such material be itemised separately in Public Reports, although they may be aggregated with total Mineral Resource and Ore Reserve figures.

矿堆分为地表和地下矿堆两种，包括采场已采下矿石，也可包括目前存于采矿系统中的矿石。矿物加工过程中(包括堆浸)的矿化物料，若要报告，则应单独出具报告。
Stockpiles are defined to include both surface and underground stockpiles, including broken ore in stopes, and can include ore currently in the ore storage system. Mineralised material in the course of being processed (including leaching), if reported, should be reported separately.

煤炭资源量和储量报告 Reporting of Coal Resources and Reserves

42. 本规范第 42 至第 44 条专门论述了煤炭资源量和煤炭储量的公开报告问题。除非另有说明，否则本规范第 1 至 41 条和第 51 条(包括图 1)均适用。表 1 在编制煤炭资源量和储量报告时也要予以考虑。
Clauses 42 to 44 of the Code address matters that relate specifically to the Public Reporting of Coal Resources and Coal Reserves. Unless otherwise stated, Clauses 1 to 41 and Clause 51 of this Code (including Figure 1) apply. Table 1 should be considered when reporting on Coal Resources and Reserves.

一般情况下，煤炭公开报告的要求与其他矿产品的要求相同，只是有一些术语替换，如将"矿产"替换为"煤炭"，将"品位"替换为"煤质"。
For purposes of Public Reporting, the requirements for coal are those for other commodities with the replacement of terms such as 'mineral' by 'coal' and 'grade' by 'quality'.

对于不以向投资公众提供信息为主要目的煤炭资源量和储量估算及法定报告编写，可以参阅新南威尔士州煤田地质理事会(Coalfields Geology Council of New South Wales)和昆士兰州资源理事会(Queensland Resources Council)不时发表的《澳大利亚潜在煤、煤炭资源量和煤炭储量估算与报告指南》或其后续文件。这些指南的效力并不超越 JORC 规范中关于公开报告的规定和意图。合资格人在应用这些指南时应发挥自己的判断力，确保这些指南适用于所要报告的情况。它们可能并非对澳大利亚或海外的所有情况都适用。
For guidance on the estimation of Coal Resources and Reserves and on statutory reporting not primarily intended for providing information to the investing public, readers are referred to the 'Australian Guidelines for Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves' or its successor document as published from time to time by the Coalfields Geology Council of New South Wales and the Queensland Resources Council. These guidelines do not override the provisions and intentions of the JORC Code for Public Reporting. Competent

Persons should as always exercise their judgement in the application of these guidelines to ensure they are appropriate to the circumstances being reported. They may not be appropriate for use in all situations in Australia or overseas.

由于潜在煤可能对规划和土地使用产生影响，政府可能会要求估算不受中短期经济因素制约的潜在煤储量。本 JORC 规范不包含此类估算。亦请参阅第 6 条和第 20 条的指南。

Because of its impact on planning and land use, governments may require estimates of inventory coal that are not constrained by short- to medium-term economic considerations. The JORC Code does not cover such estimates. Refer also to the guidelines to Clauses 6 and 20.

43. 上文所定义"矿产资源量"和"矿石储量"等术语及其分级分类也适用于煤炭报告。但如果发布报告的公司愿意，也可以用"煤炭资源量"和"煤炭储量"及相应的次级分类术语来替换。

The terms 'Mineral Resource(s)' and 'Ore Reserve(s)', and the subdivisions of these as defined above, apply also to coal reporting, but if preferred by the reporting company, the terms 'Coal Resource(s)' and 'Coal Reserve(s)' and the appropriate subdivisions may be substituted.

44. "可销售煤炭储量"指的是经过洗选或已提高质量的煤炭，是在考虑采矿、贫化和加工因素后转化的储量，该储量必须与煤炭储量一起报告，但不能取代煤炭储量报告。对于为获得可销售煤炭储量而预测的洗煤产出率依据，必须予以说明。

'Marketable Coal Reserves', representing beneficiated or otherwise enhanced coal product where modifications due to mining, dilution and processing have been considered, must be publicly reported in conjunction with, but not instead of, reports of Coal Reserves. The basis of the predicted yield to achieve Marketable Coal Reserves must be stated.

因为投资者需要了解所要销售的煤炭，所以要求报告"可销售煤炭储量"。

Since investors need to be informed on the products intended to be sold, reporting of Marketable Coal Reserves is required.

除非样品测试分析数据能够表明特定的结焦性，否则不能提及"焦煤"或"炼焦煤"及其他任何结焦性术语。

Reference to the terms 'coking coal' or 'metallurgical coal', or any reference to coking properties, should not be made until specific coking properties are demonstrated by analytical results for samples from a deposit.

金刚石勘查结果、矿产资源量与矿石储量报告

Reporting of Diamond Exploration Results, Mineral Resources and Ore Reserves

45. 本规范第 45 至 48 条专门论述了金刚石和其他宝石勘查结果、矿产资源量和矿石储量的公开报告问题。除非另有说明，否则本规范第 1 至 41 条和第 51 条(包括图 1)均适用。表 1 在编制金刚石和其他宝石的勘查结果、矿产资源量和矿石储量报告时，也要予以考虑。

Clauses 45 to 48 of the Code address matters that relate specifically to the Public Reporting of Exploration Results, Mineral Resources and Ore Reserves for diamonds and other gemstones. Unless otherwise stated, Clauses 1 to 41 and Clause 51 of this Code (including Figure 1) apply. Table 1 should be considered when reporting Exploration Results, Mineral Resources and Ore Reserves for diamonds and other gemstones.

一般情况下，金刚石和其他宝石公开报告的要求与其他矿产品的要求类似，只是有一些术语替换，如将"矿产"替换为"金刚石"，将"品位"替换为"品位及平均金刚石价值"。"品质"一词不能用来替换"品位"，因为在金刚石矿床中，这两个词具有明显不同的含义。有关金刚石资源和储量估算与报告的其他行业指南也可使用，但任何情况下其效力均不准超越 JORC 规范的规定和意图。

For the purposes of Public Reporting, the requirements for diamonds and other gemstones are generally similar to those for other commodities with the replacement of terms such as 'mineral' by 'diamond' and 'grade' by 'grade and average diamond value'. The term 'quality' should not be substituted for 'grade,' since in diamond deposits these have distinctly separate meanings. Other industry guidelines on the estimation and reporting of diamond resources and reserves may be useful but will not under any circumstances override the provisions and intentions of the JORC Code.

金刚石矿床的许多特征不同于其他矿床，如典型的金属和煤矿床，因此需要加以特别考虑。这些特征包括金刚石矿物含量通常较低、原生矿床和砂矿床的变化性、金刚石的颗粒性、金刚石估价的专门要求，以及金刚石资源量和储量估算中的固有困难和不确定性。

A number of characteristics of diamond deposits are different from those of, for example, typical metalliferous and coal deposits and therefore require special consideration. These include the generally low mineral content and variability of primary and placer deposits, the particulate nature of diamonds, the specialised requirement for diamond valuation and the inherent difficulties and uncertainties in the estimation of diamond resources and reserves.

46. 报告从采样过程中回收的金刚石，必须提供所依据的取样方法、回收方法和金刚石回收的实际信息。只有当回收的金刚石太小而没有商业意义时，才能忽略不计这部分金刚石的重量。在报告中应说明这一较低取舍边界大小。

Reports of diamonds recovered from sampling programmes must provide material information relating to the basis on which the sample is taken, the method of recovery and the recovery of the diamonds. The weight of diamonds recovered may only be omitted from the report when the

diamonds are considered to be too small to be of commercial significance. This lower cut-off size should be stated.

金刚石和其他宝石的矿石颗粒的大小变化在空间上的分布及其价格，是资源量和储量估算的关键因素。初期勘查阶段，取样和探边钻井通常无法提供这些信息。这些信息要依赖于大孔径钻探，尤其是大宗取样。

The stone size distribution and price of diamonds and other gemstones are critical components of the resource and reserve estimates. At an early exploration stage, sampling and delineation drilling will not usually provide this information, which relies on large diameter drilling and, in particular, bulk sampling.

为表明资源具有合理的经济开发前景，有必要对金刚石颗粒的大小变化在空间上的分布及其价格做出一定的描述，无论对这些因素的分析多么初级。确定单一、单相矿床的推测矿产资源量时，可通过代表性的大孔径钻探来取得这类信息。更为常见的是，可以采用某种大宗取样方式，如浅坑和探槽，来取得较大的样品包。

In order to demonstrate that a resource has reasonable prospects for economic extraction, some description of the likely stone size distribution and price is necessary, however preliminary the analysis of these may be. To determine an Inferred Mineral Resource in simple, single-facies or single-phase deposits, such information may be obtainable by representative large diameter drilling. More often, some form of bulk sampling, such as pitting and trenching, would be employed to provide larger sample parcels.

要升级为推定矿产资源量，并由此转换成可信的矿石储量，则可能需要范围更广的大宗取样，以全面确定金刚石颗粒的大小变化在空间上的分布及其价值。通常会采用为取得足够金刚石而设计的地下开发方式来获得这种大宗取样，以便对价格做出有把握的估算。

In order to progress to an Indicated Mineral Resource, and from there to a Probable Ore Reserve, it is likely that much more extensive bulk sampling would be needed to fully determine the stone size distribution and value. Commonly such bulk samples would be obtained by underground development designed to obtain sufficient diamonds to enable a confident estimate of price.

在复杂的矿床中，可能很难确保所采集的大宗样品能真正代表整个矿床。缺乏直接大宗取样、难以确切展示矿物大小得空间连续性变化与价值之间的关系，都会影响资源的恰当分类。

In complex deposits, it may be very difficult to ensure that the bulk samples taken are truly representative of the whole deposit. The lack of direct bulk sampling, and the uncertainty in demonstrating spatial continuity of size and price relationships should be persuasive in determining the appropriate resource category.

47. 若金刚石矿产资源量或金刚石矿石储量品位(每吨克拉)是以微粒金刚石产出的频率与具有商业意义的金刚石颗粒产出的频率之间的相互关系为依据的，对这一点必须加以阐明，并应解释其过程的可靠性，还应报告微粒金刚石的取舍边界筛孔大小。
Where diamond Mineral Resource or Ore Reserve grades (carats per tonne) are based on correlations between the frequency of occurrence of micro-diamonds and of commercial size stones, this must be stated, the reliability of the procedure must be explained and the cut-off sieve size for micro-diamonds reported.

48. 涉及金刚石或其他宝石矿化的公开报告中，在报告一包金刚石或宝石的估价时，必须附有验证该估价独立性的声明。此估价必须以公认的、享有信誉和拥有合格资质的专家所出具的报告为依据。
For Public Reports dealing with diamond or other gemstone mineralisation, it is a requirement that any reported valuation of a parcel of diamonds or gemstones be accompanied by a statement verifying the independence of the valuation. The valuation must be based on a report from a demonstrably reputable and qualified expert.

若报告一包金刚石的估价，必须说明所含金刚石的克拉重量和较低边界大小，并以美元每克拉为单位说明金刚石的价值。若估价用于金刚石矿产资源量或矿石储量的估算，则此估价必须以能代表矿床金刚石颗粒群的颗粒大小、形状及颜色在空间分布的一包样品为依据。
If a valuation of a parcel of diamonds is reported, the weight in carats and the lower cut-off size of the contained diamonds must be stated and the value of the diamonds must be given in US dollars per carat. Where the valuation is used in the estimation of diamond Mineral Resources or Ore Reserves, the valuation must be based on a parcel representative of the size, shape and colour distributions of the diamond population in the deposit.

使用完全分离法加工获得的金刚石样品，不应报告其估价。
Diamond valuations should not be reported for samples of diamonds processed using total liberation methods.

工业矿物勘查结果、矿产资源量与矿石储量报告

Reporting of Industrial Minerals Exploration Results, Mineral Resources and Ore Reserves

49. 符合本规范第 6 条和第 7 条规定标准的工业矿物，均属本 JORC 规范的适用范围。在本 JORC 规范中，工业矿产包括高岭土、磷酸盐、石灰石、滑石等矿种。
Industrial minerals are covered by the JORC Code if they meet the criteria set out in Clauses 6 and 7 of the Code. For the purpose of the JORC Code, industrial minerals can be considered to cover commodities such as kaolin, phosphate, limestone, talc, etc.
对于特定工业要求定义的工业矿产，在估算其矿产资源量或矿石储量时，必须按项目所依据的一种或多种矿产报告，且必须包含这些矿产的工业要求。

For minerals that are defined by a specification, the Mineral Resource or Ore Reserve estimation must be reported in terms of the mineral or minerals on which the project is to be based and must include the specification of those minerals.

报告工业矿产信息及估算时，本 JORC 规范的主要原则和宗旨也同样适用，应牢记于心。分析化验结果有时并不适用，其他质量标准可能更加恰当。如果有的指标比矿物本身的成分更具有针对性，譬如有害矿物或物理性质等标准，则应相应报告这些标准。

When reporting information and estimates for industrial minerals, the key principles and purpose of the JORC Code apply and should be borne in mind. Assays may not always be relevant, and other quality criteria may be more applicable. If criteria such as deleterious minerals or physical properties are of more relevance than the composition of the bulk mineral itself, then they should be reported accordingly.

工业矿产资源量和储量估算因素与本 JORC 规范所涉及的其他矿床类型相同。在报告工业矿产资源量或矿石储量之前，要对该矿产的某些主要特征或性质进行特别说明，如产品规格、市场远近和产品适销性。

The factors underpinning the estimation of Mineral Resources and Ore Reserves for industrial minerals are the same as those for other deposit types covered by the JORC Code. It may be necessary, prior to the reporting of a Mineral Resource or Ore Reserve, to take particular account of certain key characteristics or qualities such as likely product specifications, proximity to markets and general product marketability.

对于有些工业矿产而言，惯例是报告可销售产品，而不是报告"开采的"产品，后者传统上被视为矿石储量。JORC 规范推荐的方法是，若报告可销售产品，要与矿石储量一同报告，而不能取代矿石储量报告。然而，由于商业敏感性，这种报告方式并非都可行。在任何情况下，在报告可销售产品时务必要包含一份清楚的说明，确保读者完全了解所报告的是内容。

For some industrial minerals, it is common practice to report the saleable product rather than the 'as- mined' product, which is traditionally regarded as the Ore Reserve. JORC's preference is that, if the saleable product is reported, it should be in conjunction with, not instead of, reporting of the Ore Reserve. However, it is recognised that commercial sensitivities may not always permit this preferred style of reporting. It is important that, in all situations where the saleable product is reported, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

有些工业矿产矿床可以产出多种用途和/或规格的产品。若编制报告的公司认为这一点具有实质性意义，可对此多种产品分别量化说明或按其占整个矿床百分比的形式加以说明。

Some industrial mineral deposits may be capable of yielding products suitable for more than one application and/or specification. If considered material by the reporting company, such

multiple products should be quantified either separately or as a percentage of the bulk deposit.

金属当量报告 Reporting of Metal Equivalents

50. 以金属当量(某一主要金属的单一当量品位)方式报告多金属矿床的勘查结果、矿产资源量或矿石储量时，必须说明用于得出各成分净值的所有重要因素。
The reporting of Exploration Results, Mineral Resources or Ore Reserves for polymetallic deposits in terms of metal equivalents (a single equivalent grade of one major metal) must show details of all material factors contributing to the net value derived from each constituent.

任何提及金属当量的公开报告，至少必须随附以下信息，以符合第 4 条所规定的透明性、实质性和合资格性：
The following minimum information must accompany any Public Report that includes reference to metal equivalents, in order to conform to the principles of Transparency, Materiality and Competence, as set out in Clause 4:

- 包含在金属当量计算中的所有金属的每一个品位，
  individual grades for all metals included in the metal equivalent calculation,

- 所有金属的设定价格(公司应披露实际的设定价格。在没有披露用于计算金属当量的价格的情况下，单纯提及现货价格是不够的。但是，若所使用的实际价格具有商业敏感性，则公司必须披露充足的信息(或许采用叙述而非数字形式，以便投资者了解用于确定这些价格的方法)，assumed commodity prices for all metals (Companies should disclose the actual assumed prices. It is not sufficient to refer to a spot price without disclosing the price used in calculating the metal equivalent. However where the actual prices used are commercially sensitive, the company must disclose sufficient information, perhaps in narrative rather than numerical form, for investors to understand the methodology it has used to determine these prices),

- 所有金属的设定的选冶回收率，以及对设定回收率依据的论述(选冶试验工作、详细矿物学分析、类似矿床等)，
  assumed metallurgical recoveries for all metals and discussion of the basis on which the assumed recoveries are derived (metallurgical test work, detailed mineralogy, similar deposits, etc),

- 明确声明公司认为包含在金属当量计算中的所有元素，均具备合理的回收与销售潜力，以及
  a clear statement that it is the company's opinion that all the elements included in the metal equivalents calculation have a reasonable potential to be recovered and sold, and
- 所使用的计算公式。
  the calculation formula used.

多数情况下，选择以等价物方式报告的金属，应当是在金属当量计算中比重最大的金属。若没有选择该金属，则报告中必须明确解释选择另一种金属的理由。
In most circumstances, the metal chosen for reporting on an equivalent basis should be the one that contributes most to the metal equivalent calculation. If this is not the case, a clear explanation of the logic of choosing another metal must be included in the report.

在计算有回收价值的金属当量时，必须使用每种金属的估算选冶回收率。
Estimates of metallurgical recoveries for each metal must be used to calculate meaningful metal equivalents.

若没有选冶回收率信息，或无法进行合理可靠的估算，则不适宜使用金属当量方式来报告。
Reporting on the basis of metal equivalents is not appropriate if metallurgical recovery information is not available or able to be estimated with reasonable confidence.

对于很多处在勘查结果阶段的项目，可能没有选冶回收率信息，或无法进行合理可靠的估算。这种情况下，报告金属当量可能产生误导。
For many projects at the Exploration Results stage, metallurgical recovery information may not be available or able to be estimated with reasonable confidence. In such cases reporting of metal equivalents may be misleading.

原位或原地估值报告 Reporting of In Situ or In Ground Valuations

51. 发布原位或原地经济估值，违反了本规范的原则(参见第 4 条)，这是因为这些术语的使用不透明、缺乏实质性信息。此外，这种做法也违背了本规范第 28 条的宗旨。公司不准在涉及勘查结果、矿产资源量或矿床规模的报告中，报告此类原位或原地经济估值。
The publication of in situ or 'in ground' financial valuations breaches the principles of the Code (as set out in Clause 4) as the use of these terms is not transparent and lacks material information. It is also contrary to the intent of Clause 28 of the Code. Such in situ or in ground financial valuations must not be reported by companies in relation to Exploration Results, Mineral Resources or deposit size.

这类经济估值(通常以美元为单位)使用，与经济可行性、价值或投资者潜在收益没有或几乎没有关系。
The use of such financial valuations (usually quoted in dollars) has little or no relationship to economic viability, value or potential returns to investors.

这些经济估值可能在明显没有考虑转换因素，尤其是采矿、加工、冶金、基础设施、经济、市场、法律、环境、社会和政府因素(第 12 条及第 29 至 36 条)的情况下，暗示具备经济可行性。
These financial valuations can imply economic viability without the apparent consideration of the application of the Modifying Factors, (Clause 12 and Clauses 29 to 36), in particular, the

mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social, and governmental factors.

在判定项目可行性时，有必要考虑所有合理的转换因素(第 29 至 36 条)，以判定该矿化体的经济价值。
In determining project viability it is necessary to include all reasonable Modifying Factors (Clauses 29 to 36) to determine the economic value that can be extracted from the mineralisation.

很多具备高原位估值的矿床却从未得到开发，是因为对所有合理的转换因素加以考虑后，发现这些矿床的净现值为负数。
Many deposits with large in ground values are never developed because they have a negative Net Present Value when all reasonable Modifying Factors are considered.

如果作为勘查结果的组成部分报告此类经济估值，或在评估通常含有大比例推测的矿产资源量的矿床时报告此类经济估值，公司表述的不一定是项目的经济可行性，也不一定是该矿化体可以开采的净经济价值。
By reporting such financial valuations as a component of Exploration Results or when evaluating deposits that commonly include large portions of Inferred Mineral Resources, companies are not necessarily representing the economic viability of the project, or the net economic value that can be extracted from the mineralisation.

表 1　评估和报告准则查对清单

Table 1　Checklist of Assessment and Reporting Criteria

表 1 是勘查结果、矿产资源量和矿石储量公开报告编制者作为查对或参考使用的清单。
Table 1 is a checklist or reference for use by those preparing Public Reports on Exploration Results, Mineral Resources and Ore Reserves.

为遵守本规范的各项原则，在**合资格人**编制的文件中，应按照“如果没有，为什么没有”的原则，提供涉及表 1 各相关组的说明，且对于重要项目，根据要求，必须根据第 19、27 和 35 条的具体要求在公开报告中提供此类说明。这是为了确保让投资者明确了解，相关条项是否在经过考虑后被认定为重要性不高，还是有待涉及或解决。
In the context of complying with the Principles of the Code, comment on the relevant sections of Table 1 should be provided on an ‘if not, why not’ basis within the Competent Person’s documentation and must be provided where required according to the specific requirements of Clauses 19, 27 and 35 for significant projects in the Public Report.

This is to ensure that it is clear to the investor whether items have been considered and deemed of low consequence or have yet to be addressed or resolved.

自始至终，相关性和实质性是高于一切的原则，决定着需要公开报告什么样的信息，而对于所有可能实质性影响读者对所报告结果或估算的理解或解读的事项，合资格人都必须提供充分的说明。在数据不充分或不确定性影响到勘查结果声明或矿产资源量或矿石储量估算的可靠性或置信水平时，这一点尤为重要。

As always, relevance and Materiality are overriding principles that determine what information should be publicly reported and the Competent Person must provide sufficient comment on all matters that might materially affect a reader's understanding or interpretation of the results or estimates being reported. This is particularly important where inadequate or uncertain data affect the reliability of, or confidence in, a statement of Exploration Results or an estimate of Mineral Resources or Ore Reserves.

表 1 所列各项准则的顺序和分组体现了勘查和评估的常规系统方法。第一组"取样方法和数据"的准则适用于后面各组。在查对清单的其它部分中，前面各组的准则往往都适用于后面各组，在估算和报告时应予以考虑。

The order and grouping of criteria in Table 1 reflects the normal systematic approach to exploration and evaluation. Criteria in section 1 'Sampling Techniques and Data' apply to all succeeding sections. In the remainder of the table, criteria listed in preceding sections would often also apply and should be considered when estimating and reporting.

合资格人有责任考虑如下所有准则及适用于具体项目或作业研究的补充准则。各条准则的相对重要性，依据具体项目及做决定时相关法律和经济条件的不同而异。

It is the responsibility of the Competent Person to consider all the criteria listed below and any additional criteria that should apply to the study of a particular project or operation. The relative importance of the criteria will vary with the particular project and the legal and economic conditions pertaining at the time of determination.

某些情况下，公开报告剔除某些具有商业敏感性的信息是合理的。剔除商业敏感性信息的决定，是发布公开报告的公司的决定，此类决定应当依据公司所在司法管辖区的相关公司法规做出。以澳大利亚为例，剔除商业敏感性信息的决定，应当依据《2001 年公司法》和 ASX 上市规则及其指导摘要做出。

In some cases it will be appropriate for a Public Report to exclude some commercially sensitive information. A decision to exclude commercially sensitive information would be a decision for the company issuing the Public Report, and such a decision should be made in accordance with any relevant corporations regulations in that jurisdiction. For example, in Australia decisions to exclude commercially sensitive information need to be made in accordance with the Corporations Act 2001 and the ASX listing rules and guidance notes.

若公开报告剔除商业敏感性信息，则报告应提供摘要信息(例如，若经济假定的数字价值具有商业敏感性，则应说明用于得出经济假定的方法)以及相关背景，以便投资者或潜在投资者及其顾问了解相关信息。

In cases where commercially sensitive information is excluded from a Public Report, the report should pro- vide summary information (for example the methodology used to determine economic assumptions where the numerical value of those assumptions are commercially sensitive) and context for the purpose of informing investors or potential investors and their advisers.

JORC 表 1
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第一组取样技术和数据
Section 1 Sampling Techniques and Data

(该组准则适用于后续各组)
(Criteria in this section apply to all succeeding sections)

准则 Criteria	解释 Explanation
取样方法 *Sampling techniques*	• *取样的方式和质量(举例：刻槽、随机捡块或适用于所调查矿产的行业专用标准测试工具，如伽马测井仪或手持式 X 荧光分析仪等)。"取样"方式不限于上述所列。* *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *说明为确保样品代表性及测试工具或测试系统的校准而采取的措施。* *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *确定矿化的各个方面对公开报告具有实质性意义。若采用了"行业标准"工作，任务就相对简单(如"采用反循环钻进取得了1 米进尺的样品，从中取3 千克粉样，以制备30 克火法试样")。若为其他情况，可能需要更详细的解释，如粗粒金本身存在的取样问题。不常见的矿种或矿化类型(如海底结核)，可能需要披露详细信息。* *Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*
钻探方法 *Drilling techniques*	• *钻探类型(如岩心钻、反循环钻、无护壁冲击钻、气动回转钻、螺旋钻、班加钻、声波钻等)及其详细信息(如岩心直径、三重管或标准管、采用反循环钻等预开孔后施工的岩心钻探进尺、可取样钻头或其它钻头、岩心是否定向，若是，采用什么方法，等等)。* *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*
钻探样品采取率 *Drill sample recovery*	• *记录和评价岩心/屑采取率的方法以及评价结果。* *Method of recording and assessing core and chip sample recoveries and results assessed.* • *为最大限度提高样品采取率和保证样品代表性而采取的措施。* *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *样品采取率和品位之间是否相关，是否由于颗粒粗细不同造成选择性采样导致样品出现偏差。* *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*

规范采用普通字体，指南采用缩进斜体，定义采用粗体字。

准则 Criteria	解释 Explanation
编录 *Logging*	• *岩心/屑样品的地质和工程地质编录是否足够详细，以支持相应矿产资源量的估算、采矿研究和选冶研究。* *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *编录是定量还是定性。岩心(或探井、刻槽等)照片。* *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *总长度和已编录样段所占比例。* *The total length and percentage of the relevant intersections logged.*
二次取样方法和样品制备 *Sub-sampling techniques and sample preparation*	• *若为岩心，是切开还是锯开，取岩心的 1/4、1/2 还是全部。* *If core, whether cut or sawn and whether quarter, half or all core taken.* • *若非岩心，是刻槽缩分取样、管式取样还是旋转缩分等取样，是取湿样还是干样* *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *对所有样品类型，样品制备方法的性质、质量和适用性。* *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *为了最大限度确保样品代表性而在各个二次取样阶段采取的质量控制程序。* *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *为保证样品能够代表所采集的原位物质而采取的措施，如现场重复/另一半取样的结果。* *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *样品大小是否与所采样目标矿物的粒度相适应。* *Whether sample sizes are appropriate to the grain size of the material being sampled.*
分析数据和实验室测试质量 *Quality of assay data and laboratory tests*	• *所采用分析和实验室程序的性质、质量和适用性，以及采用简分析法或全分析法。* *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *对地球物理工具、光谱分析仪、手持式 X 射线荧光分析仪等，用于判定分析的参数，包括仪器的品牌和型号、读取次数、所采用的校准参数及其依据等。* *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *所采用的质量控制程序的性质(如标准样、空白样、副样、外部实验室检定)以及是否确定了准确度(即无偏差)及精度的合格标准。* *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*
取样和分析测试的核实 *Verificationof sampling and assaying*	• *独立人员或其它公司人员对重要样段完成的核实。* *The verification of significant intersections by either independent or alternative company personnel.* • *验证孔的使用* *The use of twinned holes.* • *原始数据记录、数据录入流程、数据核对、数据存储(物理和电子形式)规则。* *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *论述对分析数据的任何调整。* *Discuss any adjustment to assay data.*
数据点位置 *Location of data points*	• *矿产资源量估算中所使用的钻孔(开孔和测斜)、探槽、矿山坑道和其他位置的准确性及质量。* *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *所使用的坐标系统。* *Specificationof the grid system used.* • *地形控制测量的质量和完备性。* *Quality and adequacy of topographic control.*

准则 Criteria	解释 Explanation
数据密度和分布 *Data spacing and distribution*	• *勘查结果报告的数据密度。* *Data spacing for reporting of Exploration Results.* • *数据密度和分布是否达到为所采用的矿产资源量和矿石储量估算分类所要求的地质和品位连续性。Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *是否采用组合样品。* *Whether sample compositing has been applied.*
地质构造与取样方位的关系 *Orientation of data in relation to geological structure*	• *结合矿床类型，对已知的可能的构造及其延伸，取样方位能否做到无偏取样。* *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *若钻探方位与关键矿化构造方位之间的关系被视为引发了取样偏差，倘若这种偏差具有实质性影响，就应予以评估和报告。* *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*
样品安全性 *Sample security*	• *为确保样品安全性而采取的措施。* *The measures taken to ensure sample security.*
审核或复核 *Audits or reviews*	• *对取样方法和数据的审核或核查结果。* *The results of any audits or reviews of sampling techniques and data.*

第二组　勘查结果报告
Section 2 Reporting of Exploration Results

(上一组准则亦适用于本组)
(Criteria listed in the preceding section also apply to this section.)

准则 Criteria	解释 Explanation
矿业权与地权状况 *Mineral tenement and land tenure status*	• *类型、检索名称/号码、位置和所有权，包括同第三方达成的协议或重要事项，如合资、合作、开采权益、原住民产权、历史古迹、野生动物保护区或国家公园、环境背景等。* *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *编制报告时的土地权益安全性以及取得该地区经营许可证的已知障碍。* *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*
其他他方的勘查 *Explorationdone by other parties*	• *对其他方勘查的了解和评价。* *Acknowledgment and appraisal of exploration by other parties.*
地质 *Geology*	• *矿床类型、地质环境和矿化类型。* *Deposit type, geological setting and style of mineralisation.*

准则 Criteria	解释 Explanation
钻孔信息 *Drill hole Information*	• *简要说明对了解勘查结果具有实质意义的所有信息，包括表列说明所有实质性钻孔的下列信息：* *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* • *钻孔开孔的东和北坐标* *easting and northing of the drill hole collar* • *钻孔开孔的标高或海拔标高(以米为单位的海拔高度)* *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* • *钻孔倾角和方位角* *dip and azimuth of the hole* • *见矿厚度和见矿深度* *down hole length and interception depth* • *孔深。* *hole length.* • *若因为此类信息不具备实质性影响而将其排除在报告之外，且排除此类信息不会影响对报告的理解，则合资格人应当对前因后果做出明确解释。* *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
数据汇总方法 *Data aggregation methods*	• *报告勘查结果时，加权平均方法、截除高和或低品位法(如处理高品位)以及边际品位一般都具有实质性影响，应加以说明。* *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *若汇总的样段是由长度小、品位高和长度大、品位低的样段组成，则应对这种汇总方法进行说明，并详细列举一些使用这种汇总方法的典型实例。* *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *应明确说明用于报告金属当量值的假定条件。* *The assumptions used for any reporting of metal equivalent values should be clearly stated.*
矿化体真厚度和见矿度之间的关系 *Relationship between mineralisation widths and intercept lengths*	• *报告勘查结果时，这种关系尤为重要。* *These relationships are particularly important in the reporting of Exploration Results.* • *若已知矿化几何形态与钻孔之间的角度，则应报告其特征。* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *若真厚度未知，只报告见矿厚度，则应明确说明其影响(如"此处为见矿厚度，真厚度未知")。* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*
图表 *Diagrams*	• *报告一切重大的发现，都应包括与取样段适应的平面图和剖面图（附比例尺）及制表。包括但不限于钻孔开孔位置的平面图及相应剖面图。* *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*
均衡报告 *Balanced reporting*	• *若无法综合报告所有勘查结果，则应对低/高品位和/或厚度均予以代表性报告，避免对勘查结果做出误导性报告。* *Where comprehensive reporting of all Exploration Results is not practicable, representative reportingofbothlowandhighgradesand/orwidthsshouldbepracticedtoavoidmisleading reporting of Exploration Results.*
其他重要的勘查数据 *Other substantive exploration data*	• *其他勘查数据如有意义并具实质性影响，则也应报告，包括(但不限于)：地质观测数据；地球物理调查结果；地质化学调查结果；大块样品——大小和处理方法；选冶试验结果；体积密度、地下水、地质工程和岩石特征；潜在有害或污染物质。* *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*

准则 Criteria	解释 Explanation
后续工作 *Further work*	• *计划后续工作的性质和范围(例如对侧向延伸、垂向延深或大范围扩边钻探而进行的验证)。* *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling)* • *在不具备商业敏感性的前提下，应明确图示潜在延伸区域，包括主要的地质解译和未来钻探区域等。* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*

第三组　矿产资源量估算和报告
Section 3 Estimation and Reporting of Mineral Resources

(第一组准则适用于本组，若有相关性，则第二组准则也同样适用。)
(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

准则 Criteria	解释 Explanation
数据库完整性 *Database integrity*	• *为确保数据在原始采集和用于矿产资源量估算之间不会由于转录或输入之类的错误而被损坏，采取了何种措施。* *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *所使用的数据验证程序。* *Data validation procedures used.*
实地考察 *Site visits*	• *对合资格人已完成的现场考察过程及所得结果的评述。* *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *若未开展实地考察，应说明原因。* *If no site visits have been undertaken indicate why this is the case.*
地质解释 *Geological interpretation*	• *对矿床地质解释的可靠程度(或反过来说，不确定性)。* *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *所用数据类型和数据使用的假定条件。* *Nature of the data used and of any assumptions made.* • *若对矿产资源量估算若还有其它解释，其结果如何。* *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *对影响和控制矿产资源量估算的地质因素的使用。* *The use of geology in guiding and controlling Mineral Resource estimation.* • *影响品位和地质连续性的因素。* *The factors affecting continuity both of grade and geology.*
规模 *Dimensions*	• *矿产资源量分布范围和变化情况，以长度(沿走向或其它方向)、平面宽度，以及埋深和赋存标高来表示。* *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*

准则 Criteria	解释 Explanation
估算和建模方法 *Estimation and modelling techniques*	• *所采用估算方法的特点和适用性以及主要假定条件，包括特高品位值处理、矿化域确定、内插参数确定、采样数据点的最大外推距离确定等。若采用计算机辅助估算方法，应说明所使用的计算机软件和使用参数。* *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *如果有核对估算、以往估算和/或矿山生产记录情况，是否在本次矿产资源量估算中适当考虑到这些数据。* *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *副产品回收率的确定。* *The assumptions made regarding recovery of by-products.* • *对有害元素或其它具有经济影响的非品位变量(如可造成矿山酸性排水的硫)的估计。* *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).*
	• *若采用块段模型内插法，须说明矿块大小与取样工程平均距离之间的关系以及样品搜索方法和参数。* *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *确定选择性开采单元建模时考虑的因素。* *Any assumptions behind modelling of selective mining units.* • *变量之间的相关性特征。* *Any assumptions about correlation between variables.* • *说明如何利用地质解释来控制资源量估算。* *Description of how the geological interpretation was used to control the resource estimates.* • *论述采用或不采用低品位或特高品位处理的依据。* *Discussion of basis for using or not using grade cutting or capping.* • *所采用的验证、检查流程，模型数据与钻孔数据之间的对比，以及是否采用了调整数据(若有)。* *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*
湿度 *Moisture*	• *吨位估算是在干燥还是自然湿度条件下进行，以及确定水分含量的方法。* *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*
边际参数 *Cut-off parameters*	• *所选边际品位或品质参数的依据。* *The basis of the adopted cut-off grade(s) or quality parameters applied.*
采矿因素或假定 *Mining factors or assumptions*	• *对可能的采矿方法、最小采矿范围和内部(或外部，若适用)采矿贫化的假定。在判定最终经济开采合理预期的过程中，始终需要考虑潜在的采矿方法，但在估算矿产资源量时，对采矿方法和参数所做的假定可能并非总是那么严谨。若属于这种情况，则在报告时应解释采矿假定的依据。* *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*
选冶因素或假定 *Metallurgical factors or assumptions*	• *可选冶性假定或预测的依据。在判定最终经济开采合理预期的过程中，始终需要考虑潜在的选冶方法，但在报告矿产资源量时，对选冶处理工艺和参数所做的假定可能并非总是那么严谨。若属于这种情况，则在报告时应解释选冶假定的依据。* *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processesand parameters made when reporting MineralResources maynotalwaysberigorous. Wherethisisthecase, thisshouldbereportedwithan explanation of the basis of the metallurgical assumptions made.*

准则 Criteria	解释 Explanation
环境因素或假定 *Environmental factors or assumptions*	• *对潜在废弃物和工艺残留物处置方案的假定。在判定最终经济开采合理预期的过程中，始终需要考虑采矿和加工过程中产生的潜在环境影响。虽然在此阶段，对潜在环境影响(尤其是对新建项目而言)的判定可能不一定很深入，但对这些潜在环境影响的初步研究达到了什么程度，还是应当报告。若没有考虑这方面的因素，则在报告时应解释所做出的环境假定。* *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*
体积密度 *Bulk density*	• *假定的还是测定的。若为假定的，要指出其依据。若为测定的，要指出所使用的方法、是含水还是干燥、测量频率、样品的性质、大小和代表性。* *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *必须采用能够充分考虑空隙(晶洞、孔隙率等)、水分以及矿床内岩石与蚀变带之间差异性的方法来测量大块样的体积密度。* *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *论述在估值过程中对不同矿岩体重值估算的假定条件* *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*
级别划分 *Classification*	• *将矿产资源量分级为不同可靠程度的依据。* *The basis for the classificationof the Mineral Resources into varying confidence categories.* • *是否充分考虑到所有相关因素(即吨位/品位估算的相对可靠程度、输入数据的可靠性、地质连续性的可靠程度和金属价值、数据的质量、数量和分布)。* *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *结果是否恰当地反映了合资格人对矿床的认识。* *Whether the result appropriately reflectsthe Competent Person's view of the deposit.*
审核或复核 *Audits or reviews.*	• *矿产资源量估算的审核或复核结果。* *The results of any audits or reviews of Mineral Resource estimates.*
相对准确性/可靠程度的论述 *Discussion of relative accuracy/ confidence*	• *适当情况下，采用合资格人认为合适的手段或方法，就矿产资源量估算的相对准确性和可靠性做出声明。例如，使用统计或地质统计方法，在给定的可靠程度范围内，对资源的相对准确性进行定量分析；或者，倘若认为这种方法不适用，则对可能影响估算的相对准确性或可靠性的因素进行定性论述。* *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *这类声明应具体阐明相对准确性或可靠性与整体还是局部估算相关；若为局部估算，则应说明与技术和经济评价相关的吨位。相关文件记录应包括所做的假定及所采用的方法。* *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *若有生产数据，应将上述估算的相对准确性和可靠性的声明与生产数据加以比较。* *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*

第四组　矿石储量估算和报告
Section 4 Estimation and Reporting of Ore Reserves

(第一组准则适用于本组，第二组和第三组相关的准则也同样适用于本组。)
(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

准则 Criteria	解释 Explanation
用于矿石储量转换的矿产资源量估算 *Mineral Resource estimate for conversion to Ore Reserves*	• *描述用作矿石储量转换依据的矿产资源量估算。* *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *明确说明所报告的矿产资源量是在矿石储量之外的补充，还是把矿石储量包括在内。* *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*
实地考察 *Site visits*	• *对合资格人已开展的实地考察过程及所得结果的评述。* *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *若未开展实地考察，应说明原因。* *If no site visits have been undertaken indicate why this is the case.*
研究状况 *Study status*	• *为将矿产资源量转换成矿石储量而开展的研究类型和研究程度。* *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *本规范规定，将矿产资源量转化成矿石储量时，至少应已开展预可行性研究级别的研究。此类研究应已开展，并已确定技术上可行、经济上合理的采矿计划，而且已考虑了实质性的转换因素。* *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*
边际参数 *Cut-off parameters*	• *边际品位或品质参数的依据。* *The basis of the cut-off grade(s) or quality parameters applied.*
采矿因素或假定 *Mining factors or assumptions*	• *预可行性或可行性研究中所报告的用以将矿产资源量转化成矿石储量的方法和假定(即，是通过优化应用各种适当因素，还是通过初步或详细设计)。* *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* • *选定的采矿方法和包括预先剥离、开拓工程等相关设计的选择依据、性质和适宜性。* *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.*
	• *就地质工程参数(如边坡角、采场大小等)、品位控制和预生产钻探所作的假定。* *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *就露天境界和坑内采场优化(若适宜)所作的主要假定和所用的矿产资源量模型。* *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *所使用的采矿贫化率。* *The mining dilution factors used.* • *所使用的采矿回收率。* *The mining recovery factors used.* • *所使用的最小采矿宽度。* *Any minimum mining widths used.* • *采矿研究中使用推测矿产资源量的方式，以及研究结果对纳入推测矿产资源量的敏感性。* *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *选定采矿方法的基础设施要求。* *The infrastructure requirements of the selected mining methods.*

准则 Criteria	解释 Explanation
选冶因素或假定 *Metallurgical factors or assumptions*	• *所推荐的选冶工艺流程及其对矿化类型的适用性。* *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *选冶工艺流程是经过验证的成熟方法，还是新方法。* *Whether the metallurgical process is well-tested technology or novel in nature.* • *所开展选冶试验工作的性质、数量和代表性，以及根据选冶工艺流程划分的矿石空间分布及其矿石回收性能特征。* *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *对有害元素的假定或允许量。* *Any assumptions or allowances made for deleterious elements.* • *是否已有大样试验或工业试验工作，且此类样品对整个矿体的代表性。* *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *对于以规范定义的矿物，矿石储量估算是基于适当工艺矿物学分析来满足规范吗？* *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*
环境 *Environmental*	• *采矿和加工过程对环境潜在影响的研究已开展到何种地步。应报告详细的废石特性信息，以及潜在场地的考虑，所考虑的设计方案；适当情况下，还应报告工艺残留物储存和废料场的审批状态。* *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*
基础设施 *Infrastructure*	• *是否存在适当基础设施：厂房建设用地、电、水、交通运输(尤其是对于巨量矿产品)、劳动力、住宿场所等是否可用；或是否方便提供或获取此类基础设施。* *The existence of appropriate infrastructure: availability of land for plant development, power,water,transportation(particularlyforbulkcommodities),labour,accommodation; or the ease with which the infrastructure can be provided, or accessed.*
成本 *Costs*	• *研究中预测的投资费用来源或所作假定。* *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *用以估算经营成本的方法。* *The methodology used to estimate operating costs.* • *因有害元素准备的款项。* *Allowances made for the content of deleterious elements.* • *研究中使用的汇率的来源。* *The source of exchange rates used in the study.* • *运输费用的来源。* *Derivation of transportation charges.* • *对熔炼与精炼费用、未达到规格要求的罚款等的预测依据或来源。* *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *应付给政府和私人权益金。* *The allowances made for royalties payable, both Government and private.*
收入因素 *Revenue factors*	• *与收入因素相关的来源或假定，包括精矿品位、金属或矿产品价格、汇率、运输和处理费用、罚款、净冶炼厂返还等。* *The derivation of, or assumptions made regarding revenue factors including head grade, metal or ommodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *主金属、矿物和副产品的金属或矿产品价格假定的来源。* *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*

准则 Criteria	解释 Explanation
市场评估 *Market assessment*	• *特定矿产品的供需和库存情况、消费趋势和未来可能影响供需的因素。* *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *客户和竞争对手分析，并识别产品的潜在市场窗口。* *A customer and competitor analysis along with the identification of likely market windows for the product.* • *价格和产量预测，及预测依据。* *Price and volume forecasts and the basis for these forecasts.* • *对工业矿物而言，签订供货合同之前先了解客户在规格、试验和收货方面的要求。* *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*
经济 *Economic*	• *研究中用以计算净现值(NPV)的输入数据，以及这些经济数据的来源和可靠程度，包括预估的通胀率、贴现率等。* *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV 的范围及其对重大假定和数据的变动的敏感性。* *NPV ranges and sensitivity to variations in the significantassumptions and inputs.*
社会 *Social*	• *与关键利益方签署的协议以及可导致取得社会经营许可事项的状态。* *The status of agreements with key stakeholders and matters leading to social licence to operate.*
其他 *Other*	• *若相关，下列各项对项目和/或矿石储量估算与分级的影响：* *To the extent relevant, the impact of the following on the project and/or on the estimation and classificationof the Ore Reserves:* • *任何已识别出的具有实质意义的自然风险。* *Any identifiedmaterial naturally occurring risks.* • *实质性法律协议和市场营销安排的状态。* *The status of material legal agreements and marketing arrangements.* • *对项目生存具有关键影响的政府协议和审批的状态，如采矿租约的状态，以及政府和法定审批。必须有合理的依据可以预期，能够在预可行性或可行性研究提出的预期时限内取得所有必要的政府审批手续。强调并论述储量开采所需的、依赖于第三方才能解决的悬而未决的实质性事项。* *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*
级别划分 *Classification*	• *将矿石储量分级为不同可靠程度的依据。* *The basis for the classificationof the Ore Reserves into varying confidencecategories.* • *结果是否恰当地反映了合资格人对矿床的认识。* *Whether the result appropriately reflectsthe Competent Person's view of the deposit.* • *从确定的矿产资源量(若有)得出的可信的矿石储量的比例。* *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*
审核或复核 *Audits or reviews*	• *矿石储量估算的审核或复核结果。* *The results of any audits or reviews of Ore Reserve estimates.*

准则 Criteria	解释 Explanation
相对准确性/可靠性的论述 *Discussion of relative accuracy/ confidence*	• *适当情况下，采用合资格人认为合适的手段或方法，就矿石储量估算的相对准确性和/或可靠性做出声明。例如，在给定的可靠程度范围内，使用统计学或地质统计学方法，对储量的相对准确性进行定量分析；或者，倘若认为这种方法不适用，则对可能影响估算相对准确性或可靠性的因素进行定性论述。* *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* • *这类声明应具体阐明是与整体还是局部估算相关；若为局部估算，则应说明与技术和经济评价相关的吨位。相关文件记录应包括所做的假定及所采用的方法。* *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *对准确性和可靠程度的论述，应延伸至具体论述所采用的、可能对矿石储量盈利性产生实质性影响或在目前研究阶段仍然存在不确定领域的转换因素。* *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *并非在任何情况下都能做到或应该做到。若有生产数据，应将上述估算相对准确性和可靠性的声明与生产数据加以比较。* *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*

第五组　金刚石和其他宝石估算和报告
Section 5 Estimation and Reporting of Diamonds and Other Gemstones

(其他相关组所列的准则同样适用于本组。更多规范，请参见加拿大采矿、冶金和石油学会所设金刚石勘查最佳实践委员会发布的《金刚石勘查结果报告指南》。)
(Criteria listed in other relevant sections also apply to this section. Additional guidelines are available in the 'Guidelines for the Reporting of Diamond Exploration Results' issued by the Diamond Exploration Best Practices Committee established by the Canadian Institute of Mining, Metallurgy and Petroleum.)

准则 Criteria	解释 Explanation
指示性矿物 *Indicator minerals*	• *指示性矿物的报告，如具有指示性化学/物理特征的石榴子石、钛铁矿、铬尖晶石和铬透辉石，应当由具有合格资质的实验室来编制。* *Reports of indicator minerals, such as chemically/physically distinctive garnet, ilmenite, chrome spinel and chrome diopside, should be prepared by a suitably qualified laboratory.*
金刚石源岩 *Source of diamonds*	• *金刚石类型、形状、大小和颜色的详细信息以及金刚石源岩的性质(原生或次生)，包括岩石类型和地质环境。* *Details of the form, shape, size and colour of the diamonds and the nature of the source of diamonds (primary or secondary) including the rock type and geological environment.*
样品采集 *Sample collection*	• *样品类型，是露头、砾石、钻探岩心、反循环钻屑、砂砾、水系沉积物还是土壤，以及目的(如大孔径钻探以测定每单位体积的金刚石含量，或大块取样以确定金刚石颗粒分布)。* *Type of sample, whether outcrop, boulders, drill core, reverse circulation drill cuttings, gravel, stream sediment or soil, and purpose (eg large diameter drilling to establish stones per unit of volume or bulk samples to establish stone size distribution).* • *样品大小、分布和代表性。* *Sample size, distribution and representivity.*

准则 Criteria	解释 Explanation
样品处理 *Sample treatment*	• *设施类型、处理速率及资质。* *Type of facility, treatment rate, and accreditation.* • *样品大小破碎。底筛网大小、顶筛网大小及二次破碎。* *Sample size reduction. Bottom screen size, top screen size and re-crush.* • *工艺流程(重介质选矿、油脂分选、X 射线分选、手工分选等)。* *Processes (dense media separation, grease, X-ray, hand-sorting, etc).* • *工序功效、尾矿检查和粒度测定。* *Process efficiency,tailings auditing and granulometry.* • *所使用的实验室、微粒金刚石的工序流程及资质。* *Laboratory used, type of process for micro diamonds and accreditation.*
克拉 *Carat*	• *一克的五分之一(0.2 克)(通常定为公制克拉，或 MC)。* *One fifth(0.2) of a gram (often definedas a metric carat or MC).*
样品品位 *Sample grade*	• *在表 1 本部分中，样品品位的表述采用每单位质量、面积或体积的克拉含量。* *Sample grade in this section of Table 1 is used in the context of carats per units of mass, area or volume.* • *对于高于规定的较低边界筛孔大小的样品品位，在报告中应以每干吨克拉和每 100 干吨克拉来表示。对于砂矿床，若给出了体积与重量的换算基准，则可用每平方米克拉或每立方米克拉来表示样品品位。* *The sample grade above the specified lower cut-off sieve size should be reported as carats per dry metric tonne and/or carats per 100 dry metric tonnes. For alluvial deposits, sample grades quoted in carats per square metre or carats per cubic metre are acceptable if accompanied by a volume to weight basis for calculation.* • *除了评估体积和密度的一般性要求外，还要将金刚石频率(每立方米或每吨的金刚石颗粒数与金刚石大小(每颗矿石的克拉重量)关联在一起，从而得出样品品位(每吨克拉数)。* *In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive sample grade (carats per tonne).*
勘查结果报告 *Reporting of Exploration Results*	• *每个阶段采用标准递进筛孔大小，完成整套筛分数据。每个地相的大宗取样结果、总体样品品位。空间结构分析和品位分布。金刚石大小和颗粒分布。样品头货和尾矿颗粒粒度测定。* *Complete set of sieve data using a standard progression of sieve sizes per facies. Bulk sampling results, global sample grade per facies. Spatial structure analysis and grade distribution. Stone size and number distribution. Sample head feed and tailings particle granulometry.* • *样品密度测定。* *Sample density determination.* • *每个样品的富集料和过筛料百分比。* *Per cent concentrate and undersize per sample.* • *不同取舍底边界筛网大小的样品品位。* *Sample grade with change in bottom cut-off screen size.* • *根据样品加工厂的操作和商业规模的操作，对样品的大小分布做出调整。* *Adjustments made to size distribution for sample plant performance and performance on a commercial scale.* • *若适合采用或已采用地质统计方法，根据勘查金刚石样品的大小分布来模拟金刚石大小、分布和频率，说明是哪种地质统计方法。* *If appropriate or employed, geostatistical techniques applied to model stone size, distribution or frequency from size distribution of exploration diamond samples.* • *仅当金刚石太小而不具商业意义时，方才可在报告中对其重量忽略不计。在报告中应指出这一较低取舍边界的大小。* *The weight of diamonds may only be omitted from the report when the diamonds are considered too small to be of commercial significance. This lower cut-off size should be stated.*

准则 Criteria	解释 Explanation
矿产资源量和矿石储量报告的品位估算 *Grade estimation for reporting Mineral Resources and Ore Reserves*	• *描述样品类型和为估算品位而设计的钻孔或取样之空间分布。* *Description of the sample type and the spatial arrangement of drilling or sampling designed for grade estimation.* • *样品破碎大小及其与在商业处理工厂中可实现的破碎大小之间的关系。* *The sample crush size and its relationship to that achievable in a commercial treatment plant.* • *大于指定报告的较低取舍边界筛孔大小的金刚石总颗粒数。* *Total number of diamonds greater than the specifiedand reported lower cut-off sieve size.* • *大于指定报告的较低取舍边界筛孔大小的金刚石总重量。* *Total weight of diamonds greater than the specifiedand reported lower cut-off sieve size.* • *大于指定报告的较低取舍边界筛孔大小的样品品位。* *The sample grade above the specifiedlower cut-off sieve size.*
价值估算 *Value estimation*	• *使用在处理勘查样品中常用完全分离法加工获得的金刚石样品，不应报告其估价。* *Valuations should not be reported for samples of diamonds processed using total liberation method, which is commonly used for processing exploration samples.* • *下列信息如不被视为具有商业敏感性，则应包括在公开报告中：* *To the extent that such information is not deemed commercially sensitive, Public Reports should include:* • *每个地相或深度通过适当取舍筛网大小而得出的金刚石数量。* *diamonds quantities by appropriate screen size per facies or depth.* • *受估值的样品包细节。* *details of parcel valued.* • *每个地相或深度的金刚石颗粒数、克拉、较低取舍边界值的大小。* *number of stones, carats, lower size cut-off per facies or depth.* • *在选定的取舍底边界，平均$/克拉和$/吨价值应以美元为单位报告。每克拉价值对显示项目价值具有关键意义。* *The average $/carat and $/tonne value at the selected bottom cut-off should be reported in US Dollars.The value per carat is of critical importance in demonstrating project value.* • *价格基础(如经销商购买价、经销商出售价等)。* *The basis for the price (eg dealer buying price, dealer selling price, etc).* • *金刚石破损度评估。* *An assessment of diamond breakage.*
安全性和完整性 *Security and integrity*	• *经认证的加工流程审核。* *Accredited process audit.* • *挖掘出来后样品是否封存。* *Whether samples were sealed after excavation.* • *估值者所在地、护卫情况、运输、清理损失、对记录样品克拉数和金刚石数量的核对。* *Valuer location, escort, delivery, cleaning losses, reconciliation with recorded sample carats and number of stones.* • *微粒金刚石处理前的岩心样品冲洗。* *Core samples washed prior to treatment for micro diamonds.* • *在其他场所处理的审核样品。* *Audit samples treated at alternative facility.* • *尾矿检查结果。* *Results of tailings checks.* • *取样和处理过程中所采用示踪剂监测仪的回收。* *Recovery of tracer monitors used in sampling and treatment.* • *地球物理(记录的)密度和颗粒密度。* *Geophysical (logged) density and particle density.* • *根据钻孔体积、密度、湿度因素，对样品重量、湿重和干重的交叉验证。* *Cross validation of sample weights, wet and dry, with hole volume and density, moisture factor.*

准则 Criteria	解释 Explanation
级别划分 *Classification*	• *除了评估体积和密度的一般性要求外，还要将矿石频率(每立方米或每吨的金刚石颗粒数)与金刚石大小(每颗矿石的克拉重量)关联在一起，从而得出样品品位(每吨克拉数)。这些估算的不确定性应加以考虑，并相应划分级别。* *In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive grade (carats per tonne). The elements of uncertainty in these estimates should be considered, and classification developed accordingly.*

附录 1　通用术语及同义词

Appendix 1 Generic Terms and Equivalents

整篇规范中，有些术语我们采用其通用含义，但在本行业的特定矿产品中，它们可能还有更专门的含义。为避免不必要的重复，下文以表格形式列出一批非排他性的通用术语，并附上就本文件用途而言我们认为具有相同或相近含义的其他术语。

Throughout the Code, certain words are used in a general sense when a more specific meaning might be attached to them by particular commodity groups within the industry. In order to avoid unnecessary duplication, a non- exclusive list of generic terms is tabulated below together with other terms that may be regarded as synonymous for the purposes of this document.

通用术语 Generic Term	同义或近义词 Synonyms and similar terms	拟定的一般含义 Intended generalised meaning
假定 *assumption*	*价值判断* *value judgements*	*通常情况下，合资格人就尚未完全得到测试工作支持的信息进行假定时，会做出价值判断。* *The Competent Person in general makes value judgements when making assumptions regarding information not fully supported by test work.*
合资格人 *Competent Person*	*合资质人(加拿大)、合资质资格人(智利)* *Qualified Person (Canada), Qualified Competent Person (Chile)*	*有关合资格人的定义，请参见本规范第 11 条。本规范中，凡提及单数(一个合资格人)时，均包括其复数形式(多个合资格人)。应当指出，依据本规范进行报告时，通常需要整个团队的努力。* *Refer to the Clause 11 of the Code for the definition of a Competent Person. Any reference in the Code to the singular (a Competent Person) includes a reference to the plural (Competent Persons). It is noted that reporting in accordance with the Code is commonly a team effort.*
边际品位 *cut-off grade*	*产品规格* *product specifications*	*具有经济可开采性并存在于给定矿床中最低品质或质量的矿化物质。可以以经济评估为依据或根据界定合格产品规格的物理或化学属性来确定。* *The lowest grade, or quality, of mineralised material that qualifies as economically mineable and available in a given deposit. May be defined on the basis of economic evaluation, or on physical or chemical attributes that define an acceptable product specification.*
品位 *grade*	*品质、化验、分析(即分析得出的价值)* *quality, assay, analysis (that is value returned by the analysis)*	*目标矿物样品或产品的物理或化学特征的测定数据。注意：品质(quality)一词对于金刚石和其他宝石具有特别含义。报告数字时，应说明测量单位。* *Any physical or chemical measurement of the characteristics of the material of interest in samples or product. Note that the term quality has special meaning for diamonds and other gemstones. The units of measurement should be stated when figures are reported.*
选冶 *metallurgy*	*加工处理、选矿、制备、浓缩* *processing, beneficiation, preparation, concentration*	*从大量矿物中分离出目标成分的物理和或化学分离法。通过这些方法从开采出的矿物中加工出最终可销售产品，如筛分、浮选、磁选、浸出、水洗、焙烧等。* *Physical and/or chemical separation of constituents of interest from a larger mass of material. Methods employed to prepare a final marketable product from material as mined. Examples include screening, flotation, magnetic separation, leaching, washing, roasting, etc.* *加工处理的范围，通常被视为比选冶更广，对于"选冶"一词不大适合的非金属矿物，可使用"加工处理"。* *Processing is generally regarded as broader than metallurgy and may apply to non-metallic materials where the term metallurgy would be inappropriate.*

通用术语 Generic Term	同义或近义词 Synonyms and similar terms	拟定的一般含义 Intended generalised meaning
矿化体 *mineralisation*	*矿床类型、矿体，矿化类型* *type of deposit, orebody, style of mineralisation.*	*赋存在岩石或沉积物中具有经济意义的某一种矿物或多种矿物。该术语意在涵盖矿化作用可能发生的所有类型，不论矿床规模、产出方式、成因或成分。* *Any single mineral or combination of minerals occurring in a mass, or deposit, of economic interest. The term is intended to cover all forms in which mineralisation might occur, whether by class of deposit, mode of occurrence, genesis or composition.*
采矿 *mining*	*采石* *quarrying*	*从地层(地表或地下)以任何方式(如挖掘、露天开采、明挖、溶浸采矿、挖泥等)开采出金属、矿物和宝石的所有相关活动。* *All activities related to extraction of metals, minerals and gemstones from the earth whether surface or underground, and by any method (eg quarries, open cast, open cut, solution mining, dredging, etc)*
矿石储量 *Ore Reserves*	*矿产储量* *Mineral Reserves*	*本 JORC 规范更倾向使用"矿石储量"，但在其他国家"矿产储量"也普遍使用并得到广泛认同。可使用其他描述词来进一步明确其含义(如煤炭储量、金刚石储量等)。* *'Ore Reserves' is preferred under the JORC Code but 'Mineral Reserves' is in common use in other countries and is generally accepted. Other descriptors can be used to clarify the meaning (eg Coal Reserves, Diamond Reserves, etc).*
回收率 *recovery*	*出产率* *yield*	*在开采和/或处理过程中萃取的目标矿物的比例。这是采矿或加工效率的一种衡量标准。* *The percentage of material of interest that is extracted during mining and/or processing. A measure of mining or processing efficiency.*
重大项目 *significant project*	*实质性项目* *material project*	*对上市公司的市值或运营产生或可能产生重大影响，和/或在公开报告和公告中突出强调的勘查或矿产开发项目。* *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.*
吨位 *tonnage*	*数量、体积* *quantity, volume*	*目标矿物的数量表示，不计其测量单位(但在报告数字时应说明测量单位)。* *An expression of the amount of material of interest irrespective of the units of measurement (which should be stated when figures are reported).*

附录 2　合资格人同意书

Appendix 2 Competent Person's Consent Form

公司在报告勘查靶区、勘查结果、矿产资源量或矿石储量时应注意到，虽然公开报告是公司通过其董事会应承担的责任，但第 9 条规定，任何此类报告"都必须以合资格人准备的信息和支持性文件为基础，并公正反映该等信息和支持性文件"。第9 条还规定，"公开报告发布时，必须征得合资格人对报告形式和语境表示认同的事先书面同意。

Companies reporting Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves are reminded that while a public report is the responsibility of the company acting through its Board of Directors, Clause 9 requires that any such report 'must be based on, and fairly reflect the information and supporting documentation prepared by a Competent Person or Persons'. Clause 9 also requires that the 'report shall be issued with the prior written consent of the Competent Person or Persons as to the form and context in which it appears'.

为协助合资格人及公司遵守这些规定，并强调公司必须征得每个合资格人的事先书面同意，方可将各合资格人的材料以公开报告所体现的形式和语境纳入公开报告，ASX 联合 JORC 共同编制了一份纳入本 JORC 规范要求的《合资格人同意书》。

In order to assist Competent Persons and companies to comply with these requirements, and to emphasise the need for companies to obtain the prior written consent of each Competent Person for their material to be included in the form and context in which it appears in the public report, ASX, together with JORC, have developed a Competent Person's Consent Form that incorporates the requirements of the JORC Code.

我们建议，按照所提供的格式或采用类似格式填写同意书，既是一项良好行为规范，又能随时证明已经取得了规定的事先同意。

The completion of a consent form, whether in the format provided or in an equivalent form, is recommended as good practice and provides readily available evidence that the required prior written consent has been obtained.

由同业专业学会会员见证同意书，乃是最佳的行为规范，应强烈推荐。

Having the consent form witnessed by a peer professional society member is considered leading practice and is strongly encouraged.

合资格人同意书或合资格人书面同意的其他证明，应由公司及合资格人妥善保管，以确保在需要时可及时提供该等书面同意。

The Competent Person's Consent Form(s), or other evidence of the Competent Person's written consent, should be retained by the company and the Competent Person to ensure that the written consent can be promptly provided if required.

【合资格人或合资格人雇主单位信笺抬头】

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

合资格人同意书

Competent Person's Consent Form

根据 ASX 上市规则第 5.6、第 5.22、第 5.24 条及 JORC 规范 2012 年版第 9 条规定(书面同意声明)

Pursuant to the requirements of ASX Listing Rules 5.6, 5.22 and 5.24 and
Clause 9 of the JORC Code 2012 Edition (Written Consent Statement)

报告名称 Report name

(*插入准备公开发布报告的名称或标题*)("报告") (*Insert name or heading of Report to be publicly released*) ('Report')

(*插入发布报告的公司名称*) (*Insert name of company releasing the Report*)

(*插入该报告所涉及矿床的名称*) (*Insert name of the deposit to which the Report refers*)

若空间不够，可另附一页填写，并按与本原始页相同的方式签字确认。

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

(*报告日期*) (*Date of Report*)

声明 Statement

本人/我们

I/We,

（*插入全名*）(*Insert full name(s)*)

谨此确认本人是该报告的合资格人，且：

confirm that I am the Competent Person for the Report and:

- 本人已阅读并理解 2012 年版《澳大拉西亚勘查结果、矿产资源量和矿石储量报告规范》（JORC 规范 2012 年版）的规定要求。

  I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).

- 本人是 JORC 规范 2012 年版所定义的合资格人，在本报告所描述的矿化类型和矿床类型领域及本人在此承担责任的业务领域拥有五年相关经验。

  I am a Competent Person as defined by the JORC Code, 2012 Edition, having five years experience that 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.

- 本人是澳大拉西亚矿业与冶金学会或澳大利亚地质科学家学会或 ASX 不时颁布的“认可专业机构(ROP)”的会员或院士。

  I am a Member or Fellow of *The Australasian Institute of Mining and Metallurgy* or the *Australian Institute of Geoscientists* or a ‘Recognised Professional Organisation’ (RPO) included in a list promulgated by ASX from time to time.

- 本人已审查了本同意书所适用的报告。

  I have reviewed the Report to which this Consent Statement applies.

本人是以下机构的全职雇员

I am a full time employee of

_____

（插入公司名称）(Insert company name)

或

Or

本人/我们是以下机构的顾问

I/We am a consultant working for

_____

(插入公司名称)(Insert company name)

受以下机构的委托

and have been engaged by

_____

（插入公司名称）(Insert company name)

编制以下矿床的文件

to prepare the documentation for

_____

（插入矿床名称）(Insert deposit name)

作为该报告的依据，期限截至

on which the Report is based, for the period ended

_____

（插入资源/储量声明的日期）(Insert date of Resource/Reserve statement)

本人已向报告公司披露了本人与公司之间关系的详尽性质，包括任何可能被投资者视为存在利益冲突的事项。

I have disclosed to the reporting company the full nature of the relationship between myself and the company, including any issue that could be perceived by investors as a conflict of interest.

谨此证明，该报告是基于，并且从其形式和语境来看公允准确地体现了，本人对勘查靶区、勘查结果、矿产资源量和/或矿石储量（根据实际情况选择）所制作支持性文件的信息。

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 Targets, Exploration Results, Mineral Resources and/or Ore Reserves (select as appropriate).

同意书

Consent

本人谨此同意以下公司的董事会发布此报告及本同意声明：

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

_____

（插入报告公司名称）(Insert reporting company name)

合资格人签名：Signature of Competent Person:

日期：Date:

专业会员身份：Professional Membership:
（插入机构名称）(insert organisation name)

会员编号：Membership Number:

见证人签名：Signature of Witness:

见证人姓名及住所印刷体：Print Witness Name and Residence:
（如城镇/郊区）(eg town/suburb)

本报告涉并由签署本同意书之合资格人承担责任的新增的矿床：

Additional deposits covered by the Report for which the Competent Person signing this form is accepting responsibility:

涉及该矿床并由签署本同意书之合资格人承担责任的其他报告：

Additional Reports related to the deposit for which the Competent Person signing this form is accepting responsibility:

合资格人签名：Signature of Competent Person:

日期：Date:

专业会员身份：Professional Membership:
（插入机构名称）(insert organisation name)

会员编号：Membership Number:

见证人签名：Signature of Witness:

见证人姓名及住所印刷体：Print Witness Name and Residence:
（如城镇/郊区）(eg town/suburb)

附录 3　合规声明

Appendix 3 Compliance Statements

适用于的合规声明应当采取如下形式(请删除不适用的条目)。
Appropriate forms of compliance statements should be as follows (delete bullet points which do not apply).

对于勘查靶区公开报告、初次或已发生实质性改变的勘查结果、矿产资源量或矿石储量报告、或公司年度报告：
For Public Reports of Exploration Targets, initial or materially changed reports of Exploration Results, Mineral Resources or Ore Reserves or company annual reports:

- *若需要的信息出现在报告中：*
  If the required information is in the report:

  "本报告中涉及勘查靶区、勘查结果、矿产资源量或矿石储量的信息，基于由(插入合资格人姓名)所编制的信息，该合资格人是澳大拉西亚矿业与冶金学会或澳大利亚地质科学家学会或由 ASX 网站不时公布的名单所包括的某个"认可专业机构(RPO)"的会员或院士(根据实际情况选择，并插入合资格人隶属之专业机构的名称以及合资格人的会员级别)。"
  'The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by (insert name of Competent Person), a Competent Person who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a 'Recognised Professional Organisation' (RPO) included in a list that is posted on the ASX website from time to time (select as appropriate and insert the name of the professional organisation of which the Competent Person is a member and the Competent Person's grade of membership).'

- *若需要的信息包含在随附声明中：*
  If the required information is included in an attached statement:

  "本声明所附之报告中涉及勘查靶区、勘查结果、矿产资源量或矿石储量的信息，基于由(插入合资格人姓名)所编制的信息，该合资格人是澳大拉西亚矿业与冶金学会或澳大利亚地质科学家学会或由 ASX 网站不时公布的名单所包括的某个"认可专业机构(RPO)"的会员或院士(根据实际情况选择，并插入合资格人隶属之专业机构的名称以及合资格人的会员级别)。"
  'The information in the report to which this statement is attached that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by (insert name of Competent Person), a Competent Person who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a 'Recognised Professional Organisation' (RPO) included in a list posted on the ASX website from time to time (select

as appropriate and insert the name of the professional organisation of which the Competent Person is a member and the Competent Person's grade of membership).'

- *若合资格人是公司的全职雇员：*
  If the Competent Person is a full-time employee of the company:

  "(插入合资格人姓名)是本公司的全职雇员。"
  '(Insert name of Competent Person) is a full-time employee of the company.'

- *若合资格人不是公司的全职雇员：*
  If the Competent Person is not a full-time employee of the company:

  "(插入合资格人姓名)是(插入合资格人雇主单位的名称)的雇员。"
  '(Insert name of Competent Person) is employed by (insert name of Competent Person's employer).'

- *披露合资格人的资料时，必须一并披露合资格人与报告公司之间关系的详尽性质。该声明必须概述并澄清任何可能被投资者视为存在利益冲突的事项。*
  The full nature of the relationship between the Competent Person and the reporting Company must be declared together with the Competent Person's details. This declaration must outline and clarify any issue that could be perceived by investors as a conflict of interest.

- *对于所有报告：*
  For all reports:

  "(插入合资格人姓名)具备与所涉及之矿化类型和矿床类型及所开展之业务活动相关的充足经验，符合 2012 年版《澳大拉西亚勘查结果、矿产资源量与矿石储量报告规范》所定义的合资格人的资格。" (插入合资格人姓名)同意本报告依其形式和语境，纳入基于其所整理的信息的事项"。
  '(Insert name of Competent Person) has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertakening to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. (Insert name of Competent Person) consents to the inclusion in the report of the matters based on his (or her) information in the form and context in which it appears.'

对于基于之前发布的公开报告的后续公开报告，如果该后续报告援引之前报告的勘查结果或矿产资源或矿石储量估算：
For any subsequent Public Report based on a previously issued Public Report that refers to those Exploration Results or estimates of Mineral Resources or Ore Reserves:

若合资格人之前已书面同意在报告中纳入其研究成果，则公司再次向公众发布这些信息时，无论采取的是演示或后续公告形式，均必须说明原始公开报告名称、日期及原始公开报告位置，以便公众查阅。

Where a Competent Person has previously issued the written consent to the inclusion of their findings in a report, a company re-issuing that information to the Public whether in the form of a presentation or a subsequent announcement must, state the report name, date and reference the location of the original source Public Report for public access.

- *"信息摘选自(日期)制作的题为(报告名称)的报告，可在(网站名称)查阅。公司谨此确认，其不知悉任何可能对原始市场公告所含信息产生实质性影响的新信息或数据；且若为矿产资源量或矿石储量估算，则支撑相关市场公告中此类估算的所有重大假定和技术参数仍然适用，未发生实质性改变。公司确认，表述合资格人研究结果的形式和语境与原始市场公告相比，未发生实质性改变"。*

  The information is extracted from the report entitled (name report) created on (date) and is available to view on (website name). The company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.'

公司应注意，此豁免条款不适用于对公司年报信息的后续报告。

Companies should be aware this exemption does not apply to subsequent reporting of information in the company annual report.

附录 4　缩略词表

Appendix 4 List of Acronyms

AIG ..... 澳大利亚地质科学家学会
Australian Institute of Geoscientists

ASX ..... 澳大利亚证券交易所
Australian Securities Exchange

CIM ..... 加拿大采矿、冶金和石油学会
Canadian Institute of Mining, Metallurgy and Petroleum

CMMI ..... 矿业与冶金学会理事会
Council of Mining and Metallurgical Institutions

CRIRSCO ..... 矿产储量国际报告标准委员会
Committee for Mineral Reserves International Reporting Standards

ICMM ..... 国际矿业与金属理事会
International Council on Mining and Metals

JORC ..... 矿石储量联合委员会
Joint Ore Reserves Committee

JORC Code ..... 澳大拉西亚勘查结果、矿产资源量与矿石储量报告规范
Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves

NAEN ..... 俄罗斯底土利用专家学会
The Russian Society of Subsoil Use Experts

NPV ..... 净现值
Net Present Value

NROs ..... 国家报告组织
National Reporting Organisations

NZX ..... 新西兰证券交易所
New Zealand Stock Exchange

UN-ECE.....联合国欧洲经济委员会
United Nations Economic Commission for Europe

UNFC.....联合国分类框架
United Nations Framework Classification

PERC.....泛欧储量与资源报告委员会
Pan-European Reserves & Resources Reporting Committee

RPO.....认可专业机构
Recognised Professional Organisation

SAMCODES.....南非矿产规范
South African Mineral Codes

SME.....矿业、冶金与勘查学会(美国)
Society for Mining, Metallurgy & Exploration (USA)

The AusIMM.....澳大拉西亚矿业与冶金学会
The Australasian Institute of Mining and Metallurgy

VALMIN Code.....《矿产、石油资产和证券技术评价和/或评估独立专家报告规范与准则》(VALMIN Code)
Code and Guidelines for Technical Assessment and/or Valuation of Mineral and Petroleum Assets and Mineral and Petroleum Securities for Independent Expert Reports