



Zanaga项目 分阶段开发方案介绍

2013年9月



免责声明

This document, which is personal to the recipient, has been issued by Zanaga Iron Ore Company Limited (the "Company"). This document does not constitute or form part of any offer or invitation to sell or issue, or any solicitation of any offer to purchase or subscribe for, any securities of the Company in any jurisdiction, nor shall any part of it nor the fact of its distribution form part of or be relied on in connection with any contract or investment decision relating thereto, nor does it constitute a recommendation or inducement to enter into any contract or commitment regarding the securities of the Company. In particular, this document and the information contained herein does not constitute an offer of securities for sale in the United States.

This document is being supplied to you solely for your information. The information in this document has been provided by the Company or obtained from publicly available sources. No reliance may be placed for any purposes whatsoever on the information or opinions contained in this document or on its completeness. No representation or warranty, express or implied, is given by or on behalf of the Company or any of the Company's directors, officers or employees or any other person as to the accuracy or completeness of the information or opinions contained in this document and no liability whatsoever is accepted by the Company or any of the Company's members, directors, officers or employees nor any other person for any loss howsoever arising, directly or indirectly, from any use of such information or opinions or otherwise arising in connection therewith.

This document and its contents are confidential and may not be reproduced, redistributed or passed on, directly or indirectly, to any other person or published, in whole or in part, for any purpose. This document is only addressed to and directed at persons in member states of the European Economic Area who are "qualified investors" within the meaning of Article 2(1)(e) of the Prospectus Directive (Directive 2003/71/EC) ("Qualified Investors"). In addition, in the United Kingdom, this document is being distributed only to, and is directed only at, Qualified Investors (i) who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (the "Order") and Qualified Investors falling within Article 49(2)(a) to (d) of the Order, and (ii) to whom it may otherwise lawfully be communicated (all such persons together being referred to as "relevant persons"). This document must not be acted on or relied on (i) in the United Kingdom, by persons who are not relevant persons, and (ii) in any member state of the European Economic Area other than the United Kingdom, by persons who are not Qualified Investors. Any investment or investment activity to which this document relates is available only to (i) in the United Kingdom, relevant persons, and (ii) in any member state of the European Economic Area other than the United Kingdom, Qualified Investors, and will be engaged in only with such persons.

Neither this document nor any copy of it may be taken or transmitted into the United States of America, its territories or possessions or distributed, directly or indirectly, in the United States of America, its territories or possessions. Neither this document nor any copy of it may be taken or transmitted into Australia, Canada, Japan or the Republic of South Africa or to any securities analyst or other person in any of those jurisdictions. Any failure to comply with this restriction may constitute a violation of United States, Australian, Canadian, Japanese or South African securities law. The distribution of this document in other jurisdictions may be restricted by law and persons into whose possession this document comes should inform themselves about, and observe, any such restrictions.

Nothing in this document or in the documents referred to in it should be considered as a profit forecast. Past performance of the Company or its shares cannot be relied on as a guide to future performance.

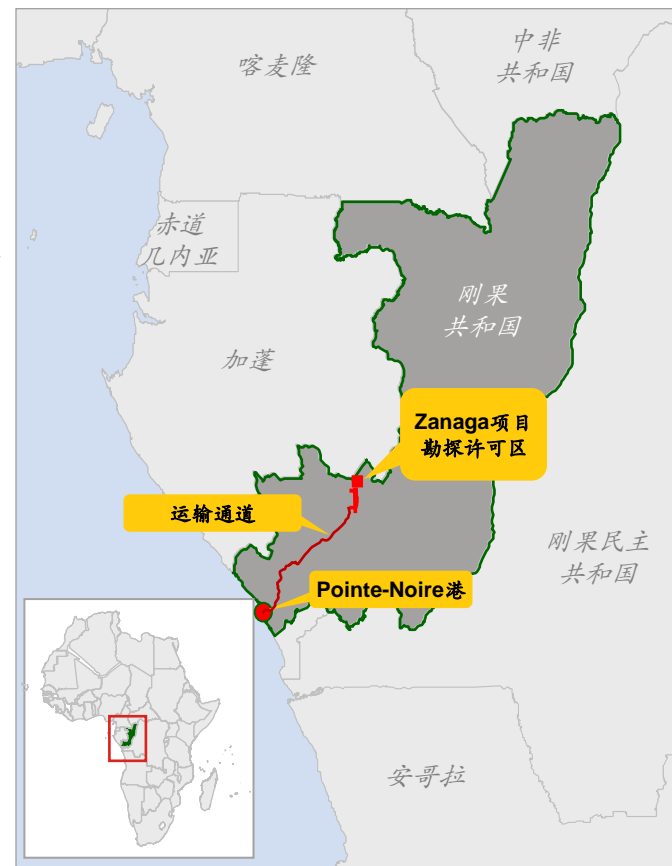
Certain statements, beliefs and opinions in this document are forward-looking, which reflect the Company's or, as appropriate, the Company's directors' current expectations and projections about future events. By their nature, forward-looking statements involve a number of risks, uncertainties and assumptions that could cause actual results or events to differ materially from those expressed or implied by the forward-looking statements. These risks, uncertainties and assumptions could adversely affect the outcome and financial effects of the plans and events described herein. Forward-looking statements contained in this document regarding past trends or activities should not be taken as a representation that such trends or activities will continue in the future. The Company will not undertake any obligation to release publicly any revisions to these forward-looking statements to reflect events, circumstances or unanticipated events occurring after the date of this presentation, except as required by law or by any appropriate regulatory authority. You should not place undue reliance on forward-looking statements, which speak only as of the date of this document.

This document has been prepared in compliance with English law and English courts will have exclusive jurisdiction over any disputes arising from or connected with this document.

By attending the presentation to which this document relates or by accepting this document you will be taken to have represented, warranted and undertaken that: (i) you are a relevant person (as defined above); (ii) you have read and agree to comply with the contents of this notice; and (iii) you will not at any time have any discussion, correspondence or contact concerning the information in this document with any of the directors or employees of the Company, or their respective subsidiaries nor with any of their suppliers, customers, sub contractors or any governmental or regulatory body without the prior written consent of the Company.

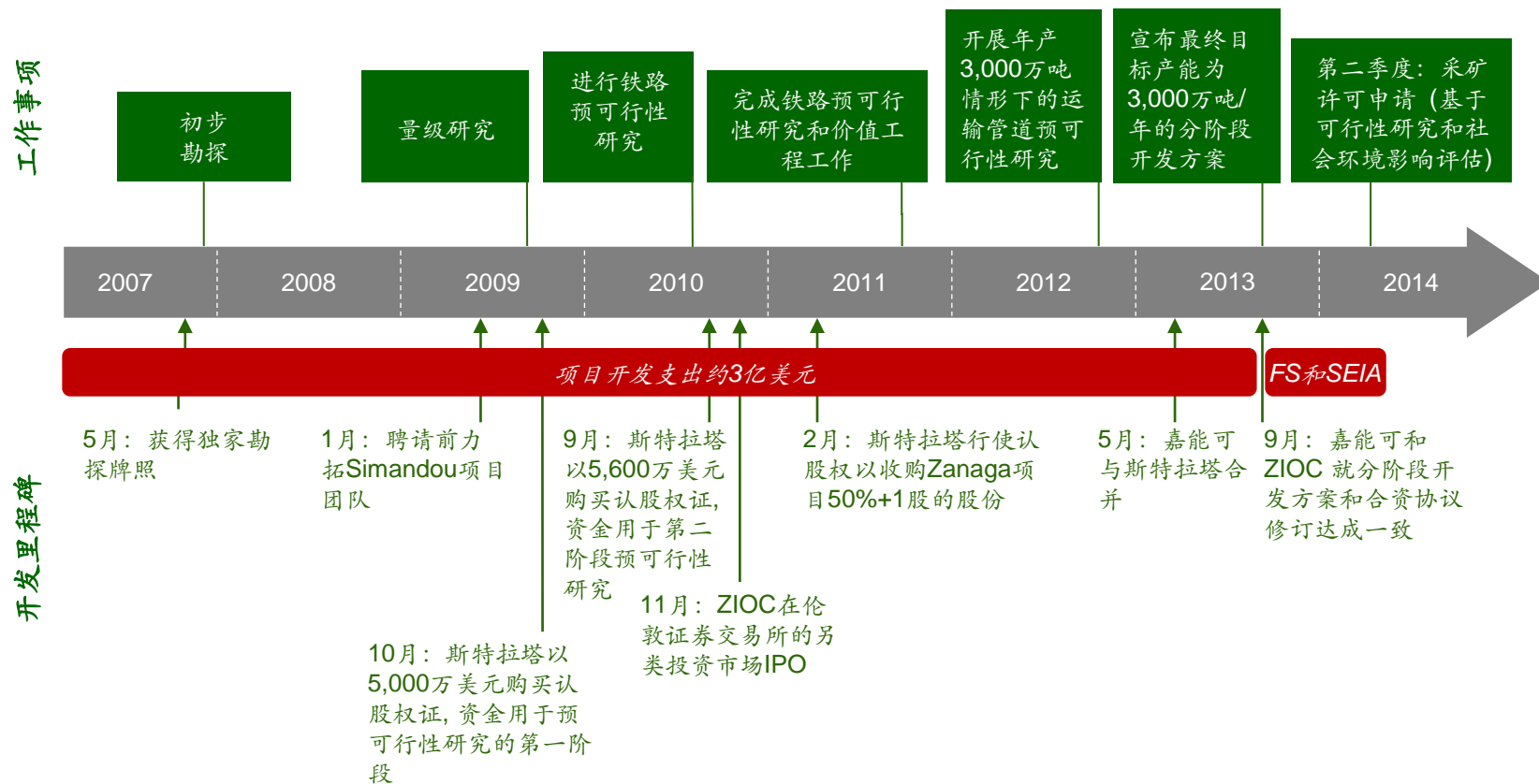
项目介绍

- 位于刚果共和国的世界级铁矿石项目
 - 资源量 – 68亿吨（铁含量32%）
 - 储量 – 25亿吨（铁含量34%）
- 与嘉能可斯特拉塔（以下简称“嘉能可”）的合资项目
- 预可行性研究后的项目评估认定，Zanaga项目分阶段开发方案极具吸引力
- 目前正基于分阶段开发方案开展可行性研究
- 计划在可行性研究（FS）以及社会和环境影晌评估（SEIA）完成后于2014年第二季度申请采矿许可证
- 根据分阶段开发方案修改了合资协议
- 将与嘉能可共同寻求项目开发融资



注：储量和资源量由ZIOC分别在2012年11月和2012年9月宣布 - 均根据JORC标准规范报告

项目历史



基于分阶段开发方案的可行性研究正在进行中

- 预可行性研究后的项目评估认定，Zanaga项目分阶段开发方案极具吸引力
 - 第一阶段：年产1,200万吨 + 年产100万-200万吨DSO铁矿石
 - 第二阶段：提升产能至3,000万吨/年
- 显著提升项目可行性并降低资本支出
- 可行性研究将于2014年第二季度完成，这将有助于采矿许可证申请
- 正在考虑的其他开发事项
 - 提前开采DSO铁矿石
 - 比较自主开采与承包开采
 - 选择运输港口

分阶段开发方案概述

第一阶段：年产1,200万+200万吨

原方案：年产3,000万吨

初始资本支出降至原计划的1/3	约25亿-30亿美元	74亿美元
资本密度改善	约200美元/吨	245美元/吨
仍具吸引力的平均运营支出	约37-40美元/吨	23美元/吨
保持铁矿石高品位	铁含量60-62% (DSO铁矿) 铁含量66% (球团矿料)	68% (球团矿料)
充分利用现有基础设施	利用现有公路/铁路运输DSO铁矿；现有电网供电	产量大，现有设施无法满足要求
管道运输	运营支出低，适合直接远距离输送	
低成本港口运输方案	浅水港，换船转运	大型深水港

注：估算资本和运营支出时，第一阶段方案基于2013年实际美元价格，原方案基于2012年实际实际美元价格，均未考虑通胀因素。估算的运营支出包括或有支出，但不包括3%的资源税。以上数据将根据可行性研究结果进行调整。

DSO铁矿石：灵活调整产能，有望在短期内产生现金流收入

- 第一阶段DSO铁矿石产能有望达到200万吨/年
 - 资本支出低
 - 根据市场状况灵活调整产能
 - 初步采样结果显示DSO矿石铁含量达60-62%
- 寻求提前开采DSO铁矿石的机会
 - 借助承包开采；利用现有公路、铁路和港口基础设施
 - 有望提早带来现金流收入

高品位DSO铁矿石采样（铁含量60%）



经改造的矿区至国道公路



第一阶段 – 采矿和选矿

采矿

- 开采矿体上部超过5亿吨、铁含量约42%的易碎矿料（开采年限约20年）
- 剥采比低，易挖掘，开采成本低
- 适合承包开采（目前假设）
- 矿山基础设施需求降低，对社区影响减小
- 20年开采期满后，可继续开采致密铁英岩以延长开采年限

选矿（球团选矿厂）

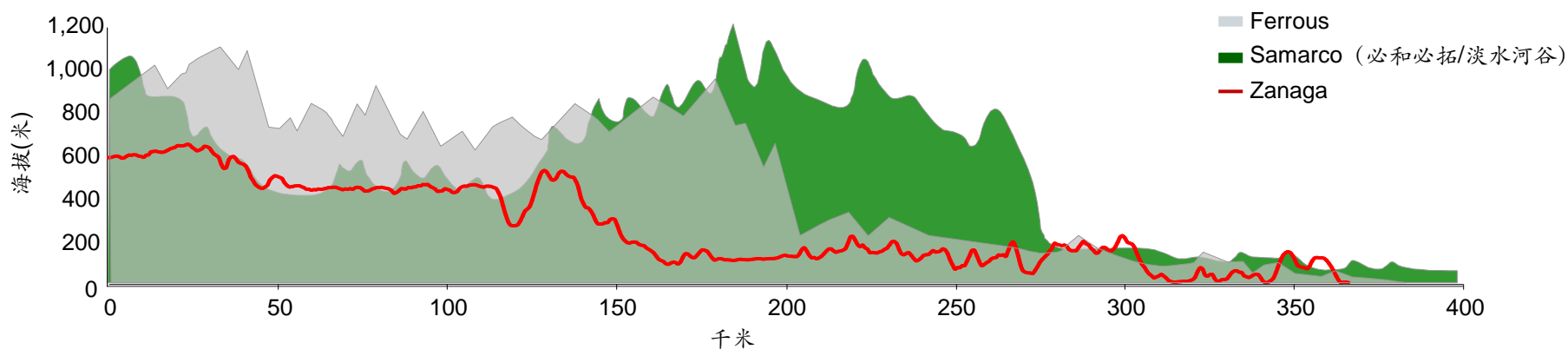
- 在开采点减少后优化了工厂位置（卡车和输送带搬运量减少）
- 工厂资本和运营支出下降
 - 简化设计，通过螺旋选矿设备和浮选工艺，只处理赤铁矿
 - 开采的铁矿石更软、颗粒更粗，用电量下降
 - 回收率提升至40%以上
- 出产含铁66%、二氧化硅3%、氧化铝0.5%的铁精矿
- 20年开采期满后，可通过适当改造使选矿厂得以处理富含磁铁矿的致密铁英岩

流程图、产品和储量将在进一步研究中确认

第一阶段 – 针对1,200万吨/年产能的运输管道

- 长达370公里的运输管道将球团矿料从矿山运输至Pointe-Noire港
 - 两个泵站（由于规模缩小，需要中间泵站）
 - 运营成本非常低
 - 最大管道坡度为12%
 - 获取所需土地使用权的流程明确
 - 恰当的咨询
 - 单一中央政府审批（相较巴西而言）

指示性地形剖面图显示地形优于巴西



资料来源：ZOIC公司资料，Samarco和Ferrous公司数据

第一阶段 – 港口和电力

港口

- 第一阶段：利用自建浅水港和海上换船转运
- 备选方案：
 - 第三方浅水港或者深水港
 - 初期产能较低时利用Pointe-Noire港现有设施
- 第二阶段：建设深水港

电力供应

- 第一阶段：利用国家电网
 - 电力需求显著下降
 - 柴油发电机作为紧急情况备用电源
- 第二阶段：电力供应方案包括专用电站

自行卸载船舶



Pointe-Noire港ENI电站



保持铁矿石高品位

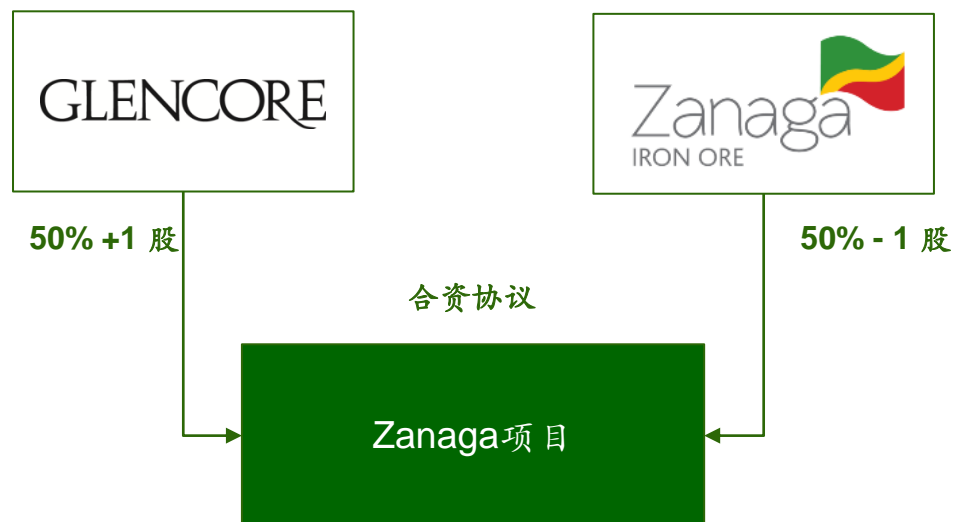
- 第一阶段：矿石品位高
 - 初步采样结果显示DSO矿石铁含量达60-62%
 - 球团矿料铁含量为66%，杂质含量少
- 较铁含量62%的铁矿存在溢价
- 溢价原因在于：
 - 铁含量高
 - 杂质含量少
- 在20年矿山服务年限得到延长以及第二阶段扩建完成后，选矿厂将处理磁铁矿并将铁含量提高2%

指示性产品规格－球团矿料

	第一阶段	第二阶段
铁	66%	68%
二氧化硅	3.0%	3.0%
氧化铝	0.5%	0.4%
磷	<0.03%	<0.03%
硫	<0.02%	<0.02%
水分	8%	8%

与嘉能可合资

- 2013年9月签署补充协议以适应分阶段开发方案
- ZIOC为项目开发出资1,700万美元（在2014年12月前）
- 嘉能可保持管理控制权
- 嘉能可买入期权与ZIOC“德克萨斯”拍卖权失效
- 嘉能可与ZIOC 共同寻求项目融资
- 旨在为项目开发吸引债务和股本融资



项目进展及后续步骤

- ✓ 基于分阶段开发方案的可行性研究正在进行之中
- ✓ 监管审批正在进行之中
- 在可行性研究以及社会和环境评估完成后，于2014年第二季度申请采矿许可证
- 嘉能可与ZIOC就合资项目融资进行协作
 - 旨在为项目开发进行债务和股权融资
 - 开拓增值型合作关系，潜在合作对象包括提供基础设施解决方案的第三方
- 针对项目的任何投资决策均会依据可行性研究的结果进行

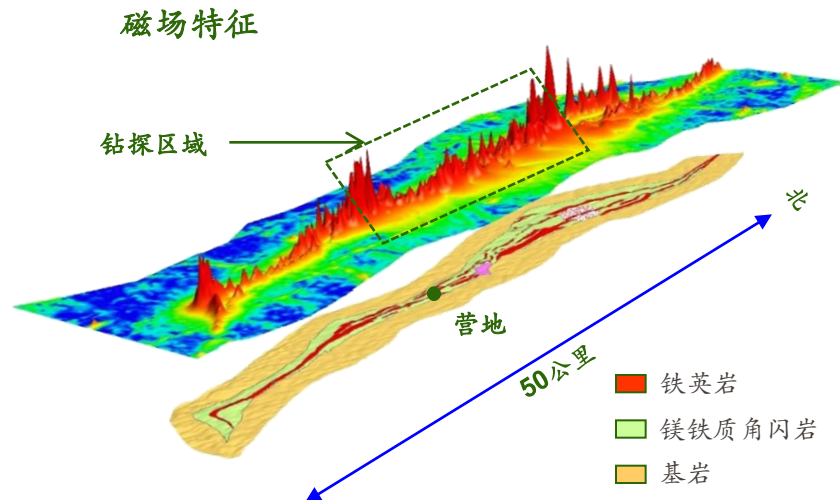
综述

- 世界级铁矿石资源项目
 - 资源量 – 68亿吨（含铁量32%）
 - 储量 – 25亿吨（含铁量34%）
- 分阶段开发方案可降低风险，降低资本支出并提高项目可行性
 - 有望较早产生现金流收入
 - 资本密集度和资本支出规模下降
 - 港口及电力基础设施选择方案多样
- 矿石品位高且营运成本具有吸引力
- 与嘉能可合作
- 在可行性研究以及社会和环境评估完成后，于2014年第二季度申请采矿许可证
- 嘉能可与ZIOC共同寻求项目开发融资

注：储量和资源量由ZIOC分别在12年11月和12年9月宣布 - 均根据JORC标准规范报告

附录：储量与资源量

- **68亿吨资源量（含铁量 32%）**
 - 69%属于测定和推定类别
 - 具有实现更高产量和更长矿山开采年限的潜力
 - 通过大于176,000米的钻探来测定资源
 - 已经完成可行性研究所需的钻探工作
- **25亿吨概算储量（含铁量 34%）**
 - 超过30年的矿山开采年限
 - 西非地区最大的铁矿石储量
- **矿带走向和深度显示资源量具有提升潜力**
 - 目前仅钻探了50公里磁异常地带中的25公里



矿石储量












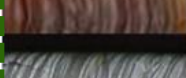


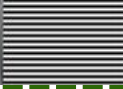
分类	吨数 (百万吨)	铁 (%)
概算	2,500	34
探明	-	-
总矿石储量	2,500	34




经修订的矿产资源量 (2012年9月)

分类	吨数 (百万吨)	铁 (%)	二氧化硅 (%)	氧化铝 (%)	磷 (%)	锰 (%)	灼烧减量 (%)
测定	2,400	34.0	43.0	3.3	0.048	0.106	1.403
推定	2,290	30.8	46.6	3.0	0.052	0.116	0.701
推测	2,100	31	46	3	0.05	0.12	0.90
合计	6,800	32	45	3	0.05	0.11	1.01

注：012年9月4日ZIOC公告的储量和资源量根据JORC规范报告。报告中含铁量0%的边际品位在假设铁金属价格为130美分/干吨的基础上计算得出。

岩层较浅、易开裂且富含赤铁矿的铁英岩资源

图片	岩性录井图	风化层分类	岩性分类	岩性代码	岩性定义
		土壤	土壤	SOL	粘性土壤，碎屑较少。该部分完全属于冲积土壤
		胶结基岩	铁角砾岩	CAN	与针铁矿胶结的赤铁矿碎屑
		崩积物	崩积物	COL	含粘土基质的未固化碎屑
				ITG	非晶质软弱层带非固化赤铁矿/针铁矿/石英
		风化基岩	铁英岩	ITF	强风化、易碎的铁英岩
				ITC	中风化、固化的铁英岩
				ITT	弱风化铁英岩
		未风化基岩 (矿胚)	未蚀变铁英岩	BIF	未风化磁铁矿铁英岩

-  易碎铁英岩 - COL、ITG、ITF
-  致密铁英岩 - ITC
-  磁铁矿铁英岩 - ITT、BIF