# BEHRE DOLBEAR MINERALS INDUSTRY ADVISORS

### INDEPENDENT QUALIFIED PERSON'S REPORT ON FOUR COAL MINING PROPERTIES BLACKGOLD INTERNATIONAL HOLDINGS LIMITED IN CHONGQING MUNICIPALITY PEOPLE'S REPUBLIC OF CHINA

**23 OCTOBER 2015** 

(RESOURCES AND RESERVES – EFFECTIVE DATE – 30 APRIL 2015)

**PREPARED FOR:** 

BLACKGOLD INTERNATIONAL HOLDINGS LIMITED 12/F, 18, MIAN HUA STREET YUZHONG DISTRICT CHONGQING MUNICIPALITY, 400011 PEOPLE'S REPUBLIC OF CHINA

**PREPARED BY:** 

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Alastair McIntyre Senior Managing Director Behre Dolbear - Asia

23 October 2015

The Directors Blackgold International Holdings Limited 12/F, 18, Mian Hua Street Yuzhong District Chongqing Municipality, 400011 People's Republic of China

#### Re: Behre Dolbear Project 15-042 – Independent Qualified Person's Report Four Coal Mining Properties of Blackgold International Holdings Limited

Gentlemen:

Behre Dolbear Asia, Inc. (Behre Dolbear), a wholly-owned subsidiary of Behre Dolbear Group Inc., located at the address below, herewith submits its Independent Qualified Person's Report ("IQPR") covering four coal mining properties of Blackgold International Holdings Limited ("Blackgold" or "Company") in Chongqing Municipality, People's Republic of China. Behre Dolbear submitted the first Draft of this IQPR to the Company on 23 August 2015. At the Company's request, Behre Dolbear has updated and revised certain parts of that submission to support filings on the Australian Securities Exchange related to resource and reserve updates. The Effective Date of Resources and Reserves stated herein is 30 April 2015.

This IQPR reviews three operating coal mines and one developing coal mine (including their associated properties) located in Chongqing Municipality, People's Republic of China, constituting the primary coal-related assets of the Company (collectively "the Blackgold Mines" and individually "the Mine"). Since 2011, and prior to the development of this IQPR, Behre Dolbear had published four separate independent technical reviews for the Company. Those reports are listed in Section 17.0 of this IQPR. Through the duration of its Blackgold engagements, Behre Dolbear has used a review team comprising the same professionals. Members of that team visited all the Blackgold Mines reviewed in this IQPR during the following four separate periods: 09-15 February 2012, 21-24 January 2013, 15-18 June 2013, and 12-16 May 2015.

The reporting standard adopted by this IQPR is the VALMIN Code and Guidelines for Technical Assessment and Valuation of Mineral Assets and Mineral Securities for Independent Expert Reports, as adopted by the Australasian Institute of Mining and Metallurgy in 1995 and updated in 2005.

Coal resources and coal reserves defined at each coal property have been estimated in accordance with the December 2012 Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves ("JORC Code 2012 Edition") prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia.

The evidence upon which the estimated coal resources and coal reserves are based includes the deposit geology, drilling, and sampling information, project economics, and past production history. Behre Dolbear's views on coal resources and coal reserves are based upon its examination of certain work performed by other parties, site visits by Behre Dolbear's professionals to all the reviewed coal mining properties, interviews of Blackgold's site personnel, analysis of the drilling and sampling database, procedures and parameters used for such estimates, and comparisons of forecasted versus actual coal production.

Behre Dolbear's work included technical analysis of project geology, third party coal resource and coal reserve estimates, mining methods, and production schedules. Behre Dolbear reviewed occupational health and safety data and environmental and regulatory records.

Behre Dolbear also examined the Company's historical and forecasted revenues, operating costs and capital expenditures. This IQPR incorporates the Company's financial statements as of 30 April 2015. The effective date of resources and reserves described in this IQPR is 30 April 2015 (Effective Date). Blackgold has confirmed to Behre Dolbear that as of the date of this IQPR there have been no material changes in resources and reserves other than on-going production and mine construction since the Effective Date. As of the date of this report, Behre Dolbear has reviewed and commented on the Company's regulatory compliance, permit status, and license approval status using criteria that are consistent with the standards of the industry. The impact of new or revised laws, rules, or restrictions that might be imposed on future exploration, development, or operations of the Mines, after the date of this report, cannot be anticipated.

This IQPR is based upon information compiled by Dr. Yingting (Tony) Guo, Mr. Anthony R. Cameron, and a team of Behre Dolbear professionals. Dr. Guo and Mr. Cameron, the professionals responsible for this IQPR, meet the applicable requirements for the ASX Listing Rules. They are the Senior Associates of Behre Dolbear and they have extensive experience, which is relevant to the style of mineralization and type of deposit reviewed herein. They are both "Competent Persons", as defined in the JORC Code 2012 Edition.

This IQPR has been reviewed by Mr. Donald K. Cooper, Chairman and Director of Behre Dolbear Asia, Inc., who is also a "Competent Person." Dr. Guo, Mr. Cameron, and Mr. Cooper have signed Declarations consistent with the requirements of the JORC Code 2012 Edition and ASX Listing Rules. Those Declarations, including consents, are included as appendices to this IQPR. Dr. Guo, Mr. Cameron, and Mr. Cooper consent to the inclusion of this IQPR, as part of the Company's filing in the form and context in which it herein appears.

Neither Behre Dolbear nor any of its employees or associates involved in the preparation of this IQPR has any direct or indirect pecuniary or contingent interests of any kind (whether past or present) in Blackgold or its coal mining properties, any of the assets being reported on or any group, holding or associated entity of the Company. None of Behre Dolbear's partners, officers, employees, or associated entity of the Company. Behre Dolbear does not have any claims outstanding against the Company, its assets, or any group, holding, or associated entity of the Services (the work product of which includes this IQPR) at its normal commercial rate and on customary payment schedules. Payment of Behre Dolbear's professional fee is not contingent upon the outcome of this IQPR.

The sole purpose of this IQPR is for use by the Company, its shareholders, and its regulators in connection with ASX filings. This IQPR cannot be used or relied upon for any other purpose. Neither the whole, nor any part, of this IQPR, nor any reference thereto may be included in, with, or attached to any document or used for any other purpose without Behre Dolbear's written consent to the form and context in which it appears.

Yours truly,

forgano

Yingting (Tony) Guo, Ph.D., PGeo., MMSA QP Member 01472QP Senior Associate and Qualified/Competent Person

Dempald of Congers

Donald K. Cooper, MMSA QP Member 01373QP Chairman, Board of Directors Behre Dolbear Asia, Inc.

cc: Alastair McIntyre, Senior Managing Director – Asia

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#### DISCLAIMER

Behre Dolbear Asia, Inc. (Behre Dolbear) has conducted an independent technical review of coal mining properties owned and/or controlled by Blackgold International Holdings Limited (Blackgold), during which time Behre Dolbear professionals made four site visits encompassing the four coal mining properties. Behre Dolbear has exercised all due care in reviewing information supplied by Blackgold and believes that the Company's data and its basic assumptions regarding coal mining, coal resources and coal reserves are reasonable given current operating circumstances and market considerations. Behre Dolbear found no reason to doubt the accuracy or reliability of the information provided by the Company. Behre Dolbear has independently analyzed Blackgold's data, but its conclusions expressed herein regarding the Company and its four principal mining operations rely upon the quality and efficacy of the data supplied by the Company. Behre Dolbear does not accept responsibility for any errors or omissions in the information supplied and does not accept any liability arising from investment or other financial decisions or actions on the part of others utilizing this IQPR.

The first Draft of this IQPR was submitted to the Company on 23 August 2015 (First Draft Submittal). At the Company's request, Behre Dolbear has updated and revised certain parts of this IQPR as of 23 October 2015. Based upon data provided by the Company and representations made by the Company, Behre Dolbear has concluded that, except for on-going production and mine construction, there have been no material changes in the Company's coal resources and reserves since the Effective Date of 30 April 2015. The Company has also stated that no material changes in the Company's business have occurred since the First Draft Submittal.

#### INDEMNIFICATIONS

Blackgold has not provided any indemnification to Behre Dolbear.

#### UNITS USED IN THIS REPORT

The metric system is used throughout this IQPR.

The currency used is in this IQPR is the Chinese Yuan (or "RMB"). The Company's financial documentation reviewed by Behre Dolbear used RMB as the subject currency. The Company does not do any material business in US Dollars ("US\$"), but for the convenience of readers who wish to see US\$ equivalents, Behre Dolbear has converted RMB into US\$ in various Tables in this IQPR. An exchange rate of RMB6.14 to US\$1.00 has been based on the average exchange rate for the FY 2014 and first half of FY 2015 as per the website <a href="http://www.oanda.com">http://www.oanda.com</a>. It should be recognized that foreign exchange rates are subject to change over time and that the use of current US\$ equivalence is not intended to take precedence over the financial data shown in RMB.

Elevations are expressed in meters above mean sea level.

When units in other systems and other currencies are used, they are identified in the text.

A glossary of technical terms and abbreviations used in this IQPR is attached as Appendix 1.0.

#### 1.0 EXECUTIVE SUMMARY

#### 1.1 INTRODUCTION

Blackgold International Holdings Limited ("Blackgold" or "Company") is a public company, listed on the Australia Securities Exchange (ASX). Blackgold controls the entire interest of four underground coal mines and/or associated properties in Chongqing Municipality, People's Republic of China.

Since 2011, and prior to the development of this Independent Qualified Person's Report ("IQPR"), Behre Dolbear had published four separate independent technical reviews for the Company. Those reports are documented in Section 17.0 of this IQPR. Through the duration of its Blackgold engagements, Behre Dolbear's review team has comprised the same professionals. Members of that team made visits to the Blackgold Mines reviewed in this IQPR during the following four separate periods: 09-15 February 2012, 21-24 January 2013, 15-18 June 2013, and 12-16 May 2015.

This IQPR is the result of those visits and analysis of data and information provided by Blackgold. Since the time of the initial field visit and through the date of this IQPR, Behre Dolbear has consistently been in contact with representatives of Blackgold, routinely updating and analyzing data provided by Blackgold and others. Based upon those communications, Behre Dolbear believes this IQPR represents current data, as of the date of its transmittal letter to the Company's Directors.

This IQPR documents Behre Dolbear's findings regarding Blackgold's coal mining properties as of 30 April 2015 the "Effective Date." It is based upon the Company's financials as of the Effective Date and it categorizes coal resources and reserves as of the Effective Date. The first Draft of this IQPR was submitted to the Company on 23 August 2015 (First Draft Submittal). At the Company's request, Behre Dolbear has updated and revised certain parts of that submission to support filings on the Australian Securities Exchange related to resource and reserve updates. The Effective Date of Resources and Reserves stated herein is 30 April 2015. Based upon data provided by the Company and representations made by the Company, Behre Dolbear has concluded that, except for on-going production and mine construction, there have been no material changes in the Company's coal resources and reserves since the Effective Date. The Company has also stated that no material changes in the Company's business have occurred subsequent to the First Draft Submittal.

Behre Dolbear reviewed the Company's coal resource and reserve estimates, as defined at each Mine for conformity with the December 2012 Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves ("JORC Code 2012 Edition") prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia.

#### 1.2 GEOLOGY

Blackgold owns the Caotang Mine, Heiwan Mine, Baolong Mine, and Changhong Mine. The Caotang and Heiwan Mines are located in late Triassic coal basins. The Baolong and Changhong Mines occur in Permian coal basins. Three of Blackgold's Mines are located in the northeast region of Chongqing Municipality and one of them is located in the southernmost region.

The eastern mining areas in Chongqing Municipality are situated in the eastern part of the arcuate Xinhuaxia Eastern Sichuan-Wanxian Fold Belt that connects with the northern Daba arcuate structure and eastern Xinhuaxia Qiyueshan Fold Belt forming part of the Yangtze Strata sub zone of the Sichuan Basin. The southern mining area in Chongqing Municipality is part of North Guizhou Lift and part of North Guizhou Permian Coal Basin.

The coals mined at all four Mines are classed as anthracite. They have undergone intense folding and faulting resulting in a fairly complex geological environment at the Mines, which is discussed in detail in Section 5.0 of this IQPR.

The Caotang Mine coal is high ash, medium to high sulphur, medium to high phosphorus, and medium calorific value coal making it suitable for the thermal energy market. The Mine produces thermal coal for local, regional, and national power plants or furnace operators.

The Heiwan Mine coal is high ash, low sulphur, and medium calorific value coal suitable for the thermal energy market The Mine produces thermal coal for local, regional, and national power plants or furnace operators.

The Baolong Mine is mining two distinct coal seams designated as K1 and K2. The K1 seam is high ash, high sulphur, special low phosphorus, low chlorine, and low calorific value. The K2 seam is medium ash, medium high sulphur and medium calorific value. Both seams are characterized as "blind" coal, *i.e.*, burning with little or no apparent flame. The K1 coal can be used as general industrial or home heating coal while K2 coal can be used for thermal power generation, motive power, or home heating. Their high arsenic contents prohibit use of either seam in the food processing industry and the fluorine content dictates that, when used for home heating, they must be burned in a special combustion stove.

The Changhong Mine also operates in two distinct coals seams: M6 and M8. The M6 coal seam is high-ash, high sulphur, and medium calorific value. The M8 coal seam is medium ash, medium sulphur, and high calorific value. These coals are mainly used for power generation and domestic consumption.

#### 1.3 COAL RESOURCES AND RESERVES

During 2011, Blackgold engaged Al Maynard & Associates (AM&A), an independent geological consulting firm from Australia, to complete a JORC-compliant coal resource and reserve study for the Company's four properties. On 20 January 2012, AM&A published a report titled "*Independent Geologists' Report Prepared for Blackgold International Holdings Limited*" (AM&A 2012 Report).

Also in 2012, Blackgold engaged Chongqing Design Institute of China Coal Technology & Engineering Group ("Chongqing Institute") in Chongqing Municipality to produce life-of-mine mining plans and production schedules at each Mine. Chongqing Institute personnel have a good understanding of the potentially minable portion of the in situ resource at the properties. Based on AM&A's resource model for the Blackgold Mines, Chongqing Institute has developed or revised mine designs and plans for extraction of the coal for all four Mines. They have excluded coal underneath protected areas, barrier pillars required for ventilation and haulage, and they have accounted for mining losses. Behre Dolbear opines that the coal mine design work was adequately organized by the Chongqing Institute and considers the reports produced by the Chongqing Institute to be at least at a pre-feasibility study level, as defined by the JORC Code Edition 2012.

Blackgold recently re-engaged AM&A to develop an updated JORC-compliant resource and reserve study. On 9 April 2015, AM&A wrote a report on the Company's four Mines titled "Independent Geological Report for a Resource and Reserve Update Reported in Accordance with the JORC Code (2012) Prepared for Blackgold International Holdings Limited (AM&A 2015 Report).

#### **1.3.1** Blackgold's Coal Resources

Behre Dolbear reviewed and revised the resource estimation completed by AM&A in 2015. Behre Dolbear adjusted the AM&A resource figures by deducting the coal resource tonnages corresponding

to the coal reserves reportedly extracted from Blackgold's operating Mines from 01 November 2014 to 30 April 2015, the earlier date having been the last effective date for resource and reserve disclosures officially reported by the Company. Behre Dolbear is of the opinion that the JORC Code-compliant in situ Coal Resource for the four Blackgold Mines, as of 30 April 2015, is as shown in Table 1.1.

TABLE 1.1         STATEMENT OF JORC COAL RESOURCE <sup>1,2,3</sup>									
	AS OF 30 APRIL 2015 (Mil Lions of Tonnes)								
Mino	In	Situ Coal Reso	urce Category	7					
Nine	Measured	Indicated	Inferred	Total					
Caotang	26.0	3.0	0.0	29.0					
Heiwan	6.1	0.6	0.0	6.7					
Baolong	38.9	34.5	29.3	102.7					
Changhong	18.1	7.8	9.7	35.6					
Total	89.1	45.9	39.0	174.0					
<sup>1</sup> The Statement of JORC Coal Resources has been compiled by Dr. Tony Guo who is Managing Director – Americas of Behre Dolbear and a member of the Association of Professional Engineers and Geoscientists of the Province of British Columbia, Canada with License Number 31257. Dr. Guo has sufficient coal related experience to qualify as a Competent Person as defined in the JORC Code.									
<ul> <li>for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The joint Ore Reserves Committee Code – JORC 2012 Edition) and are inclusive of Coal Reserves.</li> <li><sup>3</sup>The Coal Resources reported above represent estimates as at 30 April 2015. Coal 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. The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.</li> </ul>									

#### **1.3.2** Blackgold's Coal Reserves

Based in part on AM&A's 2015 resource models and resource estimates for the Blackgold Mines, Chongqing Institute developed mine designs and plans for extraction of coal at all four Mines. They excluded coal underneath protected areas, barrier pillars required for ventilation and haulage, and they accounted for mining losses. In its categorization of reserves, Behre Dolbear adjusted certain elements of Chongqing Institute's and AM&A's work to further account for mining losses and dilution, and eliminated seams or parts of seams, which because of interburden and seam thickness, may only be partially recoverable.

Taking into account these adjustments, Behre Dolbear's estimate of the JORC Code-compliant Coal Reserve at the Company's properties, as of 30 April 2015, are shown in Table 1.2. Inferred Coal Resources do not form part of the Coal Reserves and the previously stated Coal Resources are inclusive of Coal Reserves.

TABLE 1.2STATEMENT OF JORC COAL RESERVES <sup>1,2,3</sup> As of 30 April 2015(MILLIONS OF TONNES)							
Mine		Reserve Categor	y T ( ) D				
	Proved	Probable	Total Reserves				
Caotang	18.82	3.38	22.20				
Heiwan	3.15	0.46	3.62				
Baolong	29.19	26.05	55.14				
Changhong	11.89	6.75	18.64				
Total	62.96	36.64	99.60				
<sup>1</sup> The Statement of J	ORC Coal Reserve	s has been compiled	by Mr. Tony Cameron				
who is a Senior A	Associate of Behre	Dolbear and a Fell	ow of the AUSIMM.				
Mr. Cameron has su	ifficient coal related	experience to qualify	as a Competent Person				
as defined in the JO	RC Code.						
<sup>2</sup> The stated Coal Reserves are reported in accordance with the Australasian Code for							
Reporting of Exploration Results, Mineral Resources and Ore Reserves (The joint							
Ore Reserves Comn	nittee Code – JORC	2012 Edition) and forr	n part of the Coal				
Resources.							
<sup>3</sup> Figures reported are	rounded which may	result in small tabulat	tion errors.				

In accordance with the JORC Code 2012 Edition's requirement for data in a "Table One" format, Appendix 2.0 of this IQPR presents a summary of significant "Assessment and Reporting Criteria" used in Behre Dolbear's review and discussion of the Company's coal resources and reserves. That Appendix is a single comprehensive tabulation that delineates the criteria used by Behre Dolbear to describe resources and reserves at all four of the Company's Mines.

#### 1.4 COAL QUALITY DISCUSSION

The physical and chemical characteristics of Blackgold's coals (Table 1.3) described in the reviewed data indicate that they are categorized as anthracite coal with dry volatile matter contents ranging from 1% to 10%, as defined by the State Standard of China Coal Classification System (GB5751-86) and ASTM. The data indicates that the vast majority of the Company's coal is suitable for the power generation market and some of it is suitable for use in Pulverized Coal Injection (PCI) systems. The dry ash content of most of the Company's coals indicates that in most instances beneficiation (coal washing) will be required to facilitate utilization. Table 1.3 lists average coal quality for each Mine.

TABLE 1.3           Average Undiluted Raw Coal Quality of Blackgold's Coal Reserves									
Mine	MineMoisture (%) $ad^1$ Ash (%) adVolatile Matter (%) adFixed Carbon (%) adSulphur (%) adCV (kcal/kg ar <sup>2</sup>								
Caotang	0.63	33.53	7.07	59.32	0.47	4,965			
Heiwan	0.76	26.53	6.92	65.56	0.74	5,630			
Baolong	0.58	28.39	6.87	62.39	0.57	5,494			
Changhong         0.49         18.02         8.89         67.40         2.64         6,788									
<sup>1</sup> "ad" = air dried <sup>2</sup> "ar" = as receiv	<sup>1</sup> "ad" = air dried basis <sup>2</sup> "ar" = as received basis								

Coal Resources and Reserves, including the risks associated with reporting of tonnages in those categorizations, are further discussed in Sections 6.0 and 14.0.

#### 1.5 BRIEF MINE DESCRIPTIONS AND PLANS

#### 1.5.1 Caotang Mine

The Caotang Mine main portal is at an elevation of 435m in the foothills of mountainous countryside. It is 14 kilometers (km) north-northeast of Fengjie County town, approximately 33 km by road from the town center and approximately 25 km from the port on the Yangtze River. Site administration falls under the jurisdiction of Baidi and Fenhe Towns (both are equivalent to district level administration). Coal mining started in 1982 on the property and the property was purchased by Guoping Group in 2003 and then transferred to Blackgold in March 2010. The corners of the mining permit area extend from longitude 109°31′00″ to 109°34′09″E and latitude 31°06′47″ to 31°09′45″N. The coordinates of the major adit portal are 109°31′27″E and 31°08′15″N at an elevation of 435.13m.

Caotang Mine is, and will continue to be, operated by a combination of Caotang Mine employees and sub-contractors. In fiscal year (FY) 2013 (01 November 2012 through 31 October 2013), total Mine production was 1,199,000 tonnes. FY 2014 Mine production was 758,000 tonnes, and FY 2015 to date (1 November 2014 to 30 April 2015) Mine production was 386,000 tonnes. Lower production in 2014 was related to the purchase and installation of new mechanized longwall mining equipment. Behre Dolbear observed that equipment during its most recent field visit. Blackgold has also stated that: "Due to uncertainties in the market, the Company slowed coal production [beginning] in Q2 2014 to re-assess the market and retain its coal reserves for betting pricing in the future."

The Company plans to ultimately purchase and install four more mechanized longwall units in order to increase productivity.

#### 1.5.2 Heiwan Mine

The Heiwan Mine portal is at an elevation of 1,120m in very mountainous countryside 27 km northeast of Fengjie, approximately 42 km by road from the town center and approximately 35 km from the port site on the Yangtze River. Coal mining started in 1996. The property was purchased by Guoping Group in 2001 and then transferred to Blackgold in March 2010. The Heiwan Mine is currently Blackgold's second largest producing Mine. The mining permit covers a total area of 3.34 square kilometers (km<sup>2</sup>) with permitted elevation between 1,300m to 1,050m. The Heiwan Mine main adit coordinates are latitude 31°09′58″ N and longitude 109°41′37″ E at an elevation of 1,119.7m. Trucking distance to the Fengjie Jinpen coal dock is 35 km.

The main seam mined is the thin Triassic Xujiahe Formation K3 seam but the K1 seam is also being developed as a secondary contributor to production. FY 2013 Mine production was 299,000 tonnes. FY 2014 Mine production was 147,000 tonnes and the FY 2015 to date Mine production was 73,000 tonnes. All of the coal at the Heiwan Mine is mined by Heiwan Coal Mine employees. Lower production in 2014 and 2015 was a result of the Company's decision to reduce production while safety monitoring systems were installed. Blackgold has also stated that: "Due to uncertainties in the market, the Company slowed coal production [beginning] in Q2 2014 to re-assess the market and retain its coal reserves for betting pricing in the future."

#### 1.5.3 Baolong Mine

The Baolong Mine (formerly Wushan Mine) is located in the southeast of Wushan County, 17 km from Baolong Town. It is a developed underground operation that was purchased by Blackgold in April 2011. The mining permit covers a total area of 2.87 km<sup>2</sup> with permitted elevation between 200m to 900m. The district comprises some rugged, mountainous terrain with steeply incised valleys but limited lowlands have some gently rolling areas. The lowest point is on the Baolong River at 160m

and the highest point is at Livinyang east of Baolong River with an elevation of 1,717m. The trucking distance from the Mine site to the local Baolong dock site at Putaoba is 25 km.

The permits allow production from the K1 seam and the K2 seam that are 360m apart, vertically. Mine development is continuing with the seams currently accessible on two levels. Further development of the working panels and the transport level are planned for 2015 with full-scale production due to be achieved in late 2017.

The Company also owns an exploration license, which covers 23.12 km<sup>2</sup> and is directly adjacent to the Baolong mining permit area. The coal seams on that license are expected to be the same as the Baolong mining area. The Company plans to conduct further exploration within this area during the next two years.

#### 1.5.4 Changhong Mine

The Changhong Mine is located 108 km south of downtown Chongqing. Coal mining started on the property in the early 1990s and the property was purchased by Blackgold in August 2011. The Mine is located in the area bordering Xishui County of Guizhou and Qijiang District of Chongqing, approximately 62 km southeast of Qijiang town center in Chongqing. It is 18 km from the nearest railway station. The mining permit allows mining between elevations 970m and 300m and covers a total area of 0.77 km<sup>2</sup>.

There are six main Upper Permian Longtan Formation seams in the district. The thicker M6 and M8 coal seams were originally mined from three small mines, which were amalgamated in 2007. Production will continue in clean up mode above the 1,093m level adit while the new 1,023m level adit is completed to access the deeper coal. Raw coal production was 223,000 tonnes and 90,000 tonnes in FY 2013 and FY 2014, respectively. There has been no coal production in FY 2015 to date. As with the Heiwan Mine, the Company recently installed remote gas and personnel monitoring systems and new gas drainage systems.

#### 1.6 MINING RIGHTS, PERMITS, AND ENVIRONMENTAL ISSUES

All Blackgold Mines visited by Behre Dolbear possess the necessary operating permits and mining rights. Mining permits were issued after Environmental Impact Assessments were performed by Chinese entities that have passed the GB/T19001-2008/ISO 9001 Standards. The Chinese government requires assessments for both community and environmental impacts before the mining permits are issued. Recently approved environmental assessment reports were provided and the Mine management stated that the Mines were operating according to the approved Chinese standards. Update of business licenses, exploration permits, and environmental assessment reports would be required at some of the Mines. Behre Dolbear's contractual work scope did not require legal due diligence or development of legal opinions in these regards. A limited review of data provided by Blackgold did not indicate any existing legal claims or other proceedings that might influence Blackgold's right to explore or mine in their properties.

#### 1.7 CASH FLOW ANALYSIS – VERIFICATION OF ECONOMIC VIABILITY

Behre Dolbear evaluated the economic viability of the Proved and Probable Reserves reported for the Company's Mines using conventional discounted cash flow techniques. Behre Dolbear prepared a base case cash flow model (BCFM) on the basis of production schedules, operating costs, and capital costs provided by Blackgold in the form of a Life of Mine (LOM) forecast and budget. The cash flow model determined the after-tax net income and cash flows for the aggregate of the four Mines. Only Proved and Probable Reserves have been included in the BCFM. In addition, the following key parameters were integral to the BCFM and the resulting cash flow analysis.

- Long-term budgeted coal prices were provided by Blackgold and are based on the actual coal prices achieved in the first half of FY 2015. Behre Dolbear is of the opinion that the use of historical coal prices is an acceptable and industry-standard method of projecting future commodity prices.
- Long-term budgeted operating costs estimated by Blackgold are based on actual operating costs achieved in the first half of FY 2015.
- The analysis uses a 100% equity basis.
- All costs and revenues incorporated into the BCFM are in "real" or constant RMBs without escalation.
- Net Present Values (NPVs) are determined assuming end-of-year cash flows.
- The Company's fiscal year (FY) is from 1 November to 31 October.

Behre Dolbear's cash flow analysis focused on the reasonableness of the BCFM's economic and technical inputs and the effect of those inputs on the economic viability of the Blackgold Mines. The objective of Behre Dolbear's cash flow analysis and the BCFM is to demonstrate the economic viability of the four coal projects and their associated Proved and Probable Reserves, as presented in this IQPR. This cash flow analysis is not intended to and should not be interpreted to represent the fair market value of the Blackgold Mines.

Each of the four Mines demonstrated a positive undiscounted NPV over the 10-year analysis period. Behre Dolbear is of the opinion that the Proved and Probable Reserves for the four Mines, as described in this IQPR, have demonstrated economic viability under reasonable technical and economic assumptions. These results are dependent on the technical inputs discussed in this IQPR. Material changes in the production operating costs, capital costs, and coal sales price could affect these results.

Behre Dolbear opines that certain variable factors could have significant impacts on the cash flows of the Blackgold Mines. To determine the effect of these variables, Behre Dolbear prepared sensitivity analyses by changing the following components of the base case assumptions.

- Coal sales prices
- Operating costs
- Capital costs

Of the sensitivity factors reviewed, the cash flow from the four Mines was significantly affected by variations in the coal sales prices.

#### 1.8 CONCLUSIONS AND RISK ASSESSMENT

Based on Behre Dolbear's site visits, review of provided information and data, and discussions with Blackgold through the date of this IQPR, Behre Dolbear has reached a number of conclusions and has identified a number of risks that will influence the ability of the Blackgold Mines to meet the Company's production and cost forecasts.

• Behre Dolbear confirms a significant resource base conforming to JORC Code standards.

- Behre Dolbear opines that the new and proposed mine plans and mining equipment will meet the forecasted production performance shown in the Chongqing Institute's design reports.
- Behre Dolbear's risk analysis assessed the impact of various geological, operational, economic, environmental, social, and regulatory issues that might influence the business of Blackgold at these Mines. That analysis is diverse and not amenable to summarization. The reader is referred to Section 14.0 for further discussion of those issues.

#### 2.0 INTRODUCTION

Blackgold International Holdings Group, Inc. ("Blackgold" or "Company") is a public company, listed on the Australian Securities Exchange (ASX:BGG). Blackgold has acquired four underground coal mines and/or properties in Chongqing Municipality, People's Republic of China. Behre Dolbear Asia, Inc. (Behre Dolbear) has previously performed independent technical reviews of the Blackgold properties and the Company's Mines. Four studies were performed and four individual reports were submitted to Blackgold in June 2012, February 2013, August 2013, and April 2014. Those reports are listed in Section 17.0 – References. More recently, the Company engaged Behre Dolbear to develop an updated independent technical review and to produce this IQPR in a manner consistent with current Listing Rules of the ASX.

Blackgold has been publically listed on the ASX since February 2011. The Company's organizational structure is shown in Figure 2.1. Blackgold's head office is located in downtown Chongqing Municipality. The Company has subsidiary offices in Fengjie County and Qijiang District, all in Chongqing Municipality, People's Republic of China.



#### Figure 2.1. Organization structure of Blackgold International Holdings Limited

Blackgold's primary assets are three operating underground coal mines in Fengjie County and Qijiang District (the Caotang, Heiwan, and Changhong Mines) and one underground coal mine being developed in Wushan County (Baolong Mine). All of the mines are in the Chongqing Municipality. Through its subsidiaries, Blackgold owns a 100% interest in the four Mines.

#### 2.1 EFFECTIVE DATE

This IQPR incorporates technical, operational, and financial information supplied to Behre Dolbear by Blackgold and other sources as of 30 April 2015. The Effective Date of the IQPR and of all coal resources and reserves described in this report is 30 April 2015. Blackgold has confirmed to Behre

Dolbear that there have been no material changes in coal resource and reserve tonnages other than ongoing production and mine construction since that date.

#### 2.2 BEHRE DOLBEAR'S QUALIFICATIONS

Behre Dolbear Asia, Inc. is a wholly owned subsidiary of Behre Dolbear Group Inc., an international minerals industry advisory and consulting group that has operated continuously worldwide since 1911. Behre Dolbear has prepared hundreds of independent technical reports for mining projects worldwide to support various types of financings and to support securities exchange filings by mining companies in Hong Kong, Singapore, the United States, Canada, Australia, the United Kingdom, and other countries.

#### 2.3 BEHRE DOLBEAR PERSONNEL

The professionals assigned to this engagement were specifically chosen for their knowledge of the coal industry and the various coal-related disciplines that are the subjects of this IQPR. The following personnel were assigned to this effort.

Project Manager and Project Geologist - Dr. Yingting (Tony) Guo is the Qualified Person responsible for this Independent Qualified Person's Report. He is a senior associate of Behre Dolbear Asia, Inc. Dr. Guo was formerly a Vice President of Behre Dolbear Asia, Inc. and Vice President of Behre Dolbear & Company, Ltd. He took the technical lead for the review and assumed the responsibility for development and signature of this IQPR. He has over 25 years of professional experience in the mineral industries. He has worked as an associate professor and research associate of geology for China University of Mining and Technology in Beijing, China; West Virginia University in Morgantown, USA; and University of British Columbia in Vancouver, Canada. He has conducted many coal exploration and research projects in China and North America and published more than 20 papers in International Journals from 1984 to 2012. He has worked on coal, gold, copper, iron, industrial mineral, and other mineral projects/mines in China, Mongolia, Africa, the United States, and Canada for the last 21 years with the Canadian Company, CBM Solution. Dr. Guo's business expertise includes coal resource and reserve estimation, exploration, assessment, acquisition, and project management. Dr. Guo has participated and managed multiple coal, gold, and copper exploration assignments in China, Mongolia, and North America. His credentials include a Bachelor of Science Degree in Geology from the Nanjing University as well as a Doctor's Degree in Geology and Exploration from China University of Mining and Technology. He is a registered Professional Geoscientist from the Association of Professional Engineers and Geoscientists of the Province of British Columbia, Canada with license number 31257 and a Qualified Professional (QP) Member of Mining and Metallurgical Society of America with number 01472QP. He meets the requirements for "Competent Person," as defined in the Australasian JORC Code 2012 Edition.

**Project Advisor** – **Mr. Donald K. Cooper** is the retired President of Behre Dolbear & Company (USA), Inc. He continues to serve as the parent company's Global Director of Coal Services. He holds a BS degree in Mineral Preparation Engineering from The Pennsylvania State University and he did MS level studies in Mineral Economics and Statistics at the West Virginia University. He has diverse experience in coal mining, preparation, marketing, transportation, and utilization. His 40 years in the coal industry have included project engineering, construction, and start-up management. Working for large, publicly held corporations such as United States Steel Corporation and small, private companies, he managed project feasibility studies for coal mining and preparations, and established coal mining budgets, structured and restructured operating and sales organizations, and established coal mining business plans. He has extensive experience in the evaluation and development of coal projects. Mr. Cooper specializes in the practical aspects of project development and management, including capital budget analysis, contract specifications, and construction progress and start-up coordination. He meets the requirements for "Competent Person," as defined in the Australasian

JORC Code 2012 Edition. He has been either the Project Manager or the Project Advisor for essentially all of the Behre Dolbear Group's major coal industry studies during the past 10 years.

**Project Mining Engineer** – **Mr. Tony Cameron** is a Senior Associate of Behre Dolbear based in Beijing. He visited the Company's project sites four times since February 2012, the most recent being May 2015, and has been responsible for reviewing all aspects of the mining operations, including the capital and operating costs and reserve estimation. He is a highly qualified and experienced coal mining professional with more than 25 years exposure to the industry. He has participated in new project development as well as upgrading existing operations. At the executive level, Mr. Cameron conducted due diligence reviews for corporate development purposes. The experience provided a broad exposure to all aspects of operations management up to, and including, the executive level. Mr. Cameron has coal experience on three continents, overseeing mines in Africa and Australia. He has Bachelor's degree in Mining Engineering from the University of Queensland, a Graduate Diploma in Business from Curtin University (WA), a Masters in Commercial Law from Melbourne University, a Professional Certificate in Arbitration, a First Class Mine Manager's Certificate (WA No 509), and is a Fellow of Australasian Institute of Mining and Metallurgy. He meets the requirements for "Competent Person," as defined in the Australasian JORC Code. Mr. Cameron has been involved in several independent technical reports filed on the ASX in recent years.

**Environmental and Permitting Specialist** – **Dr. Lawrence Malesu** holds a Ph.D. in Safety Technology and Engineering and a Masters degree in Environmental Engineering, both granted by Northeastern University in Shenyang, China. Fluent in Mandarin, Dr. Malesu specializes in the assessment of environmental and safety risks. He has provided his services on a number of Behre Dolbear coal projects in China and for Chinese clients on other continents. He has worked as the government Inspector of Mines and Environment in Africa. He has extensive experience in open cast and underground mining activities, including coal, copper, and iron ore. Dr. Malesu is a registered member of the Australasian Institute of Mining and Metallurgy (AusIMM) and he is a member of the Mining and Metallurgical Society of America (MMSA). His work has involved environmental site assessment, mining rights, permitting and licensing, mitigation plans, wastewater treatment, feasibility studies, and mine environmental and social integrations and responsibilities.

**Cash Flow Modeling** – **Ms. Amy Jacobsen** has over 25 years of diverse experience in technical consulting, business plan development, business process reviews, and independent technical reviews of large infrastructure projects, including coal and mineral projects as well as power generation projects. She specializes in the review, analysis, and preparation of cash flow models for use in project evaluations and valuations. Her experience has been in Asia, Europe, North and South America, Australia, Middle East, and Africa, and includes experience in energy fuels such as coal, lignite, and uranium as well as precious metals, base metals including copper, cobalt, zinc, and nickel, industrial minerals and fertilizers. Ms. Jacobsen holds a B.S. in metallurgical engineering from the Colorado School of Mines and an MBA from the University of Denver.

Dr. Guo, Mr. Cooper, and Mr. Cameron have signed Declarations consistent with the requirements of the JORC Code 2012 Edition and the ASX Listing Rules. Those Declarations are attached as Appendix 3.0, Appendix 4.0, and Appendix 5.0 to this IQPR.

#### 2.4 PURPOSE OF THE IQPR

This Behre Dolbear IQPR is intended to provide an independent technical assessment of Blackgold's coal mining properties. It is intended for use by Blackgold's Directors, shareholders, and regulators in connection with the Company's filings on the ASX. Neither the whole, nor any part of this IQPR, nor any reference thereto may be included in, with, or attached to any document or used for any other purpose without Behre Dolbear's written consent to the form and context in which it appears.

#### 2.5 BASIS OF THE IQPR

The evidence upon which the estimated coal resources and coal reserves are based includes the deposit geology, drilling, and sampling information, project economics, and past production history. The basis upon which Behre Dolbear formed its view on the coal resource and coal reserve estimates also includes the site visits of Behre Dolbear's professionals to all the reviewed coal mining properties, interviews of Blackgold's site personnel, analysis of the drilling and sampling database, procedures and parameters used for the estimates, and a comparison with past production.

#### 2.6 STANDARDS USED IN THE IQPR

This IQPR has been prepared in accordance with ASX Listing Rules in effect as of the date of its transmittal. The reporting standard adopted by this IQPR is the VALMIN Code and Guidelines for Technical Assessment and Valuation of Mineral Assets and Mineral Securities for Independent Expert Reports, as adopted by the Australasian Institute of Mining and Metallurgy in 1995 and updated in 2005. Coal resources and coal reserves defined at each coal property have been estimated in accordance with the December 2012 Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC).

#### 2.7 SITE VISITS

Behre Dolbear professionals traveled to Fengjie County, Wushan County, and Qijiang District, in Chongqing, PRC, making four separate site visits to the Blackgold mine properties since 2012. These include site visits from 09-15 February 2012, 21-24 January 2013, 15-18 June 2013, and 12-16 May 2015. The visits focused on the Company's coal resources, coal reserves, mine production, mine development, and related environmental practices. They conducted underground inspections of the Caotang, Heiwan, and Changhong Mines. During Behre Dolbear's visits, discussions were held with technical and managerial staff at the property sites and with technical and management personnel at the head office in downtown Chongqing City. Since these site visits, Behre Dolbear has maintained consistent contact with the Company and has received additional information, as required to complete this report

#### 2.8 **RELIANCE ON OTHER EXPERTS**

This IQPR relies on the information produced and provided by Blackgold, the Chongqing Design Institute of China Coal Technology & Engineering, and AM&A. The authors independently evaluated the provided information and wrote all sections of this IQPR, except where noted. The authors express their appreciation to the following companies for their assistance in gathering the information and data required by this review:

- Al Maynard & Associates
- Blackgold International Holdings Inc. and Subsidiary Entities
- Chongqing Design Institute of China Coal Technology & Engineering

Specific contacts at Blackgold were:

- Mr. James Tong, Non-Executive Chairman
- Mr. Teck Meng Lim, Financial Controller
- Mr. Jun Shao, Deputy General Manager and Chief of the Production Technology Department

- Mr. WenMing Yao, Chief Geologist
- Ms. Zongling Tian, Chairman's Office Administrator

A list of documents reviewed by Behre Dolbear is shown in Section 17.0.

This IQPR is not intended to express a legal opinion with respect to the Company's property titles, current surface and mineral control or possible encumbrances. In these regards, Behre Dolbear has relied upon representations made by the Company and its representatives and disclaims any responsibility for such information presented herein.

#### 3.0 DESCRIPTION OF THE PROPERTIES

#### 3.1 LOCATION AND ACCESS

Blackgold's four coal mining properties are located in the Chongqing Municipality, People Republic of China (PRC). Chongqing is a major city in Southwest China and it is one of the PRC's four direct-controlled municipalities. The municipality was created on 14 March 1997, succeeding the sub-provincial city administration that was part of Sichuan Province. As of November 2010, the municipality had a population of 28,846,200 although the urbanized area is estimated to have a population of only 6 million or 7 million. Three of Blackgold's coal mining properties are located in the northeast portion of the Chongqing Municipality and one of the properties is located in the southernmost portion of the Chongqing Municipality as shown in Figure 3.1.



## Figure 3.1 Blackgold International coal mine location map in Chongqing, China (After AM&A 20125 Report)

Chongqing is a developed industrial city and one of China's largest centers for motor vehicle and motorcycle production. It is also one of the nine largest iron and steel centers in China and one of the three major aluminum-producing centers. Important manufacturers include Chongqing Iron and Steel Company and South West Aluminum, which is Asia's largest aluminum plant. Agriculture remains

significant. Agricultural products include oranges, corn, potatoes, wheat, and rice. Natural resources are also abundant including coal, natural gas, and more than 40 other minerals, such as strontium and manganese.

Chongqing is located in a mountainous region. It is a major transportation hub with the biggest river port in southwestern China, located at the junction of the Jialing River and the Yangtze River. Oceangoing vessels can directly reach the Chongqing port through the Yangtze River. Chongqing is also a major rail and airline hub in southwestern China. The express highway connects major counties within Chongqing city and all surrounding provinces.

The Blackgold Mines are located in mountainous rural areas, a linear distance of 100 km to 200 km from the Chongqing Municipality urban center. The road distance is generally much longer than the linear distance due to the rugged terrain in the area and around the Mines. Reasonably maintained paved roads connect the city's urban center with different district and township centers, but the last several kilometers of the roads to the Mines are narrow dirt travel ways impacted by major truck traffic hauling coal.

#### 3.2 CLIMATE AND PHYSIOGRAPHY

Chongqing Municipality is located within a moist sub-tropical monsoon climate zone with four distinct seasons. The mean annual temperature is 18.4°C with a minimum of minus 7°C during December to January and a maximum of 42°C during July to August. Average annual precipitation ranges from 400 mm to 1,050 mm. Precipitation generally increases in higher altitude areas and mostly occurs during the monsoonal wet season from May to September. Landslides on steeper slopes occasionally cause problems during the monsoon season. The period between December and February is the dry season.

Chongqing has a monsoon-influenced humid sub-tropical climate, and for most of the year experiences very humid conditions. Known as one of the "Three Furnaces" of the Yangtze River, along with Wuhan and Nanjing, its summers are long and among the hottest and most humid in China, with highs of 33°C to 34°C (91°F to 93°F) in July and August in the urban area. Winters are short and somewhat mild, but damp and overcast. The city's location in the Sichuan Basin causes it to have one of the lowest sunshine totals annually in China, at only 1,055 hours.

The Caotang, Heiwan, and Baolong Mines are located in the northeastern mountainous region of the Chongqing Municipality. The area is dominated by rugged terrain, steeply incised by rivers. Mountain ranges strike generally east-west, running parallel with the regional structural corridors. Elevation ranges from +1,718m in the nearby mountains to +160m along the Yangtze River. Elevation offset is typically between 500m to 1,000m in the region. The rugged terrain presents limitations and challenges to agricultural land use and road construction projects.

The Changhong Mine is located in the southern mountainous region of the Chongqing Municipality on the border with the neighboring Guizhou Province, tectonically the eastern margin of the Sichuan Basin. The local terrain comprises rugged karstic landscape with an elevation ranging from 900m to 1,400m.

The areas surrounding the Mine sites are relatively undeveloped. Local residents are predominantly Han Chinese, commonly engaged in agricultural activities while some are engaged in nearby coal mining businesses and the tourism industry. Local people reside along major roads and on the more gentle slopes of mountains.

In eastern Chongqing, the nearby Qiyaoshan fault is relatively inactive with only six, low intensity earthquakes recorded since 1327. No significant earthquakes have been recorded. The local seismic

bureaus rate the rocks in the area as having a low velocity response. The same rating has been applied to the Changhong Mine area. Structures in the area are to be designed for a seismic intensity of level 6 or above.

#### 3.3 MINING RIGHTS

Under the "Mineral Resource Law of the PRC," all mineral resources of the PRC are owned by the state. A mining or exploration enterprise may obtain a permit for the mining or exploration right for conducting mining or exploration activities in a specific area during a specified license period. The permits are generally extendable at the end of their license periods.

The mining license for the Caotang Mine covers an area of 9.0997 km<sup>2</sup> with permitted mining at elevations of 300m to 970m. Currently, the Mine has three production portals that have been joined to form a single production system as per government requirements for coal mine consolidations in 2013. Raw coal produced from the Mine is transported by trucks approximately 25 km to the Yangtze River port for shipping to customers. The Caotang Mine currently has 643 employees.

The mining license for the Heiwan Mine covers an area of 3.3413 km<sup>2</sup> with permitted elevations between 1,300m and 1,050m. The present mine layout incorporates one primary transport adit, three ventilation adits, and one auxiliary adit. Raw coal produced from the Mine is transported 35 km by trucks to the Fengjie Jinpen coal dock along a tributary of Yangtze River. The Heiwan Mine currently has 241 employees.

The current mining license for the Baolong Mine covers 2.8736 km<sup>2</sup> with the permitted elevations between 200m and 900m. The designed raw coal production capacity for the current mining permit is 60,000 tpa and will be expanded to 1.5 Mtpa in 2017. The trucking distance from the Maojiawan No. 1 adit to the local Baolong dock site at Putaoba Town is 25 km. The Baolong Mine currently has three employees. The exploration license of Maojiawan section of Baolong Mine covers 23.12 km<sup>2</sup> and was renewed in June 2015. The Company has planned to conduct more exploration work within next two years.

The current mining license for the Changhong Mine covers 0.7719 km<sup>2</sup> with the permitted elevations between 800m and 1,350m. Currently, the Mine has only one production portal. The raw coal production was 90,000 tonnes in 2014. Raw coal production is expected to expand to 360,000 tonnes in 2016 and then increase to a rate of 500,000 tonnes per annum in 2017. Some raw coal produced at the mine is transported by trucks for the distance of 18 km to the rail head for sale. Some is also trucked approximately 20 km to the river port on a tributary of Yangtze River. The Changhong Mine currently has 136 employees.

Details of the effective dates and geographic areas of the four permits for mining rights and one permit for exploration right relating to the Blackgold Mines are listed in Table 3.1. Behre Dolbear has not undertaken a legal due diligence review of these permits because such work is outside the scope of Behre Dolbear's engagement. Behre Dolbear has relied upon Blackgold's statements regarding the validity of these mining rights. Behre Dolbear understands that the legal due diligence review of the mining rights has been undertaken by the Company's legal consultants.

	TABLE 3.1           Minunc and Exdloration Permit Summary for the RLACKCOLD Mines								
Property Name	Mining and/or Exploration Permit	License Valid Date	Blackgold's Interest (%)	Development Status	Area (km <sup>2</sup> )	Level (m)	Type of Mineral	Remarks	
Caotang Mine	C50000020090 41130019437	2013/12/27- 2016/12/27	100	Underground Operation	9.0997	970-300	Coal	Mining permit, Permitted for 0.15 Mt/Year, designed for 0.21Mt/Year, to be renewed every 3 years	
Heiwan Mine	C50000020090 41130019439	2014/4/01- 2016/6/23	100	Underground Operation	3.3413	1,300-1,050	Coal	Mining permit, Permitted for 0.06 Mt/Year, designed for 0.04Mt/Year, to be renewed every 3 years	
Baolong Mine	C50000020090 41130020052	2014/7/23- 2017/9/21	100	Development	2.8736	900-200	Coal	Mining permit, Permitted and designed for 0.06 Mt/Year, to be renewed every 3 years	
Maojiawan Section, Baolong Mine	T50120090301 025873	2015/3/22- 2017/3/22	100	Exploration	23.12	NA	Coal	Exploration permit, Owned by Chongqing Yihua Mining Company, a subsidiary of Blackgold	
Changhong Mine	C50000020090 41130018279	2012/12/18- 2015/12/18	100	Underground Operation	0.7719	1,350-800	Coal	Mining permit, Permitted for 0.12Mt/Year and designed for 0.04 Mt/Year, to be renewed every 3 years.	

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#### 4.0 EXPLORATION AND MINING HISTORY

#### 4.1 CAOTANG MINE

A detailed field investigation for the Caotang Mine was conducted by the Sichuan 137<sup>th</sup> Geological Brigade in 1992, collating abundant geological data concerning the characteristics of the coal seams and coal quality. A preliminary report was submitted on *Geological Design of Exploration Expansion* of Yejiping Caotang Coal Mine of Sichuan Province Fengjie County. A follow up report was submitted in June 1994 entitled Geology Report of Exploration Expansion of Yejiping Caotang Coal Mine of Sichuan Province Fengjie County. A follow up report was submitted in June 1994 entitled Geology Report of Exploration Expansion of Yejiping Caotang Coal Mine of Sichuan Province Fengjie County (Final).

The Caotang Mine originally belonged to the local government. Production commenced in February 1988. The Mine was subsequently transferred to the Guoping (GP) Group.

At present, the upper elevation of exploitation is 970m and the lowest levels are at 300m. Historical production from 2007 through April 2015 is summarized in Table 4.1.

TABLE 4.1								
HISTORICAL AND CURRENT CAOTANG MINE PRODUCTION								
Year <sup>1</sup>	K1 Seam	K2 Seam	Total					
I cui	(tonnes)	(tonnes)	(tonnes)					
2007	41,655	193,080	234,735					
2008	178,664	40,506	219,170					
2009	241,496	110,524	352,020					
2010	441,391	188,199	629,590					
2011	538,700	201,409	740,109					
2012	675,232	272,441	947,673					
2013	452,877	746,588	1,199,465					
2014	506,605	250,907	757,512					
2015 <sup>2</sup>	231,798	154,414	386,212					
Total 3,308,418 2,158,068 5,466,486								
<sup>1</sup> Fiscal year production (01 November to 31 October)								
<sup>2</sup> Half-Year production (0	01November 2014 to 30 A	April 2015)						

With regard to Caotang Mine production, Blackgold has stated that: "Due to uncertainties in the market, the Company slowed coal production [beginning] in Q2 2014 to re-assess the market and retain its coal reserves for betting pricing in the future"

#### 4.2 HEIWAN MINE

The initial exploration program at Heiwan Mine area was carried out by the Sichuan 107<sup>th</sup> Geological Brigade from December 1978 to August 1979. Subsequently, more detailed field investigations were conducted by the Sichuan Metallurgy Geology Exploration Institute, the Fengjie Coal Mine Technology Service Centre, and Fengjie County Guo Xing Land Resources Development Consultancy Services Co. Ltd. in 2003, 2005, and 2006. The K1 through K5 seams were deemed economic after allowing for an oxidation zone of 50m to 80m from outcrop. The mining permit covers approximately 2,500m of strike with down dip extent of approximately 1,300m for an exploitable area of 3.34 km<sup>2</sup>. Topography has divided the K4 seam into three blocks.

During 2011, systematic channel sampling of development headings was conducted for the K3 seam. In addition, 12 underground drill holes totaling 1,170.75m from selected positions on 5 profiles were drilled downward from the K3 development and provided intersection information for both the K2 and K1 seams.

Heiwan Mine was developed by the original owner in 1996 and purchased by Guoping Group in 2001. The present mine layout incorporates one primary transport adit, three ventilation adits, and one auxiliary adit.

At present, the upper elevation of exploitation is 1,300m and the lowest levels are at +1,050m. Production from 2007 through April 2013 is summarized in Table 4.2.

TABLE 4.2           HISTORICAL AND CURRENT HEIWAN MINE PRODUCTION								
Year <sup>1</sup>	K1 Seam (tonnes)	K3 Seam (tonnes)	Total (tonnes)					
2007	9,237	26,622	35,859					
2008	8,948	31,018	39,966					
2009	5,562	40,229	45,791					
2010	3,197	99,547	102,744					
2011	3,914	199,689	203,603					
2012	0	249,973	249,973					
2013	0	299,000	299,000					
2014		147,000	147,000					
2015 <sup>2</sup>		73,000	73,000					
Total	30,858	1,166,179	1,197,037					
<sup>1</sup> Fiscal year production (01 November to 31 October) <sup>2</sup> Half-Year Production (01 November 2014to 30 April 2015								

Heiwan Mine's lower production in 2014 and 2015 was partly a result of the Company's decision to reduce production while safety monitoring systems were installed. Blackgold has also stated that: "Due to uncertainties in the market, the Company slowed coal production [beginning] in Q2 2014 to re-assess the market and retain its coal reserves for betting pricing in the future."

#### 4.3 BAOLONG MINE

Historically, local artisanal miners had established many small pits to shallow depths along both of the K1 and K2 outcrops. Initial exploration was conducted in 1957 and was verified in 1960 by the Sichuan Province Coal Industry Bureau's No. 1 Geological Brigade. They checked 12 exposures on the K2 seam and 5 on the K1 seam with data later used for resource estimate purposes. From 1980-1984, the Sichuan Province Geologic Bureau No. 107 Brigade and Hubei Province Geology & Mineral Resources Bureau completed 1:200,000 regional geologic mapping.

In 2004, Chongqing 136<sup>th</sup> Geologic Brigade compiled data for the *Chongqing Wushan County Baolong Town Hujiawan Coal Expansion Mine Scope Report*. The report, submitted in December 2007, involved data reviews supplemented by mapping on 10 profiles and drilling of the first three drill holes, including geophysical logging. Eight 20 centimeter (cm)  $\times$  20 cm channel samples were taken from old adits and assayed by the Chongqing Coal Quality Inspection Station Chongqing Coal Geologic Institute.

Specific gravity samples were collected according to the "Coal Seam Coal Sample Collecting Method" (GB482-1995) using large dimension channel cuts. The K1 sample was taken from the Sandunyan TD2 tunnel and the K2 sample from the L9 Zhangshu adit.

#### 4.4 CHANGHONG MINE

The original Changhong Mine was founded in 1996 and commenced private production in 1997. In October 2005, Changhong Mine obtained a new mining license issued by Chongqing Municipal Administration of Land, Mineral Resources and Housing, covering 0.2103 km<sup>2</sup> between elevations 1,320m and 800m via the adit at elevation 1,092m. The current mining license for Changhong Mine covers an area of 0.7719 km<sup>2</sup> with the permitted elevations between 800m and 1,350m. Most of the M6 seam above 1,092m elevation has been mined out but the M8 seam remains un-mined. No mining has occurred below the 1,092 level.

In August 2005, the Chongqing 136<sup>th</sup> Geological Brigade submitted a report outlining a coal reserve of 734 kilotonnes (kt). Blackgold commenced mining in seams M6 and M8 at Changhong Mine in January 2013 after the completion of expansion activities and a 17,228 tonne trial production in 2012. Raw coal production in 2013 and 2014 was 223,000 tonnes and 90,000 tonnes, respectively. The Company decided to suspend production at Changhong while new safety infrastructure including a remote gas and personnel monitoring system and new gas drainage system were installed. There has been no coal production to date in 2015.

#### 5.0 GEOLOGY

#### 5.1 **REGIONAL GEOLOGICAL SETTING**

Blackgold's Caotang and Heiwan Mines are located in late Triassic coal basins. The Baolong and Changhong Mines operate in Permian coal basins. Three of Blackgold's Mines are located in the northeast region of Chongqing Municipality and one is located in the southernmost area, as previously shown in Figure 3.1.

The eastern mining areas in Chongqing Municipality are situated in the eastern part of the arcuate Xinhuaxia Eastern Sichuan-Wanxian Fold Belt that connects with the northern Daba arcuate structure and eastern Xinhuaxia Qiyueshan Fold Belt forming part of the Yangtze Strata sub zone of the Sichuan Basin. The southern mining area in Chongqing Municipality is part of North Guizhou Lift and part of North Guizhou Permian Coal Basin.

#### 5.1.1 Stratigraphy

The stratigraphy exposed in the two coal mining areas is mainly in the Permian, Triassic, and Jurassic sedimentary sequences. The Permian strata comprise six formations named sequentially upwards as the Liangshan Formation (P<sub>1</sub>l), Qixia Formation (P<sub>1</sub>q), Maokou Formation (P<sub>1</sub>m), Gufeng Formation (P<sub>1</sub>g), Longtan (Wujiaping) Formation (P<sub>2</sub>w), Changxing Formation (P<sub>2</sub>c), and Dalong Formation (P<sub>2</sub>d). The coal-bearing strata at the Baolong and Changhong Mines were deposited in the south China interior epicontinental sea basin during the Permian age (Figure 5.1) (Zhuang, et al., 2007) and located in the northeast margin of this epicontinental sea basin. Main coal seams are located in the Late Permian Longtan (Wujiaping) Formation.

Unconformably overlying the Permian sediments the Triassic sequence is composed sequentially upwards of the Daye Formation  $(T_1d)$ , Jialingjiang Formation  $(T_1j)$ , Badong Formation  $(T_2b)$ , and Xujiahe Formation (Txj).

The Triassic sequence unconformably underlies the Jurassic sequence. The coal-bearing strata in the eastern region of Chongqing were deposited within a typical continental sedimentary environment during the Late Triassic age and formed in the eastern part of Sichuan inland lake basin (Zhuang, et al., 2007). The sedimentary facies in this area mainly consist of pediment alluvial plain, delta plain, and shallow lake (Figure 5.1 and Figure 5.2).



Figure 5.1 Paleogeographic map of the Late Permian in South China (After Zhuang, et al., 2007)



Figure 5.2 Paleographic map of the Late Triassic coal-bearing sediment in Sichuan Basin (After Han and Yang, 1980)

#### 5.1.2 Structure

Major structure in the eastern mining area is represented by the Qumahe Syncline with a fold axis that strikes east-west and through the center of the Caotang Mine, as shown in Figure 5.3. Lying along the limbs of the syncline are a number of minor folds that extend generally in the same direction as the Qumahe Syncline. Among those minor folds, synclines are generally tighter than anticlines. Most fold structures pitch westward gently at an angle of approximately  $5^{\circ}$  except the Daping anticline and syncline, which are pitching eastward. The stratigraphy on the limbs is in general dipping gently at an angle ranging from  $10^{\circ}$  to  $30^{\circ}$ .



#### Figure 5.3 Regional geological map of the Caotang, Heiwan, Baolong, and Changhong Mines (After AM&A 2015 Report)

Faulting is abundant throughout the region and in the coal fields. Approximately 20 faults have been delineated in the Blackgold Mine workings. Those faults show a minor displacement ranging from 0.2m to 2m, except Faults  $F_{21}$  and  $F_{23}$ , which show a displacement of 7m. The faults are grouped into two main assemblages based on striking directions: (a) north-south trending, dipping sub vertically and running perpendicular to the axial plane of the Qumahe Syncline and (b) east-west trending, dipping vertically with a minor displacement and running parallel to the axial plane of the Qumahe Syncline.

#### 5.2 LOCAL AND DEPOSIT GEOLOGY

#### 5.2.1 Caotang Mine

#### 5.2.1.1 Local Geology Setting

The Caotang mining area is situated in the eastern part of the arcuate Xinhuaxia-Eastern Sichuan Wanxian Fold Belt that connects with the northern Daba arcuate structure and eastern Qiyue Mountain Fold Belt forming part of the Xinhuaxia Qiyueshan Fold Belt. The Mine area covers the north of Qumahe compound syncline with the subsidiary east-west Xujiaping Anticline and Shitaowan Syncline in the north of the Mine where limbs dip to 15°. Locally, however, the south limb of the Xujiaping Anticline is steeper, with a maximum dip of 68°, and an average of 32° between elevations 750m and 850m. Very few significant faults affect the coal seams.

The local stratigraphic sequence includes the 780m to 1,014m thick Middle Triassic Badong Formation ( $T_2b$ ) that includes siltstones, mudstones, calcareous shales, dolomites, and quartzites that are capped by limestone in an unconformable contact with the overlying Xujiahe Formation.

The 193m to 458m thick Xujiahe Formation ( $T_sxj$ ) comprises grey, grey-white fine to coarse grain feldspathic quartz sandstones, with occasional thin siltstones, sandy mudstone, mudstone, and coal seams.

Caotang Mine exploits the Triassic K1 and K2 coal seams located near the bottom of the lower section of the Triassic Xujiahe Formation, which provides a relatively stable mining environment. The geologic plan map of the Caotang Mine is shown in Figure 5.4 and Figure 5.5 shows a typical geologic cross section.


Figure 5.4 Caotang Mine geologic plan map (After AM&A 2015 Report)



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Figure 5.5 Caotang Mine area geologic cross section 2-2' (After AM&A 2015 Report)

# 5.2.1.2 Coal Seams

The Caotang Mine operates in the K1 and K2 seams. At this Mine, the K1 coal seam is the major economic seam while the K2 seam is the secondary producer.

The thickness of the K1 coal seam ranges from 0.0m to 2.4m with an average thickness of 1.96m. Within the current workings, it is approximately 2.0m thick. The thickness of the K2 coal seam ranges from 0.0m to 1.5m with an average quoted thickness of 0.6m; within the mine workings, it is approximately 1.0m thick.

Almost all the tenements contain economically mineable K1 seam with 2 to 5 internal dark grey mudstone or calcareous mudstone partings varying from 2.0m to 13.0m thick. The hanging wall unit to the K1 seam and footwall to the underlying K2 seam is dark grey sandy mudstone or mudstone (Tzb). This unit varies in thickness from 3.90m to 15.39m with an average of 8.75m and generally provides a stable mining back. The footwall is a partly calcareous mudstone.

The K2 coal seam is also distributed throughout the permit area and is the secondary producer with the product commonly referred to as "fragrant coal." The coal seam thickness ranges from 0.0m to 1.5m, averaging 0.99m in the mine workings. The hanging wall is grey muddy siltstone and the footwall is dark grey sandy mudstone, both being lithologically stable with only mild structural complications. The coal seam has relatively good coal quality with low sulphur, low ash, and a high calorific value.

# 5.2.1.3 Coal Quality Characteristics

Overall, the Caotang Mine's coal is classified as high ash, medium to high sulphur, medium to high phosphorus, and medium calorific value coal making it suitable for the thermal energy market. The Mine produces thermal coal for local, regional, and national power plants or furnace operators. According to Chongqing 136<sup>th</sup> Geological Brigade the historical production parameters were:

- Moisture  $(M_{ad})$  content averages 0.43%.
- Ash (A<sub>ad</sub>) content varies from 29.09% to 37.44% averaging 32.24%. The ash content of the upper and lower sections of the K1 seam is relatively low while the central zone, with more partings, has higher ash content.
- Total sulphur  $(S_{ad})$  content varies from 1.6% to 3.06% averaging 2.14%. The sulphur is mostly contained in pyrite decreasing toward the top of the seam.
- Phosphorous content ranges from 0.10% to 0.22% with an average of 0.14%. The variation from the top to the bottom of the seam being the opposite of the variation in the ash content.
- Calorific value (AD) varies from 4,818 kcal/kg to 5,902 kcal/kg.
- Specific gravity of the K1 and K2 seams is 1.55.

### 5.2.2 Heiwan Mine

### 5.2.2.1 Local Geological Setting

The Heiwan mining area occurs in an eastern portion of the Eastern Sichuan Fold Belt that includes a number of parasitic folds and faults. From north to south, these folds are the Hongyan Syncline, Longchi Anticline, Qumahe Syncline, Tongcun Anticline, Gulingzhen Syncline, Wenyaoshan Anticline, Baolong Syncline, Hengshixi Anticline, and the Maocaoba Anticline. Generally, the anticlines have steep limbs and the synclines have gently dipping limbs with the folds tightening to the east. Strata within the mining area are mainly Upper Triassic and Lower Jurassic sediments with

local coal, ironstone, and pyrite. The folding and faults are later structures that affect the coal seam thickness, in some instances to total exclusion.

In the mining area, local stratigraphy includes Middle Triassic Badong Formation ( $T_2b$ ), Upper Triassic Xujiahe Formation ( $T_3xj$ ), and Lower Jurassic Zhenzhuchong Formation ( $J_1z$ ).

The 230m thick Lower Jurassic Zhenzhuchong Formation  $(J_1z)$  comprises yellow grey to brownish grey to grey fine grained sandstone, siltstone, and sandy mudstones and shale. The basal zone is dark grey siltstone, mudstone, and shale, containing 2 to 4 coal seams or coal lines including K6 and K7 that are locally economic. These two seams are approximately 30m to 50m apart and 0.3m to 0.5m thick. The upper 200m is composed of brownish grey-to-grey fine grained mudstone, siltstone, and quartz sandstones deposited in a drying braided stream environment.

The strata strikes generally 330° dipping 13° north with many small dry micro-scale faults in the mining area. The Hongyan Syncline, Longchi Anticline, and the Qumahe Syncline all have minor parasitic folds and faulting.

The geologic plan map of the Heiwan Mine, shown in Figure 5.6 and Figure 5.7, shows a typical geologic cross section.



Figure 5.6 Heiwan Mine geological plan map with underground drill dole locations (After AM&A, 2015 Report)





Figure 5.7 Heiwan Mine geologic cross section 2-2' (After AM&A 2015 report)

# 5.2.2.2 Coal Seams

The K3 seam, the main stratum worked at the Heiwan Mine, is hosted by the  $T_3xj5$  unit of the Upper Triassic Xujiahe Formation. The coal thickness ranges from 0.25m to 0.50m. Recent underground exposures average 0.49m. K3 strikes 330° with an average dip of 13° northwest.

The K3 seam has a footwall of dark grey clayey to medium grained sandstone that is generally stable while the hanging wall consists of hard, medium grained massive sandstone and siltstone generally lacking faults.

The other seam mined at the Heiwan Mine is K1, which is similar to K3, averaging 0.84m thickness.

### 5.2.2.3 Coal Quality Characteristics

The Heiwan Mine produces thermal coal for local, regional, and national power plants or furnace operators. According to the Chongqing Wenzhou Quantity and Quality Examination Centre, coal produced at the Mine has the following quality.

- Moisture (ad) content 0.7%
- Ash  $(A_d)$  content 31.4%
- Sulphur  $(S_{td})$  content 1.2%
- Calorific value (AD) 5,061 kcal/kg
- Specific gravity of all seams was determined as 1.4

This classifies the coal as high ash, low sulphur, and medium calorific value coal suitable for the thermal energy market. The raw coal is black with a golden luster, clearly defined bedding and planar/conchoidal shell-like fractures. This coal is also called "fragrant" coal and is suitable for use in the smelting industry.

### 5.2.3 Baolong Mine

### 5.2.3.1 Local Geology Setting

The Baolong Mine is in the mountainous eastern border area of Chongqing that comprises the Eastern Chongqing Fold Belt of the Xinhuaxia System southeast of the neighboring Daba Mountain Arcuate Fold Belt.

Specifically the mining area is located on the northwest side of the northeast section of the Eastern Chongqing Fold Belt of the Neocathaysian Tectonic System. Here a series of northeast-southwest folds with open synclines and tight anticlines form a compact structural feature. Regionally, the folds are not dislocated although local compression and tension has caused normal and thrust faulting or secondary parasitic folds.

Outside the license area and conformably below, the Lower Triassic Jialingjiang Formation  $(T_1j)$  is divided into four formations with a total thickness of 800m to 1,400m. The first and third units are thin to medium thick-bedded grey limestone and bio-detritus limestone mixed with lesser dolomitic limestone. The second and fourth units are grey to light grey medium thicknesses of bedded dolomite, dolomitic limestone mixed with evaporates, and minor fossils. The Lower Triassic Daye Formation  $(T_1d)$  is grey to grey yellow, thin to medium thick bedded limestone, bio-detritus limestone, and oolitic limestone. Its upper and lower portions are mixed with purplish red, grey purple, thin silty limestone, and fossil bearing zones. Conformably below the Triassic Daye System is the Permian Dyas System. The top unit of the Upper Dyas System is the Dalong Formation (P2d) comprising grey black silty limestone mixed with grey black to grey and yellow grey muddy limestone with fossils. Its thickness ranges from 22m to 35m with an average of 25m. The central unit of the upper Dyas is the Changxing Formation (P2c) comprising grey black medium to coarse bedded limestone. Its thickness ranges from 90m to 120m with an average of 105m. The lower unit of the upper Dyas System, the Wujiaping Formation (P2w), is subdivided into two formations, *i.e.*, Wujiaping Formation Upper Section (P2w2) and Wujiaping Formation Lower Section (P2w1).

There is a disconformity between the upper and lower Dyas System and the lower units have been sub-divided into four formations, *i.e.*, the 28m thick Gufeng Formation (P1g), the 184m thick Maokou Formation (P1m), the 100m thick Xixia Formation (P1q), and the 2m to 15m thick Liangshan Formation (P11). There is an unconformity between the Permian and the Carboniferous System, which is locally represented by 40m of the Honglong Formation (C2h).

The mining area is located over the northwest limb of the central part of the Changliangzi Anticline between the Guandu and Duping Synclines. The anticline axis strikes N60°E with asymmetrical limbs. The northwest limb has strata dipping from  $19^{\circ}$  to  $70^{\circ}$  while the southeast limb has steep dips from  $82^{\circ}$  to  $85^{\circ}$ . Generally, parasitic folds did not develop and only in the south has the Yellow Pond Syncline been formed by the F3 fault.

The oldest strata exposed within the Changliangzi Anticline is the Lower Silurian Xiheba Formation  $(S_1x)$  and the youngest strata is the Lower Triassic Jialingjiang Formation  $(T_1j)$ . Within the Mine area, there are 13 faults mostly normal but F8, F11, and F12 are reverse faults. The F3 fault splays into the F1, F2, F4, F9, and F10 faults and is really the only destructive fault that badly affected the K1 coal seam.

The geologic plan map of the Heiwan Mine, shown in Figure 5.8 and Figure 5.9, shows a typical geologic cross section.



37402

37408

PZK1-1 PZK0-1

3428

3426

3424

Exploration Block Mining Permit

Drillholes

**GPS** Track

Underground Tunnels

Coal Seam

----- Yangtze Tributary

Outcrop

37408

XSection Lines

•

-

ZK2-1

S2-1 Silurian Middle to Lower Series

37406 37408 DEM Derived from NASA 3 Arc Second SRTM Data

37404

Figure 5.8 Baolong Mine geologic plan map with drill hole locations (After AM&A 2012 Report)

GeoDataComp Pty Ltd 4-1-2012

174000

34





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Figure 5.9 Baolong Mine geologic cross section 4-4' (After AM&A 2015 Report)

Project 15-042 (IQPR)

### 5.2.3.2 Coal Seams

Only one coal seam occurs within each of the Liangshan and Wujiaping Formations; the distinctive Marker Horizons of these seams are approximately 350m apart. Both coal seams have clay partings of variable thickness. Raw coal quality parameters can be improved by washing.

The K1 seam often has a false hanging wall composed of 0m to 0.2m of grey black sandy mudstone that easily parts from the true hanging wall of competent dark grey-to-grey-black blocky limestone. This sandy mudstone could be removed in a washing plant. The foot wall material is bauxitic mudstone and quartz sandstone above the Marker Horizon I.

The K1 coal seam in the mining area varies in thickness from 0.5m to 2.4m and has 1 to 2 inner clay partings. The top coal ply varies in width from 0.5m to 0.9m and the bottom one from 1.1m to 1.5m; in some zones, plys combine into one layer and total coal thickness can reach 2m. The K1 seam averages 1.72m. Clay partings are grey mudstone with variable thickness from 0.05m to 0.5m. The coal structure is complex. East of the Baolong River, the K1 seam has a thickness of about 0.85m while to the west of the river the variable width changes rapidly from thick near surface to about 0.9m at depth. The seam is described as half bright coal.

The K2 seam hanging wall is a 2.5m to 6.0m black mudstone that underlies the Wujiaping Formation  $P_2w^2$  grey black fine to medium grained bioclastic limestone. The foot wall material is grey mudstone and fine sandstone. The K2 seam total seam thickness ranges from 0.72m to 1.2m but averages 1.5m. Seam structure is simple but thickness is variable. In shallow zones, thickness is 0.39m to 0.68m, only thickening east of the Baolong River. The seam is described as half dull coal.

### 5.2.3.3 Coal Quality Characteristics

K1 seam raw coal exhibits the following average characteristics:

•	Moisture Content:	6.5%
•	Ash Content:	38.29%

- Volatile Matter Content: 7.9%
- Fixed Carbon Content: 49.6%
- Total Sulphur Content: 5.03%
- Calorific Value: 4,420 kcal/kg
- Phosphorus Content: 0.004%
- Chlorine Content: 0.091%
- Arsenic Content: 4.5 mg/kg
- Fluorine Content: 224 mg/kg
- Free Swelling Index: 2
- Specific Gravity: 1.55

The national norm GB/T15224.1-2004, GB/T15224.2-2004, and GB/T15224.3-2004 classifies the K1 raw seam as high ash (HA), high sulphur (HS), special low phosphorus (SLP), low chlorine (LCl), low calorific value (LQ), and blind coal (WY).

K2 seam raw coal exhibits the following average characteristics:

- Moisture Content: 4.39%
- Ash Content: 25.2%
- Volatile Matter Content: 8.55%
- Fixed Carbon Content: 63.32%

•	Total Sulphur Content:	1.82%
•	Calorific Value;	5,420 kcal/kg
•	Phosphorus Content:	0.014%
•	Chlorine Content:	0.018%
•	Arsenic Content:	8 mg/kg
•	Fluorine Content:	266 mg/kg
•	Free Swelling Index:	2
•	Specific Gravity:	1.50

The K2 raw seam is classified by the Chinese national norm as medium ash (MA), medium high sulphur (MHS), medium calorific value (MQ), and blind coal (WY).

The K1 coal can be used as general industrial or domestic coal while K2 coal can be used for thermal power generation, motive power, or domestic coal. The high arsenic content prohibits use of coal from either seam in the food processing industry and the fluorine content dictates that for domestic use it must be burned in a special combustion stove.

### 5.2.4 Changhong Mine

# 5.2.4.1 Local Geology Setting

The Mine site is located over the northwest limb of the Guandian Syncline in the northwest of the Loushan Mountain Fold Belt. The syncline starts at Wanlong Village near Shihao Town in Qijiang District of Chongqing and closes to the south near Xianyuan Town in Xishui County, Guizhou. The syncline is asymmetric with a steep limb dipping  $55^{\circ}$  to  $70^{\circ}$  in the west while dips on the limb are  $30^{\circ}$  to  $45^{\circ}$  (Figure 5.10).



#### Figure 5.10 Changhong Mine geologic plan map (After AM&A 2015 report)

The youngest stratum exposed in the core of the syncline is the Middle Jurassic Shaximiao Formation  $(J_{2}s)$  and on both limbs, the oldest rocks exposed are the Lower Permian Maokou Formation  $(P_1m)$ . The Mine is located over the northwest limb toward the middle of the syncline where the strata forms a monocline that strikes  $142^{\circ}$  to  $147^{\circ}$  and dips  $29^{\circ}$  to  $32^{\circ}$  southeast.

The district is structurally stable and there are no risks of landslides or like events. The Mine conducts multiple seam mining and there are no structures or folds that impede mining. Variation in seam width is the only large problem to scheduling mining of the faces due to the varied timber support requirements (Figure 5.11).



#### Figure 5.11 Changhong Mine geologic cross section 1-1' (After AM&A 2015 report)

The local stratigraphy includes Quaternary eluvial (Q4), the Lower Triassic Feixianguan Formation ( $T_1f$ ), the Upper Permian Changxing Formation ( $P_2c$ ), the Longtan (Wujiaping) Formation ( $P_2l$ ), and the Lower Permian Maokou Formation ( $P_1m$ ).

The eluvial Quaternary deposits occur as a 0.1m to 1.2m thick veneer of transported material and soils deposited or formed unconformably on the underlying strata in limited valley locations.

The 191m thick Lower Triassic Feixianguan Formation  $(T_1f)$  is formed of thin to medium bedded red purple and dark red purple calcareous mudstones. Conformably below is the 133m thick Lower Triassic Yulongshan Formation  $(T_1y)$  formed of thin and medium bedded light grey and grey limestone and argillaceous limestone with a central and lower thin-bedded mudstone.

The Upper Permian Changxing Formation ( $P_{2c}$ ) is 49m thick and formed of thick-medium bedded massive grey to dark grey to blackish limestone with thin-bedded dolomitic limestone in the middle. Conformably below is the 72m thick Upper Permian Longtan (Wujiaping) Formation ( $P_{2l}$ ) with an upper 24m grey to dark grey mudstone, marlstone, or sandy mudstone with minor fine sandstone, siltstone, and coal lines.

This formation has 5 to 8 coal seams including the M6 and M8, which are the main workable coal seams. The M7 seam has been worked, but only sporadically. Coal seams of 0.1m to 0.35m have been

classified as partially workable and originally the thinner M11 and M12 coal seams were classified as unworkable.

The coal seams are gas bearing so this Mine has been classified as having gas outburst potential. All required precautions are reportedly in place to protect personnel. The absolute gas emission rate is  $4.72 \text{ m}^3$ /min and the relative gas emission rate is  $54.8 \text{ m}^3$ /t. The average temperature of the Mine at 800m is a safe 22.8°C. Since the Mine is located in a karstic area where most of the limestone aquifers are regularly re-charged by rainfall, safety precautions regarding possible water influx from caverns are employed.

### 5.2.4.2 Coal Quality Characteristics

The Supervision and Inspection Station of Chongqing City using the National Standard of the PRC GB/T115524.1.2.3-2004.2-2004.3-2004, GB5751-86 Chinese Coal Classification determined that the M6 coal seam is high-ash, high sulphur anthracite with a medium calorific value. The M8 coal seam is medium ash, medium sulphur anthracite with high calorific value.

Typical M6 seam analysis is:

•	Moisture Content:	2.24%
•	Ash Content:	33.24%
•	Volatile Matter Content:	10.30%
•	Fixed Carbon Content:	56.46%
•	Total Sulphur Content:	5.75%
•	Calorific Value:	5,168 kcal/kg

Typical M8 seam analysis is:

•	Moisture Content:	2.28%
•	Ash Content:	13.32%
•	Volatile Matter Content:	9.04%
•	Fixed Carbon Content:	77.64%
	~	

• Calorific Value: 7,144 kcal/kg

Specific gravity determinations indicate that all seams have a specific gravity of approximately 1.5 except for M8, which has a specific gravity of approximately 1.45.

These coals are mainly used for power generation and domestic heating.

### 6.0 COAL RESOURCES AND RESERVES

#### 6.1 DIGITAL DATABASE FOR RESOURCE AND RESERVE ESTIMATION

Behre Dolbear has reviewed in detail the 2012 and 2015 coal resource and reserve reports prepared by AM&A as well as the digital maps and database that include original data points used for the coal resource and reserve estimation. Behre Dolbear also reviewed other Chinese geological exploration and resource estimate reports for Blackgold's Mines, which were prepared by the Chinese 136<sup>th</sup> Geology Brigade from Chongqing and 137<sup>th</sup> Geology Brigade from Sichuan Province. Behre Dolbear has checked the accuracy of the original data input and their calculations in a statistically appropriate fashion using AM&A's Microsoft Excel<sup>TM</sup> database and resource model based on the MapMine<sup>TM</sup> software. Behre Dolbear also reviewed Blackgold's records of raw coal production from 2011 to April 2015.

Behre Dolbear found that the procedures and parameters used for the coal resource estimation appear to be appropriate, the data input is accurate, and the calculations using that data appear to be correct. In addition, the Behre Dolbear professionals visited all 4 coal mining properties reviewed in this IQPR and inspected the geology of the coal deposits in the field. Behre Dolbear's field observation generally supports AM&A's coal resource and reserve estimations. It should be noted that Behre Dolbear has not conducted an in-depth audit of the original data used for the coal resource and reserve estimation and has relied upon the accuracy of the original data used by AM&A.

The digital database used for the coal resource and reserve estimation includes the above historical exploration data and information collected by AM&A from underground workings of the Mines. Each of the Blackgold Mines has been the subject of a number of resource and reserve estimates in the past, conducted by licensed state-owned entities. Basic information for these studies, including topography, deposit geology, geological mapping, and drilling data, was compiled for each coal mining license area by AM&A. Included in the database are coal seam thicknesses (excluding partings of more than 0.05m thick), coal quality, and dry bulk density data. The main data used in the AM&A resource estimate are summarized in Table 6.1. The number of drill hole and underground samples used for each seam estimate is summarized in Table 6.2.

TABLE 6.1DATA USED IN ESTIMATING THE BLACKGOLD COAL RESOURCES(BY AM&A 2015 REPORT)				
Data	Description			
Hole/Sample Coordinates	Excel spreadsheets received from client			
Sample Qualities Excel spreadsheets received from client				
Bulk Density	Specific gravity of 1.5 used for calculations based on information received from client			
Tenement Boundaries Digitized from maps received from client				
Coal Seam Limits Outcrops digitized from maps received from client				
Mined Out Limits Digitized from maps received from client				

TABLE 6.2         Sampling Used in the Resource Estimates <sup>1</sup>							
Mine	Seam	Drill Holes	UG Samples	Total Samples	Ave. Seam Thickness	Min. Seam Thickness	Max. Seam Thickness
Changhong	M5	2	0	2	3.8	3.1	4.5
Changhong	M6	2	59	61	12.9	9.1	15.7
Changhong	M7	2	2	4	6.6	5.7	7.3
Changhong	M8	2	13	15	9.2	8.7	12.1
Changhong	M10	1	0	1	4.0	4.0	4.0
Changhong	M12	2	0	2	5.4	3.0	7.9
Caotang	K1	0	373	373	2.0	1.4	2.5
Caotang	K2	0	185	185	1.1	0.4	1.2
Caotang	K3	0	0	0	0.9	0.9	0.9
Heiwan	K1	12	0	12	0.8	0.7	0.9
Heiwan	K2	12	0	12	0.5	0.4	0.7
Heiwan	K3	0	195	195	0.5	0.4	0.6
Heiwan	K4	0	0	0	0.3	0.3	0.3
Heiwan	K5	0	0	0	0.3	0.3	0.3
Wushan	K1	12	0	12	1.8	0.9	3.2
Wushan	K2	21	0	21	1.5	0.5	2.5
Totals	Totals 68 827 895						
<sup>1</sup> The seams highlighted in green were calculated in 2010 for the Blackgold ASX IGR based on estimated thickness from surface mapping.							

### 6.2 BULK DENSITY

In-place bulk densities of 1.5 and 1.45 were used in all calculations to convert volumes of coal to tonnes. These values are based on measurements on 20 samples analyzed by Chongqing Wanzhou Measure and Quality Inspection Centre.

# 6.3 COAL-BEARING STRATA

The mineable coal seams of the Company's properties are numbered numerically from top down in the formations. The number of coal seams used for resource estimation with average thickness for the four Blackgold Mines are also listed in Table 6.2.

The thickness of the coal seams is relatively consistent in local areas but variable over distances. Average seam thickness for the mineable seams ranges from 0.25m to 12.91m. Some of the coal seams contain partings. Partings with thickness greater than 0.05m are excluded from the coal resource tonnage estimates. However, they will be mined along with the coal seam and their impact has been included in the pertinent coal quality reports.

The intervals between mineable coal seams are variable. They range from less than 10m to over 300m and are typically greater than 10m. Minimum thickness and adequate vertical/horizontal separation were among the criteria used to identify which coal seams were included in the resource and reserve estimate for each property.

# 6.4 COAL RESOURCE AND RESERVE CLASSIFICATION SYSTEM UNDER THE AUSTRALASIAN JORC CODE

Behre Dolbear has used the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 Edition) for this IQPR. The definitions of coal resources and coal reserves under The JORC Code are as follows.

A 'Coal Resource' is a concentration or occurrence of coal of intrinsic economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, quality, geological characteristics and continuity of a Coal Resource are known, estimated or interpreted from specific geological evidence and knowledge. Coal Resources are subdivided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

An 'Inferred Coal Resource' is that part of a Coal 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.

An 'Indicated Coal Resource' is that part of a Coal 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.

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.

A 'Measured Coal Resource' is that part of a Coal 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.

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.

A 'Coal Reserve' is the economically mineable part of a Measured and/or Indicated Coal 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.

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

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

Under the JORC Code, Inferred Coal Resources are deemed to be too poorly delineated to be transferred into a reserve category. The general relationships between exploration results, coal resources, and coal reserves under the JORC Code are summarized in Figure 6.1.



# Figure 6.1 General relationships between exploration results, resources, and reserves under JORC Code 2012 Edition

Generally, coal reserves are quoted as comprising part of the total coal resource body rather than the coal resources being additional to the coal reserves quoted. The JORC Code 2012 Edition allows for either procedure, provided the system adopted is clearly specified. In this IQPR, all of the coal reserves are included within Indicated and Measured resources in the coal resource statements.

# 6.5 PROCEDURES AND PARAMETERS FOR COAL RESOURCE ESTIMATION BY AM&A

# 6.5.1 Sampling Method and QA/QC

According to the AM&A 2015 Report, the underground drill sampling and underground channel sampling that support resource estimates were consistent with JORC-compliant procedures, using appropriate quality assurance/quality control (QA/QC) practices. Sampling in both of the campaigns was directly collected or supervised by the competent person from AM&A. The surface drill sampling previously conducted by licensed state-owned geology brigades in China was reviewed and found to meet the JORC-compliant requirements.

The underground coal seam channel samples were collected using 10 cm wide and 5 cm deep channels, taken perpendicular to the coal seam strike. The samples were packed in thick plastic bags and directly shipped to the ISO accredited SGS Laboratory in Tianjin, China for coal quality testing.

Both the underground and surface drilling was conducted by licensed state-owned geology brigades. The surface drilling utilized HQ cores while the underground drilling utilized NQ cores. Core recoveries of the coal seams are generally good and greater than 85%. All the coal seam cores were logged and sampled by the geologists on-site under the supervision of a competent person from AM&A. The core samples were bagged in thick plastic bags and directly shipped to the SGS Laboratory in Tianjin, China for coal quality determinations. Behre Dolbear considers the sampling method(s) and QA/QC measures described in the AM&A 2015 Report to be reasonable and appropriate.

# 6.5.2 Data Verification

AM&A collected a suite of four channel samples from K1 and one from K2 at the Caotang Mine along with five "product" samples from stockpiles for verification of the historic and Company supplied assays. These check samples were assayed at the SGS Laboratory in Tianjin. A similar set of samples was collected at Heiwan Mine.

Behre Dolbear also collected 3 channel samples from Caotang K1, Heiwan K3, and Changhong M6 coal seams during their 2012 site visit and 2 channel samples from the Baolong M1 coal seam in 2015. All samples were directly shipped to the Intertek Laboratory in Tianjin. Behre Dolbear's and AM&A's check assays generally showed slightly better quality results than the Fengjie Laboratory where the initial exploration and mine samples were analyzed. Behre Dolbear is of the opinion that this finding indicates an element of conservatism in earlier documented Chinese assay results and the ongoing estimates. It is Behre Dolbear's opinion that the reliability of the Company's coal quality and seam thickness data meets the standards expected for resource modelling and estimation to be reported in accordance with the JORC Code 2012 Edition.

### 6.5.3 Estimation and Reporting of Mineral Resources

All coal resource estimates were done by gridding the sampling data with the MineMap<sup>TM</sup> computer software by an experienced JORC competent person. Seam intersection thicknesses and quality data were incorporated from both channel sample results and the detailed geological logs of drill holes. The minimum seam height required for coal resources ranged from 0.25m to 0.40m and the maximum ash content ranged from 40% to 50% ash.

The coal resources were estimated from  $20m \times 20m$  cells using the MineMap<sup>TM</sup> software by gridding the coal seam within the tenement boundary and the mapped outcrop. The coal qualities and thickness were interpolated into each cell using an Inverse Distance squared (ID<sup>2</sup>) algorithm. Two interpolation passes were completed. The first with a 4,000m search radius and the second with a 1,000m search radius. The first pass allowed all cells in the modeled area to be filled (for Target Mineralization) while the second pass was used for resource estimation.

The coal resources that have been sampled or drilled with at least 6 points and within 500m of a sample point were considered to be Measured; those between 500m and 1,000m were considered to be Indicated; those between 1,000m and 2,000m were considered to be Inferred, and those beyond 2,000m were considered to be target mineralization. If a seam was sampled with only 2 to 6 points, the coal within 500m of a sample point was classified as Indicated, coal within 500m to 1,000m was considered as Inferred, and any coal beyond 1,000m was considered to be target mineralization.

The volume was then calculated by multiplying the area of the coal within each cell by the average modeled thickness. This volume was then multiplied by an appropriate specific gravity representing the in-place coal to calculate the resource tonnage. Tonnages attributable to mined out areas (as digitized from the supplied maps) were then deducted for the final estimates. There are no underground channel data available at the Baolong Mine so only the 25 drill holes were used.

Simplified maps showing the resource models and sample points for some coal seams mined during 2014 are presented in Figure 6.2 to Figure 6.6. Behre Dolbear reviewed the AM&A resource estimation procedures and methods in detail and considers them to be reasonable and acceptable.



Caotang K1 Seam Sampling plan- 2015.04.30 updated

Figure 6.2 Caotang K1 seam sampling points and mined out areas map



Figure 6.3 Heiwan K3 seam sampling points and mined out areas map (After AM&A 2015 Report)



Figure 6.4 Baolong Mine K1 seam JORC Resources/Reserve location map (After AM&A 2012 Report)



Figure 6.5 Baolong Mine K2 seam JORC Resources/Reserve location map (After AM&A 2012 Report)



Figure 6.6 Changhong M6 seam sampling points and mined out areas map (After AM&A 2015 Report)

### 6.6 COAL RESOURCE STATEMENT

In its 2015 Report, AM&A estimated the unmined JORC-compliant in situ resource tonnage for these four Mines as of 01 November 2014 suitable for reporting under the reporting guidelines for the ASX. Behre Dolbear then took the reported coal production from the two production mines during November 2014 to 30 April 2015 and adjusted the in situ coal resources.

During the first half FY 2015 (01 November 2014 to 30 April 2015), the Company reported a total of 0.46 Mt was mined and sold from the Company's two producing mines. The Caotang Mine produced 386,200 tonnes of raw coal and the Heiwan Mine produced 72,800 tonnes of raw coal. No coal was produced at the Baolong and Changhong Mines in that period. Behre Dolbear used 7% dilution rate for both the Caotang and Heiwan Mine and 75% and 74% recovery rate for Caotang and Heiwan Mine, respectively to estimate the consumed coal resources. Behre Dolbear's estimate of the in situ Coal Resource, as of 30 April 2015, is shown in Table 6.3.

TABLE 6.3STATEMENT OF JORC COAL RESOURCE <sup>1,2,3</sup> As of 30 April 2015(MILLIONS OF TONNES)					
Mino		In Situ Resou	rce Category		
Iville	Measured	Indicated	Inferred	Total	
Caotang	26.0	3.0	0.0	29.0	
Heiwan	6.1	0.6	0.0	6.7	
Baolong	38.9	34.5	29.3	102.7	
Changhong	18.1	7.8	9.7	35.6	
Total	89.1	45.9	39.0	174.0	
<sup>1</sup> The Statement of JORC Coal Resources has been compiled by Dr. Tony Guo who is Managing Director – Americas of Behre Dolbear and a Member of the Professional Engineers and Geoscientists of the Province of British Columbia, Canada with License Number 31257. Dr. Guo has sufficient coal related experience to qualify as a Competent Person as defined in the JORC Code 2012 Edition. <sup>2</sup> The stated Coal Resources are reported in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The joint Ore Reserves Committee Code – IORC 2012 Edition) and are inclusive of Coal Reserves					
<sup>3</sup> The Coal Resources figures reported in the table above represent estimates as at 30 April 2015. Coal 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. The total contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies					

### 6.7 DISCUSSION – COAL RESOURCES

Behre Dolbear considers the coal resource estimation database, procedures, and parameters, applied by the 137<sup>th</sup> Geology Brigade and AM&A to the Blackgold Mines to be reasonable and appropriate. The coal deposit geology shows reasonably good continuities for the coal seams and geological faults were adequately considered. Behre Dolbear is of the opinion that the data density requirements for Measured and Indicated block definition used for the Company's Mines are adequate for JORC Code 2012 Edition resource estimation for such coal deposits.

### 6.8 PROCEDURES AND PARAMETERS FOR COAL RESERVE ESTIMATION

Blackgold engaged the Chongqing Institute to produce a life-of-mine plan and production schedule at each Mine. Behre Dolbear considers the reports produced by the Chongqing Institute to be consistent with a pre-feasibility level study, as required for estimation of reserves under the JORC Code 2012 Edition. Blackgold also engaged AM&A to produce JORC Code-compliant resource and reserve reports in order to meet the listing and ongoing reporting requirements of the ASX. Behre Dolbear has reviewed the Company's Mine production planning processes and has estimated a coal reserve for each of the coal Mines reviewed in this IQPR. These coal reserve estimates have been produced from the in situ coal resource estimates based on the economic Measured and Indicated resource categories for which the mine plans have been generated.

The geological analysis provided by the 137<sup>th</sup> Geology Brigade and the mine planning produced by Chongqing Institute are typical of that produced by firms licensed for exploration and resource estimation for solid mineral resources in China. The Chongqing Institute mine plan includes a factored "333" or Inferred resource, which must be excluded from a JORC Code 2012 Edition complaint Reserve estimate. Also, typical in such mine plans is the duplication of the same plan from seam to seam with slight modifications where the production scheduled was determined by annual licensed tonnage instead of detailed design and scheduling.

For the purpose of converting the economic Measured and Indicated coal resources to coal reserves, Chongqing Institute used the overall mining dilution factor and mining recovery factor between the in situ coal resources and the raw production coal based on the Chinese requirements, the characteristics of coal seams, and the mining method to be used for each seam. The design reports first convert the in situ resource into a recoverable resource by deducting the coal contained within the barrier pillars for ventilation and haulage entries, shafts under villages, rivers, and mine facilities, as shown in their mine design. Then a recovery factor, based on coal characteristics and thickness, is applied as specified in the Chinese design standards. The Chinese standards for each Blackgold Mine specified a 75% to 85% seam recovery. Typically, 80% was used for the seams at the Company's four Mines; however, a few seams were reduced to 75% recovery and a few increased to 85% recovery. Finally, Chongqing Institute divided the "recoverable" resource by the target production rate to develop a production schedule.

The calculations were slightly inconsistent between the different mine design reports and Behre Dolbear made some minor adjustments to correct those inconsistencies. Behre Dolbear opines the standard used by Chongqing Institute, while meeting the Chinese requirements, is somewhat optimistic. Based upon its detailed review of the mine plans using Gemcom Surpac<sup>™</sup> software and the resource models imported from MineMap<sup>™</sup>, Behre Dolbear adjusted the mining recoveries for each Mine. Behre Dolbear also adjusted certain reserve tonnages downward to reflect coal that exists outside the current mining permit boundaries.

Behre Dolbear recommends that Blackgold actively and continuously monitor the coal mining recovery factor and coal mining dilution factor and revise the coal reserve estimates for these operations, according to the mining recovery and mining dilution factors actually achieved. All Inferred resources that are included in the Chongqing Institute's mine plan have been excluded from the Reserve estimation in this IQPR and are reported separately by Behre Dolbear as Inferred resource in the resource table.

### 6.9 COAL RESERVE STATEMENT

Behre Dolbear estimates that, as of 30 April 2015, the Blackgold Mines covered by this IQPR hold approximately 63.0 Mt of Proved and 36.6 Mt of Probable reserves conforming to the definitions in the JORC Code 2012 Edition. Table 6.4 summarizes Behre Dolbear's estimation of the JORC Code-compliant Coal Reserves at the four properties. All tonnage is specified in millions of tonnes. Mine life is estimated using only the Proved and Probable Reserves.

TABLE 6.4           STATE TO LODG COAL DESERVE DOD DATE COAL DESERVER							
STATEMENT OF JUKU COAL KESERVE FOR BLACKGOLD COAL PROPERTIES 100% Owned by PLACKCOLD							
	100% OWNED BY BLACKGOLD						
	D		1	A			
	ĸ	eserve Categor (Mt)	y'	Annual Design	Estimated		
	Proved	Probable	Total	$(Mt)^2$	Mine Life		
Caotang	18.82	3.38	22.20	1.5	15.1		
Heiwan	3.15	0.46	3.62	0.6	6.7		
Baolong	29.10	26.05	55.14	1.8	32.0		
Changhong	11.89	6.75	18.64	0.9	22.0		
Total	62.96 36.64 99.60 4.8						
<sup>1</sup> The Statement of JORC Coal Reserves has been compiled by Mr. Tony Cameron who is a Senior Associate of							
Behre Dolbear and a Fellow of the AUSIMM. Mr. Cameron has sufficient coal related experience to qualify as							
a Competent Person as defined in the JORC Code 2012 Edition.							
<sup>2</sup> The stated Coal Reserves are reported in accordance with the Australasian Code for Reporting of Exploration							
Results, Mineral	Resources and Or	e Reserves (The j	oint Ore Reserves	s Committee Code – J	ORC 2012		
Edition) and form	n part of the Coal	Resources.					
<sup>3</sup> Figures reported a	are rounded which	n may result in sm	all tabulation erro	ors.			

#### 6.10 PHYSICAL AND CHEMICAL CHARACTERISTICS OF COAL RESERVES

Behre Dolbear reviewed AM&A's reserve estimation reports, resource models, and data. The physical and chemical characteristics described in the reviewed data indicate the Company's coals can generally be categorized as anthracite coal, as defined by the State Standard of China Coal Classification System (GB5751-86).

Coal quality at the Company's properties is generally good but variable within each seam. With the exception of Changhong, which mines coal of relatively high sulphur content, the Mines operate in coals with low sulphur contents. All the Mines produce coals with high heating values and all products are classified as anthracite coal. Table 6.5 shows the average coal quality of the Proved and Probable Reserve at each of Blackgold's Mines.

TABLE 6.5Average Undiluted Raw Coal Quality of the ReserveAs of 30 April 2015						
Mine	Moisture (%) ad	Ash (%) ad	Volatile Matter (%) ad	FC (%) ad	Sulphur (%) ad	CV (kcal/kg) ar
Caotang	0.63	33.53	7.07	59.32	0.47	4,965
Heiwan	0.76	26.53	6.92	65.56	0.74	5,630
Baolong	0.58	28.39	6.87	62.39	0.57	5,494
Changhong	0.49	18.02	8.89	67.40	2.64	6,788

The data indicates the majority of the Company's coal has dry volatile matter contents ranging from 1% to 10%. The Company currently blends higher and lower quality coals to manage final product quality and to attain product specifications that facilitate marketability. Coal beneficiation is not currently part of the Company's business practice.

# 6.11 **REPORTING ISSUES FOR COAL RESOURCES AND RESERVES**

### 6.11.1 Coal Resource Reporting

Coal resources allocated to the Blackgold Mines have been estimated using extensive data collected mostly from underground mine workings plus historical surface drilling and geologic data. Reconciliations of coal tonnages taken from areas of operation during a given period against the in situ coal resource previously assigned to that area of operation generally confirm the Company's coal Resource estimates (after mining dilution and mining losses have been considered). Resource reporting is essentially a function of geological and geometrical interpretations, defining volumes, and tonnages within the coal deposit associated with an individual Mine. Coal Resource definition and reporting practices are relatively straight forward technical exercises. Behre Dolbear opines that the risks associated with the Company's presentation of Resources are minimal.

# 6.11.2 Coal Reserve Reporting

Reserves delineated at the Company's Mines have been estimated from the Measured and Indicated coal Resources using mining design, mining dilution factors, and mining recovery factors derived from production reconciliation for the last several years. Currently reported coal reserves at 3 of the Mines are sufficient to support mining operation for 10 to 25 years.

At current production rates, Heiwan Mine life is less than 9 years, because a significant portion of the Resource tonnage is outside of the current mining permit area, technically disqualifying those tonnages from consideration as mineable Reserves. If Blackgold obtains an extension of the Heiwan permit, the Reserves there could be increased and Mine life extended.

The Company is actively seeking to purchase additional coal projects in the Chongqing area. New acquisitions would increase the Company's coal Reserves, expand coal production capacity, and enhance longevity of the Company's coal business.

The Company's reported Reserve tonnages are a function of technical and operational mineability. Potentially problematic mine roof and floor conditions noted elsewhere in this IQPR could reduce the total tonnage of "Reserve" coal ultimately recovered. Such problems could also cause the Company to remove from its Reserve base some tonnages previously thought to be mineable.

Reserves are also a function of economic mineability. If market conditions deteriorate and coal sales prices do not recover from their current lows, the Company might be required to eliminate some non-economic tonnages from its reported Reserve base.

Section 14.0 – Risk Analysis discusses these risks in greater detail.

# 7.0 EXPLORATION POTENTIAL

### 7.1 EXPLORATION TARGETS

Blackgold has identified exploration targets at its 4 Mines, as shown in Table 7.1, with speculative tonnages ranging from 19 Mt to 24 Mt. These exploration targets are conceptual in nature since there has not been sufficient exploration sampling to define a mineral resource under JORC Code 2012 Edition guidelines. Further exploration will be required to determine if any additional coal resources can be demonstrated as meeting JORC reporting guidelines.

TABLE 7.1           Blackgold Coal Mines Summary of Exploration Targets					
Mine	Seam	Mt			
Caotang	К3	5.3-6.6			
Heiwan	K4, 5	1.4-1.7			
Baolong	K1, K2	6.9-8.6			
Changhong	M5, M10, M12	5.5-6.8			
Total		19.1-23.7			

### 7.1.1 Caotang Mine

Information for K3, K4, and K5 seams at the Caotang Mine is extremely limited so, Blackgold has planned several drill holes to establish potential resources for these seams. The seams, at depth, are interpreted to be Permian, which will require drilling to establish their actual depth and whether extraction via a vertical shaft system is feasible.

### 7.1.2 Heiwan Mine

Four underground drilling holes with a total 1,037.5m were completed in 2014 at the Heiwan Mine. All of the drill holes intercepted the K4 and K5 coal seams. The drilling results are recognized in the current resource estimate because the compilation of data and resource estimate has not been completed as of the Effective Date. Underlying the mining permit at depth may also be Permian coal seam potential that requires deep exploration drilling to establish whether extraction is feasible.

### 7.1.3 Baolong Mine

At the Baolong Mine there is only a small area to the northwest of the license that needs more drilling. In addition, Blackgold has an exploration license that covers 23.12 km<sup>2</sup> to the west of the Baolong mining permit. The same coal seams are expected within the exploration license boundaries. Blackgold plans to conduct further exploration within the exploration license area in the next 2 years.

### 7.1.4 Changhong Mine

There is additional potential for substantial Changhong Mine resources along strike in both directions and at depth. Confirmation will require further drilling. The Company also has reportedly negotiated acquisition of the neighboring coal mines and intends to proceed with this acquisition.

# 8.0 MINING OPERATIONS AND COAL PRODUCTION

Underground mining was carried out by previous owners and is currently in progress at three of the four Mines described in this IQPR. Based on the Chongqing Institute pre-feasibility study reports, the three operating Mines, currently owned by Blackgold in Chongqing, will be refurbished and redeveloped and the fourth Mine will also be developed as an underground operation. Coal is currently extracted and transported to the surface where it is stockpiled for delivery to customers. Any waste rock mined that is not required for construction of surface roads or tailings dam walls is moved into goaf areas and left underground.

# 8.1 CAOTANG MINE

The Caotang Mine was initially developed between 1982 and 1988, with approved coal output being 600,000 tonnes per annum (tpa). In 2006, the China Coal International Engineering Chongqing Coalmine Design Institute was commissioned to design upgraded works for the current Caotang Mine, which commenced mining in 2007. The current Caotang operation comprises three independent mine development systems (also known as three main adit systems).

- 1) **Main Adit System No. 1** is to extract seam K1 between elevations 435m and 585m that covers an area of approximately 1,500m in the east-west direction and approximately 600m in the north-south direction.
- 2) **Main Adit System No. 2** is to extract seam K1 between elevations 550m and 665m with a length of approximately 2,000m in strike direction and a mean width of 490m.
- 3) **Main Adit System No. 3** is to extract seam K1 between elevations 665m and 920m with an average length of 1,047m in strike direction and an average width of 1,030m.

Each system includes one main adit, one ventilation adit, a main transport level, and various access drifts inbye and outbye for each of the mining districts. While the approved annual output of raw coal for Caotang is 600,000 tpa, the actual output for 2011 was in excess of 740,000 tonnes.

### 8.1.1 Mine Design

The Chinese mine design and reserve estimates for the underground Caotang Mine were undertaken by the Chongqing Design Institute of China Coal Technology & Engineering Group in AutoCad® using the coal resource model and sections provided in MapGIS® by the Chongqing 136th Geology Brigade.

Blackgold submitted JORC Code-compliant Resource and Reserves reports for the Caotang Mine to the ASX since listing in February 2011. These Resources and Reserves were estimated and signed off as being JORC Code 2012 Edition compliant, as recently as April 2015, by AM&A, who used the MineMap<sup>TM</sup> computer software to undertake the task. The published studies identify two coal seams (K1 and K2) for extraction, dividing the Mine into three districts.

The proposed mine plan for the Caotang Mine shows three horizontal access drives located in the floor of the coal seam. The main drive and auxiliary drive will be in service until Mine closure. A ventilation drive at elevation 650m will be used during the mining of District 1 and District 2 and is expected to be in service for 9.8 years. After that, there will be a ventilation drive at elevation 790m for Mine District 3 until the end of mine life. The three mine districts are divided by elevation 435m and a line from vertex 3 to vertex 11. The 2 main levels are at elevations 300m and 435m and the initial mining area will be working faces 1111 and 1121 of District 1. When the Mine is at full production capacity, there will be two mining faces in each seam.

# 8.1.1.1 Mining Method and Equipment

The plan is to continue to use the current long wall retreat mining method along strike. Seams K1 and K2 have dip angles ranging from  $5^{\circ}$  to  $19^{\circ}$  and average thickness of 0.99m (K1) and 2.07m (K2).

Coal will be extracted by MG80/200-BW coal shearers combined with SGB630/180 armored conveyors. For the K1 seam, hydraulic supports with a height range from 0.75m to 1.65m and a load capacity of 0.45 MPa will be used. For the K2 seam, hydraulic supports with a height range from 1.4m to 3.2m and load capacity of 0.45 MPa will be used. The designed face length is 180m.

Figure 8.1 shows a typical panel layout in greatly simplified form.



### Figure 8.1 Panel layout plan – Caotang Mine

### 8.1.1.2 Geotechnical Considerations

The Design Institute report states that the roof and the floor mainly consist of mudstone and calcareous mudstone. Currently, the main adit of the Caotang Mine is supported by dry packed stone pitching arches. Observations by the Behre Dolbear team in February 2012 confirm the following.

- The roof strata of K1 and K2 mainly consist of dark grey thinly laminated siltymudstone or mudstone. The well-developed multiple thin lamination structure will give rise to local collapse of the roof following the cutting of the coal seam. This may require enhancement in roof strata control and safety management.
- The floor strata of both coal seams comprise grey to dark grey thin to medium thick laminated mudstone or calcareous mudstone. This may require special, enhanced control measures to avoid problems arising from floor heave and failure.

Behre Dolbear opines that a detailed geotechnical review may result in modifications to the support systems relative to the points noted above. These modifications should not affect the estimate of coal tonnages.

# 8.1.1.3 Ventilation Design

During production, main and auxiliary drives will be intake airways and the ventilation drives will be the return airways. In development headings, forced ventilation will be applied by using fans and ventilation tubing. The Design Institute calculations show that overall air requirement will be 105 m3/s and the pressure will be 1,046.3 Pa in the +650m RL ventilation drive under normal conditions with a maximum pressure of 1,385.9 Pa.

Underground chambers, including sub-stations and pumping stations, will be situated along intake airways, and therefore, do not require independent air distribution.

### 8.1.1.4 Gas and Dust

The Design Institute report indicates the Caotang Mine is officially categorized as a "low gas content" mine, but it is being regulated in the same fashion as a high gas risk mine. Reported measurements of the absolute gas emission index were 0.57 m<sup>3</sup>/min in 2008 and 0.65 m<sup>3</sup>/min in 2009. Reported measurements of the relative gas emission index were 4.80 m<sup>3</sup>/t in 2008 and 5.36 m<sup>3</sup>/t in 2009. Using "The Criteria for Predicting Underground Workings Gas Emission AQ1018-2006," the Design Institute estimated that the absolute gas emission in drives would be 0.54 m<sup>3</sup>/min, with a relative gas emission of 5.39 m<sup>3</sup>/t.

However, recognizing that there had been two gas accidents at nearby (non-Company) coal mines in 2005 and in 2007, the Design Institute considered the Caotang Mine should be supervised as a "high gas" project.

In the 2003 Caotang Mine Resource Report by the 136<sup>th</sup> Geology Brigade, seam K1 was categorized as Class II for spontaneous combustion tendency and as "no explosion risk for coal dust." No identification data is available for coal seam K2, as to spontaneous combustion tendency or dust explosion risk; hence, the Design Institute treated seam K2 as if it has the same properties as seam K1. This means that during mining operations, observations and recordings should be carried out to monitor conditions with the aim of preventing any large-scale accidents.

### 8.1.1.5 Mine Reserves and Life of Mine Schedule

Detailed discussions of the Company's coal resources and reserves, including those of the Caotang Mine, are provided in Sections 1.3 and 6.0 of this IQPR. The total coal reserve within the Caotang Mine design is estimated to be 22.20 Mt. This includes an allowance of 7% dilution from rock in the floor, roof, and other sources. A mine production schedule has been developed using the information provided by the Company and based on 330 working days per year with four 6-hour working shifts each day, which Behre Dolbear considers reasonable. Using the Company's forecast ramp up schedule and annual mining rate of 1.5 Mtpa the projected mine life of the refurbished Caotang Mine is 15.1 years (Table 8.1).

TABLE 8.1           Life of Mine Production Summary – Caotang Mine						
Year <sup>1</sup>	Planned Annual Tonnage (kt) <sup>2</sup>	Cumulative Tonnage Mined (kt)				
2015 <sup>3</sup>	600	600				
2016	1,200	1,800				
2017 to 2029	1,500	21,300				
2030	903	22,203				
<sup>1</sup> FY production (01 November through 31 October)						
<sup>2</sup> Includes Blackgold and su	b-contractor production					
<sup>3</sup> 01 May through 31 Octob	er					

# 8.1.2 Current Status

The Behre Dolbear team has been visiting the site annually since 2012 with the last visit in May 2015. On the most recent trip, the team inspected one of the three independent mining systems. The underground excursion included inspection of the main adit, the main haulage level, a number of crosscut drifts into the mining districts, a haulage drift (headgate) in a mining panel, and a working face. Development work for the proposed expansion has commenced and the drives connecting Sections 1 to 2 and Sections 2 to 3 have been completed to enable production from all three working areas.

The coal is mined either directly by Caotang Mine employees or by sub-contractors using longwall shearers on two faces and the original drill and blast method on the remaining faces. The Company intends to purchase more longwall shearers as part of the proposed expansion.

### 8.2 HEIWAN MINE

The Heiwan Mine was first developed from 1996 to 1998 and received a new license for redevelopment on 10 November 2010. The mining permit specifies that the colliery covers an area of  $3.2468 \text{ km}^2$  with a length of 2,500m and width of 1,500m from elevation 1,300m to 1,050m. The resource from elevation 900m to elevation 1,300m has been updated to be JORC-compliant as at 01 January 2013.

Development of the Heiwan Mine has resulted in the formation of six adits (or drives) on various levels. The current design output and approved production capacity is 600,000 tpa. Within the mine lease, 5 seams are deemed economically extractable by Chinese standards (based on the requirement that seam thickness is not less than 0.25m). These seams are known as K1, K2, K3, K4, and K5.

# 8.2.1 Mine Design

The Heiwan Mine design was developed by the Chongqing Design Institute of China Coal Technology & Engineering Group to mine seams K1 and K2 between elevations 900m and 1,300m at a rate of 600 ktpa. The designs have been prepared in AutoCad® using the ore resource model and sections provided in MapGIS<sup>™</sup> by the Chongqing Geology and Mineral Institute.

Blackgold has submitted JORC Resource and Reserves reports for the Heiwan Mine to the ASX since listing in February 2011. These Resources and Reserves were estimated and signed off as being JORC-compliant as recently as April 2015 by AM&A, who used MineMap<sup>TM</sup> computer software to undertake the task.

The 2012 Preliminary Design Report by the Chongqing Coalmine Design Institute identifies the K1 and K2 coal seams for extraction and divides the mine into two districts. Both seams will be mined from a main working level at +1,120m, which is located in the floor of K1 seam.

The proposed mine plan has three access drives (*i.e.*, main drive, auxiliary drive, and ventilation drive) which will be developed in the floor of coal seams. The proposed mine upgrade program will consist of:

- development of a new main adit on +1,120m level
- modification of an existing main adit on +1,120m (previously known as +1,119.7m) into an auxiliary adit
- development of a new ventilation adit on +1,200m level
- development of a main haulage level on +1,120m
- two mining districts
- underground station, water pump house, substation, refuge station and warehouse on +900m level

Each of the mining districts will connect to the main level via either a raise or a winze. The main haulage drive on +1,120m level and the raise/winze of a mining district will be driven in the floor strata underneath the K1 coal seam based on the design report prepared by Chongqing Institute.

# 8.2.1.1 Mining Method and Equipment

The proposed mining method is long wall retreat along strike. Seams K1 and K2 have an average thickness of 0.72m and range in dip between  $6^{\circ}$  and  $15^{\circ}$ . Only small local faults have been found. The Design Institute states that they should not affect production. Coal extraction will be carried out using shearers combined with armored conveyors. Hydraulic supports with a working height range of 0.8m to 1.3m will be used for support at the coal face.

When the Mine is operating at full capacity, there will be three development faces, each equipped with a rock drill, two local ventilation fans, and one seam drainage drill.

### 8.2.1.2 Geotechnical Considerations

The Preliminary Design report indicates the main roof stratum of K2 seam consists of dark grey medium to thick laminated silty mudstone. The immediate roof is of mudstone, and the floor stratum of the K2 seam is of sandy mudstone. For the K1 seam, the false roof is of mudstone, the immediate roof is of silty mudstone, and the floor stratum is of dark mudstone. The Chongqing Institute's design report proposes that development headings in sandstone will be supported by anchor, whereas coal headings will be supported by concrete. Behre Dolbear opines that a detailed geotechnical review may result in modification of the proposed support systems but should not affect the estimate of coal tonnages.

### 8.2.1.3 Ventilation Design

The ventilation design is standard with the main and auxiliary declines as intake airways and ventilation decline as the return airway. The Design Institute calculated the resistance in the 1,200m level ventilation drive during normal operations would be 498.15 Pa, with a maximum resistance of 1,464.18 Pa. Air demand will be 70 m<sup>3</sup>/s during normal operations. In the development faces, local fans will be used for forced ventilation. Underground chambers, including warehouse and pumping stations, will be situated along intake airways; hence, they do not require independent air distribution.

# 8.2.1.4 Gas and Dust

The Heiwan Mine is classified as a "low gas content" mine based on the results of tests conducted in 2009. The test results show that the relative gas emission in the Heiwan Mine was  $5.02 \text{ m}^3/\text{t}$ , and the absolute gas emission of the mine was  $0.349 \text{ m}^3/\text{min}$ . The relative CO<sub>2</sub> emission was  $5.774 \text{ m}^3/\text{t}$  and absolute CO<sub>2</sub> emission was  $0.401 \text{ m}^3/\text{min}$ . Using "The Criteria for Predicting Underground Workings Gas Emission AQ1018-2006," the Chongqing Coalmine Design Institute estimated that the relative gas emission would be  $5.03 \text{ m}^3/\text{t}$  and the absolute gas emission would be  $0.35 \text{ m}^3/\text{min}$  at the working face.

The K1 and K2 seams were identified in the 2010 exploration report by Chongqing Geology and Mineral Institute as Class I ("no risk for coal dust explosion") but classified as Class II for spontaneous combustion tendency, *i.e.*, "having spontaneous combustion tendency." The mine design assumes Class II.

### 8.2.1.5 Mine Reserves and Life of Mine Schedule

Detailed discussions of the Company's coal resources and reserves, including those of the Heiwan Mine, are provided in Sections 1.3 and 6.0 of this IQPR. The total coal reserve within the Heiwan Mine design is estimated to be 3.6 Mt. This includes an allowance of 7% dilution from rock in the floor, roof, and other sources.

A Mine production schedule has been developed using the information provided by the Company and based on 330 working days per year with four 6-hour working shifts each day. Each shift will operate for four cycles and is predicted to advance 7.2m per day. Behre Dolbear considers the schedule to be reasonable as it is based on advance rates historically attained at Heiwan Mine. Using the proposed ramp up schedule and annual mining rate of 600 ktpa the projected life of the expanded Heiwan Mine is 6.7 years (Table 8.2).

TABLE 8.2           Life of Mine Production Summary – Heiwan Coal Mine					
Year <sup>1</sup>	Planned Annual Tonnage (kt)	Cumulative Tonnage Mined (kt)			
2015 <sup>2</sup>	165	165			
2016	360	525			
2017	600	1,125			
2018	600	1,725			
2019	600	2,325			
2020	600	2,925			
2021	600	3,525			
2022	92	3,617			
<sup>1</sup> FY production (01 November through 31 October) <sup>2</sup> 01 May through 31 October					

Behre Dolbear found that there are more than 2 Mt of Measured and Indicated resource outside of the current mining permit in K1, K2, and K3 seams. An approved extension of the mining limits to the +850m level would allow coal to be categorized as reserves and mined as per the designs in the preliminary design report, which would extend the mine life by 3 years.

### 8.2.2 Current Status

The Behre Dolbear team has been visiting the site annually since 2012, with the most recent visit being in May 2015. At that time, Behre Dolbear inspected one of the production panels in the

K3 seam. The underground excursion included an inspection of the main adit, the main haulage level, a rail haulage drift, the head gate of a mining panel, and finally the inactive working face. The Company ceased production in 2014 to focus on installing a new remote gas monitoring system as well as upgrading sections of the Mine as part of the proposed expansion. Access to the K1 seam was completed in 2013 and the loading bay has been expanded to a capacity of 35,000 tonnes. The Company plans to re-start production in the second half of 2015.

# 8.3 BAOLONG MINE

The Baolong Mine is a new operation. The mining permit specifies that the Mine covers an area of 29.96 km<sup>2</sup> with a length of 8.68 km and a width of 3.5 km. The base of permitted mining is the seam floor contour +200m of K2 seam. The target seams are K1 and K2. The approved production capacity is 1.8 Mt per year.

### 8.3.1 Mine Design

The proposed Baolong Mine was designed by the Chongqing Design Institute of China Coal Technology & Engineering Group. The designs are in AutoCad® format and are based on the ore resource model and sections provided in MapGIS<sup>TM</sup> by the Chongqing Number 136<sup>th</sup> Geology Brigade.

Blackgold has submitted annual JORC resource and reserve reports for the Baolong Mine to the ASX since listing in February 2011. These resources and reserves were estimated and signed off as being JORC Code-compliant, as recently as April 2015, by AM&A, who used MineMap<sup>TM</sup> computer software to undertake the task.

The Baolong Preliminary Design Report identifies the K1 and K2 coal seams for extraction. As the Baolong River intersects the mining tenement, the proposed mine plan has been divided into two areas, known as the east wing and the west wing. Each wing will have an independent development system, and both wings will adopt the main adit development system. Stage 1 of the mine development and coal extraction will be the west wing and the east wing will be Stage 2.

The proposed mine will adopt an adit and main-level development system that comprise a main adit on the 656m level, an auxiliary adit on the 935m level, and a ventilation adit on the 1,200m level. As there are 2 extractable coal seams (K1 and K2) in this Mine, and the 2 seams are approximately 353m apart from each other, it was determined that each seam should be extracted individually. The main haulage level will be aligned at 25m below each of the 2 seams. Additionally, an adit on the 600m level will be driven on the east side of the west wing of the Mine for outlet of returned air from seam K1, and an adit on the 700m level will be developed on the east side of the west wing of the Mine for outlet of returned air from coal seam K2.

During Stage 1 (West Wing), the main drive will be developed at elevation 656m, the auxiliary drive will be at elevation 935m, and ventilation drives will be developed at elevations 1,200m, 700m, and 600m. Haulage levels will be developed at elevations 935m, 670m, 435m, and 200m. Twelve mining districts (**K2**: West 11, West 12, West 21, West 22, West 31, and West 32; **K1**: West 13, West 14, West 23, West 24, West 33, and West 34) will work on these 4 levels.

During Stage 2 (East Wing), the main drive will be at elevation 200m, the auxiliary drive at elevation 700m, and the ventilation drive at elevation 700m. Haulage levels at 450m and 200m will be driven and 12 mining districts (**K2**: East 11 and East 21; **K1**: East 12 and East 22) will work on these two levels.

# 8.3.1.1 Mining Method and Equipment

Seam K1 has an average thickness of 1.85m and seam K2 averages 1.51m. Both seams range in dip from 30° to 45°. The proposed mining method is long wall retreat along strike. Coal extraction will be carried out using coal shearers combined with armored conveyors and hydraulic supports.

When the Mine is operating at full production capacity, two mining faces (one in seam K1 and one in seam K2), and four development headings will be working. The development headings will be comprised of two mixed coal-rock mechanized headings and two conventional rock headings.

### 8.3.1.2 Geotechnical Considerations

The Preliminary Design Report states the immediate roof mainly consists of black or dark gray mudstone with bad stability. The floor mainly consists of black mudstone and dark sandy mudstone; it is possible the floor heave will occur due to water expansion. Main development headings will use concrete and roof bolts for support. Behre Dolbear visited the Baolong Mine underground operations in February 2012. At that time, development had only progressed a few meters and work had commenced on supporting the portal. Behre Dolbear opines that a detailed geotechnical review may affect the design parameters and proposed support systems but should not affect the estimate of coal tonnages.

# 8.3.1.3 Ventilation Design

For either west wing or east wing, the main drive and auxiliary drive will be intake airways and ventilation drives will be exhaust airways. For development faces, local ventilation fans will be used to supply air and there will be specified exhaust airways.

The overall air demand is expected to be  $125 \text{ m}^3/\text{s}$ . For the west wing, in ventilation drift of K1, the resistance will be 608.67 Pa with air of  $65 \text{ m}^3/\text{s}$  at normal time whereas the resistance will be 1,547.71 Pa. In ventilation drift of K2, the resistance will be 901.71 Pa with air of  $60 \text{ m}^3/\text{s}$  at normal time whereas the resistance will be 1,461.30 Pa. Each working face will have an independent ventilation system. Underground chambers, including sub-station, warehouse, and pumping stations, will be situated along intake airways; hence, they do not require independent air distribution.

### 8.3.1.4 Gas and Dust

At this time, no gas sampling work has been undertaken. The Design Institute based its estimation on tests from a neighboring colliery that mines the same coal seams, where gas emission has been recorded as  $0.35 \text{ m}^3/\text{min}$ . The design assumed the Baolong Mine is a "low gas mine." The preliminary design report recommends that gas emission measurements should be carried out as soon as the coal seam has been intersected and coal extracted.

All seams are categorized as Level 1, which is classified as "likely self-combustible." No dust explosion risk is assumed, but that assumption is subject to change as the Mine develops further.

Behre Dolbear considers the lack of testing of the seams for gas and spontaneous combustion on the site as a risk and recommends that testing should be carried out as soon as possible.

### 8.3.1.5 Mine Reserves and Life of Mine Schedule

Detailed discussions of the Company's coal resources and reserves, including those of the Baolong Mine, are provided in Sections 1.3 and 6.0 of this IQPR. The total coal reserve within the Baolong
Mine design is estimated to be 55.1 Mt. This includes an allowance of 7% dilution from rock in the floor, roof, and other sources.

A mine production schedule has been developed using the information provided by the Company and based on 330 working days per year with four 6-hour working shifts each day. Each shift will operate for 3 cycles and advance 7.2m per day. Behre Dolbear considers the Company's proposed ramp up schedule to be reasonable given the progress of mine development since the first visit in February 2012. Behre Dolbear has used the Company's forecast ramp up schedule and final annual mining rate of 1.8 Mtpa to develop a life of mine plan and as a result, the projected mine life of the Baolong Mine is 32 years (Table 8.3).

TABLE 8.3           LIFE OF MINE PRODUCTION SUMMARY – BAOLONG COAL MINE						
Year <sup>1</sup>	Planned Annual Tonnage (kt)	Cumulative Tonnage Mined (kt)				
2015	0	0				
2016	510	510				
2017	1,000	1,510				
2018	1,500	3,010				
2019 to 2046	1,800	53,410				
2047	1,733	55,143				
<sup>1</sup> FY production (01 November through 31 October)						

#### 8.3.2 Current Status

The Behre Dolbear team has visited the Baolong project four times since February 2012. During the most recent visit, in May 2015, the team entered the main adit on level 930m and inspected the crosscuts and drives developed in the K1 seam. The level 600m coal transport adit had also intersected the K1 seam; however, the intersection was earlier than expected. The Company is now reviewing the information with the Design Institute to determine if the design needs to be modified. Behre Dolbear has adjusted the resource and reserve estimate to take into account the apparent change in dip of the coal seam.

The coal loading facility adjacent to the Mine is complete. Barge loading was trialed successfully during 2012 using approximately 40,000 tonnes of material that had been extracted during development.

# 8.4 CHANGHONG MINE

The original Changhong Mine was developed in 1996 as a private enterprise and commenced production in 1997. Coal mining took place above elevation 1,092m in M6 and M8 seams where only pillars now remain. All coal seams below elevation 1,092m are intact. An adit on the 1,092m level currently serves as the main access into the Mine. This main adit extends along the opposite direction of dip of the coal measures and cross cuts into the seams. Another adit on the 1,267m level serves as the outlet for exhaust air from the Mine.

The mining permit covers an area of  $0.72 \text{ km}^2$  with a length of 1,020m and width of 706m between elevations +1,350m and +800m. The target seams are M5, M6, M7, M8, M10, and M12. The approved production capacity is 900,000 tonnes per year.

# 8.4.1 Mine Design

The Changhong Mine was designed by the Chongqing Design Institute of China Coal Technology & Engineering Group in AutoCad® using the ore resource model and sections provided in MapGIS<sup>TM</sup> by the Chongqing 136<sup>th</sup> Geology Brigade.

Blackgold has submitted JORC resource and reserves reports for the Changhong Mine to the ASX. These resources and reserves were estimated and signed off as being JORC-compliant by AM&A who used MineMap<sup>TM</sup> computer software to undertake the task.

The study by the Design Institute identifies 6 coal seams for extraction, namely M5, M6, M7, M8, M10, and M12. These vary in thickness from 4m to 13m and range in dip from 29° to 32°.

Two entries of the original Changhong Mine were the +1,092m main adit and the +1,267m ventilation adit. The new design utilizes as much of the existing workings as possible.

The proposed mine plan comprises two stages:

- **Stage 1:** The original main drive at the 1,092m level will be refurbished and used for mining coal above elevation 1,092m.
- **Stage 2:** Two shafts including a main shaft and an auxiliary shaft will be sunk. The original ventilation drift at the 1,267m level will be abandoned because it passes through coal seams that are to be mined out. New ventilation drives will be developed at elevations 1,260m and 1,002m.

Two main haulage levels will be developed for the mining districts. The District 1 haulage level will be at elevation 1,100m and the District 2 haulage level will be at elevation 1,012m. The underground station, sub-station, and refuge station will initially be located at elevation 1,100m.

#### 8.4.1.1 Mining Method and Equipment

The current mining method is long wall retreat along strike. The average thickness of seams M5, M6, M7, M8, and M10 are 4.0m, 13.0m, 6.7m, 10.4m, and 4.0m, respectively. The dip of the coal seams ranges from 29° to 32°. The Design Institute report states the surrounding geotechnical conditions are well understood, providing a good basis from which to address ground control issues, such as roof support, potential floor heaving and coal/rock burst eventualities.

Coal extraction will be carried out using a coal shearer combined with flexible armored conveyors. Hydraulic supports with a working height range of 2.6m to 5.0m will be used for support at the coal face and mobile supports will be used as the face is advanced.

At full capacity, the Mine will have one mechanized development face and one conventional development face operating at all times. In the mechanized development face, a tunneling machine, a belt conveyor, and six local ventilation fans will be used. In the conventional development face, a pneumatic rock drill, a loader, a local ventilation fan will be used. A shotcreter will also be on hand.

#### 8.4.1.2 Geotechnical Considerations

The Preliminary Design report, prepared by Chongqing Institute, states the roof mainly consists of mudstone, silt sandstone, and limestone with good stability. The floor mainly consists of clay stone, mudstone, and silt sandstone. Pre-cast concrete block lining, shotcreting, spot bolting, and stone pitching will be applied for support of various openings and chambers to be driven under the mine

upgrade development program. Behre Dolbear opines that a detailed geotechnical review may result in modification of the proposed support systems but should not affect the estimate of coal tonnages.

# 8.4.1.3 Ventilation Design

During production, the main and auxiliary declines will be intake airways, and the ventilation decline will be the return airway. The Design Institute calculated the overall air demand will be  $84 \text{ m}^3/\text{s}$  during normal operations in Stage 1 and will peak at  $94 \text{ m}^3/\text{s}$  during Stage 2. The minimum resistance will be 821.86 Pa and the maximum resistance will be 1,398.01 Pa. In development faces, local fans are used for forced ventilation. In working faces, full air pressure of U-type ventilation is applied. Underground chambers, including sub-stations and pumping stations, will be situated along intake airways; hence, they do not require independent air distribution.

#### 8.4.1.4 Gas and Dust

The Mine was inspected by the Coal Quality Inspection and Supervision Division in 2010 and categorized as a "high gas mine." Gas emission was measured at 8.09  $m^3/min$ . Gas drainage equipment will be upgraded and gas drainage pumps will be installed.

The report by the Coal Quality Inspection and Supervision Division categorizes seams M5, M6, and M7 as Class II ("self-combustion"). Seams M8, M10, and M12 are classified as "difficult for self-combustion." However, the report notes that seam M8 has had a self-combustion incident previously. The design was made on assumptions that seam M8 is Class I (easily self-combustible) and all the other seams are Class II.

During the February 2012 and January 2013 site visits, Behre Dolbear noted that gas monitoring systems as well as other safety measures, such as seals and barriers, were being installed at the Changhong Mine.

#### 8.4.1.5 Mine Reserves and Life of Mine Schedule

Detailed discussions of the Company's coal resources and reserves, including those of the Changhong Mine, are provided in Sections 1.3 and 6.0 of this IQPR. The total coal Reserve within the Changhong Mine design is estimated to be 18.6 Mt. This includes an allowance of 7% dilution from rock in the floor, roof, and other sources.

A mine production schedule has been developed using the information provided by the Company and based on 330 working days per year with four 6-hour working shifts each day. Each shift will operate for 2 cycles and advance 4.8m per day. Behre Dolbear considers assumptions underlying the production and development schedules to be reasonable as they are based on historically attained advance rates at Changhong. Using the proposed ramp up schedule and maximum annual mining rate of 900 ktpa, the projected mine life of the expanded Changhong Mine is 22 years (Table 8.4).

TABLE 8.4LIFE OF MINE PRODUCTION SUMMARY –CHANGHONG COAL MINE						
Year <sup>1</sup>	Cumulative Tonnage Mined (kt)					
2015 <sup>2</sup>	0	0				
2016	360	360				
2017	600	960				
2018	900	1,860				
2019 to 2036	900	18,060				
2037	486	18,546				
<sup>1</sup> FY production (01 November through 31 October) <sup>2</sup> 01 May 2015 to 31 October 2015						

# 8.4.2 Current Status

The Behre Dolbear team has visited the Mine annually since 2012. In the previous inspection, the team visited the main adit level at 1,092m RL; hence, for the May 2015 visit, the team entered 1,018m level adit that had been extended since the last visit and now intersects seam M5 to M8. The team also inspected the newly installed remote gas monitoring system and control rooms.

# 9.0 INFRASTRUCTURE AND TRANSPORTATION

# 9.1 INFRASTRUCTURE

There are generally sufficient power supplies in the Chongqing area for industrial and residential uses. Each of the Blackgold Mines generally connects to two independent electricity transmission and distribution loops to assist in maintaining uninterrupted power supplies to the mining operations.

The Caotang and Heiwan Mines are currently serviced by a 35 kilovolt (kV) transmission line extended from the Fenhe transformer station. The Baolong Mine is serviced by an 18 km 35 kV transmission line extended from the Baolong Power Plant. The Changhong Mine is currently serviced by a 35 kV transmission line extended from Xianyuan transformer station in Xishui County, Guizhou Province and another 35 kV transmission line extended from Anwan transformer station in Chongqing.

Sufficient water supply is also available for the Company's mining activities in the area and for other industrial and domestic users. Water supplies for production rely upon pumped water from mine workings. Drinkable water is available from the nearby rivers or streams.

# 9.2 TRANSPORTATION

The new Yuyi Express Way from Chongqing via Baolong to Jianshi passes through Fengjie County. The 390 km road trip from Chongqing to Fengjie takes 4.5 hours.

The nearest town to Caotang and Heiwan Mines is Heliang. Unimproved tractor roads allow farm vehicle access to various villages from the various Class 2 secondary narrow and winding bitumen roads cross the Mining Permits and provide adequate access to the Mine facilities.

Water-borne transportation is also available via the Yangtze River system that leads downstream to the Three Gorges Dam. Upstream, the headwaters of the dam have recently flooded the old Fengjie Town requiring the population to be re-located to higher ground.

Baolong Town is located some 133 km to the southeast of Fengjie, 2.5 hours by vehicle. The Baolong Mine is approximately 17 km southeast of Baolong Town. Product from Baolong will be loaded onto barges at the coal dock on the Yangtze River tributary near Balong Mine. Given the close proximity of the Baolong Mine to the river, this Mine is not singularly dependent on truck transport.

Changhong Mine is located approximately 108 km south of Chongqing, 2 hours by vehicle. The Mine is located in the area bordering Xishui County of Guizhou and Qijiang District of Chongqing. The Mine is 62 km southeast of the main urban center of Qijiang District and administration falls under the jurisdiction of Wanlong Village, Shihao Town, Qijiang District. Product is either trucked to a port closer to the Yangtze River or transferred to rail 18 km from the Mine.

Based upon information from Blackgold, each Blackgold Mine will help to arrange the transportation of the raw coal, by truck and by railway, to the Chongqing area. Individual truckers staying around the Mine areas own the trucks. When there is a need to transport the coal, the Mine asks the truck owners for their services. Coal is being sold FOB the Mine so customers pay for the transportation costs.

As production increases, Blackgold will have either to invest in a greater number of trucks or contract the haulage of more tonnage. At a capital cost of approximately RMB150,000 per truck, Blackgold will require additional capital for a truck fleet expansion or will incur higher transportation costs due to the profit increment associated with contract trucking. Additionally, the life of a truck is assumed at

10 years; therefore, a normal replacement cycle of existing trucks will require capital in the next 4 to 5 years.

Trucking is coordinated by mobile phone from a central dispatcher. Currently, Blackgold transports 100% of the coal with third party trucks. The transportation distances for all four Blackgold Mines to the port are short (Table 9.1.)

TABLE 9.1RAW COAL TRANSPORTATION ROUTES AND DISTANCES FORBLACKGOLD MINES IN CHONGQING					
Mine	Route	Distance (km)			
Caotang	To River Port	7			
Heiwan	To River Port	23			
Baolong	To River Port	0			
Changhong	To Rail Head	18			

Truck maintenance is performed by contractors and road maintenance is the responsibility of Blackgold. Blackgold has made financial contributions to upgrade the paved roads that are shared with other traffic. Individual Mine access roads are primarily the responsibility of Blackgold. A lower price per tonne could perhaps be achieved from the contractors, if Mine access road conditions were improved.

Blackgold's principal end customers (mainly raw coal buyers) are power generation plants and large paper and food processing plants that require their own heating capability. These major customers are mainly situated in Jiangsu and Zhejiang Provinces in China. Blackgold can ship coal to these clients via fleets on the Yangtze River.

Roadway congestion resulting from increased coal-related traffic could ultimately limit production at Caotang, Heiwan, and Changhong Mines, impeding their ability to get coal to the Company's consumers. Baolong, which will constitute 49% of total production when all Mines are at full capacity, has more direct access to water transport and is not as reliant on Mine road and/or highway transport.

# **10.0 OPERATING COSTS**

# 10.1 HISTORICAL COST OF SALES AND OPERATING EXPENSES

Historical cost of sales (Production Costs and Depreciation and Amortization) ("COS") and operating expenses (Distribution and Marketing, Administrative Expenses) for the 3 operating Mines, Caotang, Heiwan, and Changhong, for the years 2011 through 1H 2015, are shown in Table 10.1. These values were provided by Blackgold and include the audited production values for 2011 through 2014.

TABLE 10.1						
UNIT OPERATING COSTS AND EXPENSES – BLACKGOLD MINES <sup>4</sup> (RMB/TONNE)						
			Year			
Mine	2011	2012	2013	2014	2015 (Nov to Apr)	Average
Caotang Mine <sup>2</sup>						
Production (kt)	174	130	175	101	41	124
Cost of Sales (COS)						
Production Costs	164.71	188.53	152.55	130.19	96.64	146.52
Depreciation and Amortization	20.38	9.09	19.47	31.49	36.06	23.30
Total COS	185.09	197.62	172.01	161.68	132.70	169.82
Operating Expenses						
Distribution and Marketing	N/A	2.07	1.11	4.60	3.93	2.93
Administrative and Others	N/A	53.33	7.58	13.32	10.13	21.09
Total COS and Expenses	N/A	253.02	180.70	179.60	146.76	193.84
Exchange Rate	6.52	6.33	6.23	6.15	6.14	6.27
Total COS and Expenses (US\$/t)	N/A	40.00	29.00	29.20	23.90	30.90
· · · · · · · · · · · · · · · · · · ·						
Heiwan Mine						
Production (kt)	204	250	299	142	73	194
COS						
Production Costs	131.27	123.65	140.78	132.36	114.17	128.45
Depreciation and Amortization	54.72	19.81	59.41	91.25	64.50	57.94
Total COS	185.99	143.46	200.19	223.61	178.67	186.38
Operating Expenses		·				
Distribution and Marketing	N/A	2.28	16.67	53.46	58.59	32.75
Administrative and Others	N/A	23.66	31.02	47.62	56.96	39.81
Total COS and Expenses	N/A	169.40	247.88	324.68	294.22	258.95
Exchange Rate	6.52	6.33	6.23	6.15	6.14	6.27
Total COS and Expenses (US\$/t)	N/A	26.75	39.81	52.83	47.90	41.28

TABLE 10.1         UNIT OPERATING COSTS AND EXPENSES – BLACKGOLD MINES <sup>1</sup> (RMB/TONNE)							
			Year				
Mine	2011	2012	2013	2014	2015 (Nov to Apr)	Average	
Changhong Mine <sup>3</sup>							
Production (kt)	N/A	N/A	223	90	0.00	156	
COS							
Production Costs	N/A	N/A	32.70	150.87	0.00	91.78	
Depreciation and Amortization	N/A	N/A	186.98	114.17	0.00	150.57	
Total COS	N/A	N/A	219.68	265.04	0.00	242.36	
Distribution and Marketing	N/A	N/A	0.33	0.20	0.00	0.27	
Administrative and Others	N/A	N/A	44.98	103.30	0.00	74.14	
Total COS and Expenses	N/A	N/A	264.99	368.54	0.00	316.76	
Exchange Rate	N/A	N/A	6.23	6.15	6.14	6.27	
Total COS and Expenses (US\$/t)	N/A	N/A	42.60	60.00	0.00	50.5	
<ul> <li><sup>1</sup>FY = Fiscal Year: 01 November to 31 October (<i>i.e.</i>, FY 2015 = 01 November 2014 to 31 October 2015)</li> <li><sup>2</sup>Blackgold production only; does not include costs for sub-contractor production. Blackgold charges a fee to the sub-contractors based on their produced tonnage. Sub-contractors are responsible for their own operating costs and taxes.</li> <li><sup>3</sup>No production is reported for the Changhong Mine in 2015. Average values for the operating costs reflect only the</li> </ul>							

averaged 2013 and 2014 values.

Annual variations were observed in the production cost portion of the COS as well as the operating expenses. Behre Dolbear is of the opinion that variances can be expected during the startup phases of operations. Additionally, there were significant variations in production tonnages during the past several years at each of the Mines. Production variations and operational interruptions can have a significant effect on unit production costs.

At the Caotang and Heiwan Mines, noticeable decreases in the production cost portion of the COS were observed between 1H 2015 and 2014 (26% and 14%, respectively). The Company states that it slowed down production during this period to re-evaluate its production and sales strategies based upon the continuing decline in coal sales prices. As a result of this strategic analysis, the Company reported improvements resulting from certain cost control measures. In particular, Blackgold reported to Behre Dolbear that the cost decreases were a function of re-negotiated terms for raw materials, such as explosives, mine tools, diesel, timber, and steel ropes as well as decreases in salary costs. Behre Dolbear did not review any of the re-negotiated terms. The Company also believes that some cost reductions will result from improved productivity related to new equipment and improved mining methodologies.

Variations were also observed in the depreciation and amortization costs at each of the Mines. These variations are a function of changes in the reported reserves in 2012 and the continuing investments between 2012 and 2015.

# **10.2 DETAILED PROJECTED COST OF SALES**

Blackgold's projected steady state unit COS on a per tonne basis for the Caotang, Heiwan, and Changhong Mines are shown in Table 10.2, Table 10.3, and Table 10.4. The COS includes detailed production costs and depreciation and amortization costs. For comparison purposes, historical costs are also shown.

TABLE 10.2         PROJECTED ANNUAL UNIT COST OF SALES – CAOTANG MINE <sup>1</sup> (RMB/TONNE)						
Cost Itom	His	torical Produc	tion <sup>1</sup>	211 2015	Steady	
Cost Item	2013	2014	1H 2015	211 2015	State	
Total Annual Production (kt)	175	101	41	86	200	
Production Costs						
Raw Material Consumed	10.47	15.59	1.17	1.17	1.17	
Salaries	129.89	99.56	83.80	83.80	83.80	
Electricity and Water	3.69	5.66	4.19	4.19	4.19	
Repair Cost	0.81	0.95	0.58	0.58	0.58	
Labor Protection Fee	0.13	0.06	0.04	0.04	0.04	
Labor Insurance	7.39	8.31	6.86	6.86	6.86	
Consumables	0.02	0.03	0.00	0.00	0.00	
Miscellaneous	0.14	0.03	0.00	0.00	0.00	
Total Production Costs	152.55	130.19	96.64	96.64	96.64	
Depreciation	9.71	19.98	22.31	26.42	26.42	
Amortization	9.75	11.51	13.75	13.75	13.75	
Total COS (RMB/t)	172.01	161.68	132.70	136.81	136.81	
Exchange Rate	6.23	6.15	6.14	6.27	6.14	
Total (US\$/t)	27.63	26.31	21.60	21.81	22.28	
<sup>1</sup> Blackgold production only; does no contractors based on their produced t	t include costs for connage. Sub-cont	r sub-contractor j ractors are respon	production. Black	kgold charges a wn operating cost	fee to the sub- ts and taxes.	

TABLE 10.3PROJECTED ANNUAL UNIT COST OF SALES – HEIWAN MINE(RMB/TONNE)								
Cost Itom	Hi	storical Produc	ction <sup>1</sup>	211 2015	Steady			
Cost Item	2013	2014	1H 2015	2H 2015	State			
Total Annual Production (kt)	299	142	73	167	600			
Production Costs								
Raw Material Consumed	2.44	2.44	1.57	1.57	1.57			
Salaries	135.14	123.71	110.74	110.74	110.74			
Electricity and Water	1.28	1.97	1.21	1.21	1.21			
Repair Cost	0.19	3.15	0.02	0.02	0.02			
Labor Protection Fee	0.46	0.34	0.11	0.11	0.11			
Labor Insurance	0.76	0.20	0.00	0.00	0.00			
Staff Welfare	0.06	0.02	0.00	0.00	0.00			
Miscellaneous	0.16	0.04	0.00	0.00	0.00			
Rental Expenses	0.29	0.49	0.52	0.52	0.52			
Total Production Costs	140.78	132.36	114.17	114.17	114.17			
				<u>.</u>				
Depreciation	19.71	43.91	28.19	42.10	42.10			
Amortization	39.70	47.34	36.31	36.31	36.31			
Total COS (RMB/t)	200.19	223.61	178.67	192.58	192.58			
Exchange Rate	6.23	6.15	6.14	6.27	6.14			
Total (US\$/t)	32.15	36.38	29.09	30.70	31.37			

TABLE 10.4           Projected Annual Unit Cost of Sales – Changhong Mine							
(RMB/TONNE)							
Cost Itom	Hi	storical Produ	ction <sup>1</sup>	2H 2015 <sup>2</sup>	Steady		
	2013	2014	1H 2015	211 2015	State		
Total Annual Production (kt)	223	88	0	N.A.	900		
Raw Material Consumed	5.56	4.82	0.00	N.A.	4.82		
Salaries	127.44	120.60	0.00	N.A.	120.60		
Transportation	0.72	0.64	0.00	N.A.	0.64		
Electricity and Water	10.65	11.03	0.00	N.A.	11.03		
Compensation	0.81	0.24	0.00	N,A,	0.24		
Labor Protection Fee	0.07	0.05	0.00	N.A.	0.05		
Lease Rental	0.00	0.00	0.00	N.A.	0.00		
Labor Insurance	2.48	3.23	0.00	N.A.	3.23		
Repair Cost	3.38	2.15	0.00	N.A.	2.15		
Technician Charge	2.62	2.39	0.00	N.A.	2.39		
Other	0.12	0.00	0.00	N.A.	0.00		
Soil and Water Conservation Fee	1.05	0.95	0.00	N.A.	0.95		
Sewage Charge	4.19	3.82	0.00	N.A.	3.82		
Silviculture Funds	1.05	0.95	0.00	N.A.	0.95		
Total Production Cost	160.13	150.87	0.00	N.A.	150.87		
Depreciation	54.34	107.22	0.00	N.A.	107.22		
Amortization	5.20	6.95	0.00	N.A.	6.95		
Total COS (RMB/t)	219.68	265.04	0.00	N.A.	265.04		
Exchange Rate	6.23	6.15	6.14	N.A.	6.14		
Total (US\$/t)	35.28	43.12	0.00	N.A.	43.17		
<sup>1</sup> No production is reported for the Changhong Mine in 2015. Average values for the operating costs reflect only the 2014 values.							

<sup>2</sup>As of 22 October 2015, the Company does not anticipate production during the remainder of 2H2015.

Projected COS for the Caotang and Heiwan Mines are based on the budget provided to Behre Dolbear by Blackgold and are the actual YTD 2015 COS (6 months from November 2014 through April 2015). Since there has been no production in 2015 at the Changhong Mine, the projected COS for this Mine is based on actual 2014 costs. The COS is assumed to remain at a constant level through the period of analysis.

Because Baolong operations have not started, Blackgold has based the projected costs for the Baolong Mine on the actual YTD 2015 historical costs at the Heiwan Mine.

When compared to pre-2015 historical costs, Blackgold has budgeted significant decreases in steady state costs at the Caotang and Heiwan Mines (26% and 14%, respectively). As discussed in Section 10.1, Blackgold states that these cost reductions are a function of re-negotiated terms for materials and supplies and decreases in salary costs.

Behre Dolbear is of the opinion that using historical operating costs to project future operating costs is a generally industry-accepted methodology and is an appropriate approach in the case of forecasting costs at the Blackgold operations since the mines have an operational history. Forecasted operating cost estimates must be based on supporting data, such as engineering studies, historical operating costs, or comparable operations. Behre Dolbear is of the opinion that the careful use of historical costs is a reasonable approach to such forecasting. Behre Dolbear does caution the reader, that there is some risk in the use of the 1H 2015 costs observed at the Caotang and Heiwan Mines as the basis for the projected costs at these 2 mines and the Baolong Mine. The significant reductions in the raw material

supplies and labor costs have only been observed for 6 months and there is a risk that these lower costs may not be sustainable over the long term.

No contingency costs have been included in the Company's projections.

# **11.0 CAPITAL COSTS**

The Company intends to continue expansion of coal production capacity at the Caotang, Heiwan, and Changhong Mines to achieve the target production levels. Additionally, Blackgold is currently engaged in developing the Baolong Mine. These expansions and the Baolong Mine addition are forecasted to result in a maximum coal production capacity of 4.8 Mtpa when the Mines reach steady state production levels by 2019. The capital costs associated with the expansions and additions are summarized in Table 11.1. For comparison purposes, the capital costs developed by the Chongqing Institute are also shown.

<b>TABLE 11.1</b>								
HISTORICAL AND PROJECTED CAPITAL COSTS OF THE BLACKGOLD MINES								
(RMB 000s)								
Capital Cost	Caotang Mine	Heiwan Mine	Baolong Mine	Changhong Mine	Total			
FY 2012 Actual Costs								
Mine Development	76,657	57,303	2,411	58,448	194,819			
Equipment	44,684	30,253	190	82,419	157,546			
Ground Construction	1,764	56	1,440	1,274	4,534			
Total	123,105	87,612	4,041	142,141	356,899			
FY 2013 Actual Costs								
Mine Development	96,510	44,118	4,533	79,207	224,368			
Equipment	82,897	26,469	40	95,543	204,949			
Ground Construction	-	81	368	6,710	7,159			
Total	179,407	70,668	4,941	181,460	436,476			
FY 2014 Actual Costs								
Mine Development	62,650	34,299	613	31,843	129,405			
Equipment	40,982	10,632	48	33,776	85,438			
Ground Construction	1,083	1,267	73	643	3,066			
Total	104,715	46,198	734	66,262	217,909			
1H 2015 Actual Costs								
Mine Development	15,260	6,771	433	-	22,464			
Equipment	8,657	1,744	-	-	10,401			
Ground Construction	-	-	114	-	114			
Total	23,917	8,515	547	-	32,979			
Total Actual Costs (FY 2012 through 1H 2015)	431,144	212,993	10,273	389,863	1,044,263			
Remaining Projected (2H 2015 – LOM) <sup>1</sup>	71,739	24,877	671,737	-	768,353			
Total	502,883	237,870	682,000	389,863	1,812,616			
Chongqing Institute	383,000	256,000	682,000	254,000	1,575,000			
Difference	119,883	(18,130)	-	135,863	237,616			
<sup>1</sup> Capital costs for the Caotang, Heiwan, and Changhong Mines are for 2H 2015 through 2018. Capital costs for the Baolong Mine are ongoing through 2038 as a result of the mining method								

The Company's projected capital costs are based on actual quotes from equipment vendors and construction contractors as well as the Company's understanding of costs based on its recent operational experiences. The equipment is made and available within the PRC with known prices. Mine development costs are the costs for the development of extra access and panels. Behre Dolbear opines that the Company has a reasonable understanding of the capital expenditures required to complete the required mine development.

Blackgold has budgeted capital costs for the Baolong Mine in equal annual amounts of approximately RMB30.0 million between the years 2016 through 2038. This reflects the proposed mining method using longwall advance where panel development is completed as the coal is extracted. The coal in

the other 3 Mines will be extracted using a longwall retreat where the panel development is completed before the coal is extracted. As such, the capital costs are incurred earlier in those projects. No capital costs are budgeted for the Caotang, Heiwan, and Changhong Mines after the Year 2018.

Sustaining capital for replacement and repairs is reported by the Company to be expensed rather than capitalized and is included in the COS as a production cost. This is a reasonable practice, based on the reductions in the projected cost of sales versus the historical cost of sales, however, there is a potential that the costs associated with replacement and repairs could be understated.

# 11.1 DEMONSTRATION OF ECONOMIC VIABILITY

The academic definition of economically viable reserves is: "That portion of the mineral occurrence which results in a positive cash flow after the appropriate technical, operational and cost-related factors have been taken into account." This means that for any portion of the coal to become part of the coal reserve it must be demonstrated under reasonable assumptions that the mineralization in question results in a cash flow greater than zero at a zero discount rate.

Behre Dolbear determined that each of the 4 Mines could be expected to demonstrate a positive undiscounted cash flow over a 10-year period. Behre Dolbear believes the Proved and Probable Reserves for the 4 Mines, as reported in this IQPR, have demonstrated economic viability under reasonable technical assumptions. These results are dependent on the validity of technical inputs discussed in this report; material changes in the operating costs, capital costs, expansion completion dates, production tonnage, and coal sales price could affect these results.

# 12.0 ENVIRONMENTAL MANAGEMENT

# 12.1 REGULATORY ISSUES

#### **12.1.1** Mining Rights and Permitting

Blackgold has provided details of all the permits with effective dates, production capacities, permitted areas for all the mining properties, and approval for the current exploration activities at Baolong property. All these permits were obtained from Natural and Land Recourses Department Chongqing upon approval from the local county where the Mines are located. The Baolong Mine Exploration Permit was issued on 25 April 2005, expired on 01 April 2006 and was later renewed from 22 March 2013 to 22 March 2015. The most recent renewal was May 2015. The new Baolong Exploration License is valid from 22 March 2015 to 22 March 2017. In China, all mineral resources are owned by the State no matter who owns the land or has the right to use the land; therefore, coal mining companies need to obtain for each coal mine, among other items, a mining permit, a safe production permit, and a coal production permit in order to conduct coal mining activities.

Behre Dolbear notes that the mining terms were issued for 3 years, renewable thereafter upon regulators review of all safety and accident records within the past 3 years. If no violations have occurred in the past 3 years, the permits are extended, otherwise the permits are revoked and better standards are set in new permits that might be issued.

As a group, the Blackgold Mines have exceeded production thresholds specified in the circular YFF[2012] No.75, named Opinions about Boosting Annexation and Reorganization of Coal Mine Enterprises of Chongqing" issued by Chongqing government on 11 July 2012. That circular reflected the government's efforts to consolidate small coal mines which were environmentally hazardous, had inefficient production methods and were shown to have low safety standards. That initiative began in early 2006 and has resulted in the nationwide closure of approximately 9,000 small coal mines. The closure and/or consolidation of small coal mines started in the province of Shanxi during the 11th Five Year Plan (2006-2010), with the objective of reducing mine accidents stemming from non-compliance with mine safety standards. Other provinces followed this trend, Chongqing Municipality being prominent among them. Because of the Company's environmental, production and safety records, Blackgold's Mines are not subject to the regional closure and consolidation policy.

Details of the mining permits are shown in Table 12.1. An intensive due diligence review of these permits is outside the scope of this IQPR, so Behre Dolbear has relied upon the assertions of Blackgold and the documents provided as to the validity of these mining rights.

TABLE 12.1           MINING AND EXPLORATION PERMIT SUMMARY FOR THE BLACKGOLD MINES									
Property Name/Country	Mining and/or Exploration Permit	Terms	Blackgold's Interest (%)	Development Status	Area (km²)	Level (m)	Type of Mineral	Remarks	
Caotang Mine, China	C50000020090 41130019437	2013/12/27- 2016/12/27	100	Underground Operation	9.0997	970-300	Coal	Mining permit, Permitted for 0.15 Mt/Year, designed for 0.21Mt/Year, to be renewed every 3 years	
Heiwan Mine, China	C50000020090 41130019439	2014/4/01- 2016/6/23	100	Underground Operation	3.3413	1,300-1,050	Coal	Mining permit, Permitted for 0.06 Mt/Year, designed for 0.04Mt/Year, to be renewed every 3 years	
Baolong Mine, China	C5000020090 41130020052	2014/7/23- 2017/9/21	100	Development	2.8736	900-200	Coal	Mining permit, Permitted and designed for 0.06 Mt/Year, to be renewed every 3 years	
Maojiawan Section, Baolong Mine, China	T50120090301 025873	2015/3/22- 2017/3/22	100	Exploration	23.12	NA	Coal	Exploration permit, Owned by Chongqing Yihua Mining Company, a subsidiary of Blackgold	
Changhong Mine, China	C50000020090 41130018279	2012/12/18- 2015/12/18	100	Underground Operation	0.7719	1,350-800	Coal	Mining permit, Permitted for 0.12Mt/Year and designed for 0.04 Mt/Year, to be renewed every 3 years	

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# 12.1.2 Environment

The four Blackgold Mines are all located in Chongqing Municipality; two in Fengjie County, one in Wushan County, and one in Qijiang District, basically, in the mountainous and hilly areas. This part of China experiences a monsoon-influenced humid sub-tropical climate, most of the year the region experiences very humid conditions. The average annual temperature is 18.4°C with the summer average around 40°C in the months from July to August and the winter low average around -7°C from December to January. Precipitation is concentrated in the summer with average annual precipitation ranging from 400 mm to 1,050 mm. The wet season is from May to September.

Coal has been the main source of energy during the development of the Chinese economy. China continues to use coal as the main fuel for electricity generation even though coal has been considered the main source of greenhouse gases. As a developed and developing country, China still needs more coal supplies to aggressively continue developing and to keep pace with developed and developing countries. Hence, coal is needed in China for years to come. However, more and more regulations are being applied to mitigate the pollution resulting from the burning of coal for electricity generation. Power plants are being forced to install clean coal technologies to comply with the new regulations aimed at reducing the emissions of nitrous oxides (NOx) and sulphur dioxide (SO<sub>2</sub>) to a certain permitted level. In some provinces of China, the country has extended this by implementing regulations, such as No. [2007] 128 "Upgrading of Coal Mines in Chongqing" and No. [2009] 2 "Chongqing City Administration for Coal Mine Development" to force the integration of small coal mines to satisfy the minimum government required production capacities. The aim of doing this is to have positive effects on environmental protection of the mining areas, improve the social standards of the people living in the areas around the mine sites, and improve the working conditions of the miners.

Blackgold's Mines fall under the current regulation No. [2008] 131 of Chongqing City to allow small companies to integrate and, after integration, to comply with the laws, which include the National Law for Environmental Protection, National Law for Air Pollution Prevention, National Law for Water Pollution Prevention, National Law for Prevention of Noise Pollution, and National Law for the Prevention of Solid Waste Pollution. These laws limit pollution, waste, and noise emissions. Blackgold has been selected to be one of consolidating companies to integrate or merge these small operations or companies to facilitate compliance with the above laws.

Behre Dolbear noted the Environmental Impact Assessments (EIA) for the Mines were done according to the following national standards.

- The National Standard for Atmospheric Air (GB3095-1996)
- Groundwater Standard (GB3838-2002)
- Noise Standard (GB3096-2008)
- Waste Discharge Standards (GB20426-2006)
- Boiler Air Discharge Standard (GB13271-2001)
- Mine Wastewater Discharge Standard (GB20426-2006)
- Domestic Wastewater Discharge Standard (GB8978-1996)
- Noise Emission Standard During Construction Period (GB12523-90)
- Noise Emission Standard During Production Period (GB12348-2008)
- Solid Waste Discharge Standard (GB18599-2001)

While the Company has obtained permits/approvals for most of the environmental compliances from the relevant authorities, some challenging environment issues are still being addressed on a continuous basis. These issues are described in Table 12.2. The Company reports continued positive developments in these areas of concern.

TABLE 12.2								
ENVIRONMENTAL ISSUES OF CONCERN AT BLACKGOLD MINES As of July 2015								
Elements with Significant Impact on the Environment	Causes (Specifically Affected Property)	Measures That Are Being Applied to Mitigate Impacts						
Drainage from underground mining activities is discharged into the Zhang River at Changhong Mine. At Heiwan Mine, Shi Ma River is affected by water discharged from construction activities.	Underground and surface water discharge at Changhong Mine could contaminate the rivers	New wastewater treatment facilities have been constructed at Heiwan and Changhong to meet the government standards GB 20426-2006 for discharge of treated water to the nearby receiving watercourses.						
Dust emitted from the surrounding surface of the Mines and from the loading/stockpile facilities	Dry weather, moving vehicles, and uncontrolled dust generation (Changhong and Heiwan Mines)	The Company intends to expand sheds at stockpiles, set up concrete slabs at loading bays to cover exposed ground, improve road conditions, and use water sprinkling on roads in dry weather to meet the Standards II set in the Environmental Air Quality Standard (GB3095-1996).						
Land degradation and forest clearing (Topographical Impact)	Current mine development at Baolong and Changhong Mines may affect the local streams,	The Company intends to achieve a 30% reforestation/greening as set in the Chinese National standard (GB 50433-2008) for soil and water conservation.						
Air and noise pollution	Waste gases are emitted from the Mines (mainly CO <sub>2</sub> , CO, CH <sub>4</sub> ) and generated by boiler furnace (SO <sub>2</sub> and smoke dust). Noise is generated from blasting, moving, transportation, and heavy equipment (Caotang, Heiwan, and Chemehang Mines) Montheaut the	The Company has installed a methane drain system at Changhong to capture methane and sell it locally. The Company intends to meet the standards set in "Environmental Sound Quality Standards"						
Impact of mining activities upon the community	Changhong Mines). Mostly at the Caotang Mine, which is located near the local communities. People living close to the Mine sites are affected due to the Mine activities as roads to and from the Mines pass through their communities (Caotang and Heiwan). Coal Stockpiles are within sight of the local community at	(GB3096-2008) The Company is reportedly complying with the standards set in "Environmental Air Quality Standard (GB3059-1996) and "Environmental Sound Quality Standard"(GB3096-2008)						

Behre Dolbear and representatives of the Company discussed the individual aspects of the above standards and specifically the concerns described in Table 12.2. Blackgold's management stated its intent is to give special attention to these environmental concerns and provided Behre Dolbear with specific details regarding remedial measures/operating practices being introduced at individual mines to address environmental issues.

Regulatory non-compliance and/or violations of air and water quality standards can result in suspension of permits and can lead to imposition of more rigorous standards for operations that have been found non-compliant with initial permit conditions. The entire range of licenses, permits, and

governmental authorizations under which the Company operates is subject to permit revisions, financial penalties, and suspension of operations as a result of violations. In the extreme case of repeatedly egregious, flagrant, and willful violation, governmental agencies have the authority to completely close a mining operation.

# 12.1.3 Mitigation Measures at Individual Mines

# 12.1.3.1 Caotang Mine

The Company recently (December 2014) completed an Environmental Impact Assessment study that included an upgrade of the current sedimentation pond; the pond will be replaced with a completed water treatment facility that would be useful for treating the water before it is discharged to the environment. Dust suppression methods are being applied.

# 12.1.3.2 Heiwan Mine

Construction of the water treatment facility has been completed and is in operation, water is treated before it is discharged to Shi Ma River where it meets the requirements of Standard II of "Surface Water Quality Standard" 9GB3838-2002. Based upon the monitoring reports issued after inspection, Blackgold meets dust emission Standard II set in (GB3095-1996). Dust suppression methods are being applied. Noise reduction is been achieved by installing equipment that complies with the "Chinese Noise Standard Codes."

# **12.1.3.3 Baolong Property**

This Mine is still under construction. The Company plans to take actions based on the environmental monitoring report to be submitted after completion of construction. It plans to establish pollution discharge systems, building a collection and sedimentation pond, and water treatment facility to an approximate capacity of 500 m<sup>3</sup>. It estimates investment of nearly RMB3.4 million in water treatment, dust suppression, and noise reductions.

#### 12.1.3.4 Changhong Mine

The Mine has water discharge permit "TouHuanPaiZheng [2012] No. 00016" and solid waste discharge permit TouHuanPaiZheng [2012] No. 00019 issued by the local governments of Chongqing, Qijiang District on 15 October 2012. It has completed a water treatment facility to treat the underground mining water and surface wastewaters before discharging them to the river; Blackgold informed Behre Dolbear that the Mine has met the discharge limits set in these permits.

The Company has invested RMB1.0 million to upgrade the steel storage facilities (shed) and improve water jets for dust suppression. Furthermore, the Company is using low noise equipment and has taken insulation and muting actions to reduce noise based on the noise standard "Industrial Enterprises Noise Standard" (GB12348-2008).

All the Mines have had their Environmental Impact Assessment (EIA) studies. The EIA for Caotang Mine has recently been completed since the mine has just been upgraded and social issues required more attention at that site. The EIA for Heiwan Mine was done in May 2010 by Chongqing Geological and Mining Research Center. In June 2008, the EIA for Baolong Mine was done by China International Engineering Coal Design Institute, when the Mine belonged to Chongqing Yihua Mining Company. The EIA for Changhong Mine was done in July 2009 by Chongqing Tiaoguo Environmental Impact Assessment Company.

Blackgold confirmed to Behre Dolbear that there are no government protected areas around the Mine sites; however, sensitive areas, like the communities at Caotang, Shi Ma River, and Zhang River at Changhong Mine, do need special attention.

# 12.2 SOCIAL ISSUES

The Mines are located in mountainous and hilly environs, so access to the Mines is through mountain roads, which pass through the local communities. The communities and the Mines exist independently; however, the effects of one upon the other are evident. Behre Dolbear noted at Caotang Mine that the shaft, loading bay, and Mine offices are less than 50m from the villages. The Mine and community share the same road and the Mine had minimal rights to transport during certain hours. The typical living style of the people in this region is to build houses alongside the only accessible roads for easier transportation. During Behre Dolbear's site visit, new houses were still been constructed alongside the roads; hence, the regions naturally occurring conditions (mountains and remoteness) make the construction of independent coal haulage roads quite difficult.

The main source of income for villagers living in proximity is farming; however, the agricultural foundation is weak. Mineral exploration has just recently commenced and tourism is unreliable. Consequently, local employment is low. Blackgold has reportedly employed a number of people from nearby communities.

Blackgold stated its commitment to developing good community relationships. The Company has attained mutual arrangements of Temporary Land Lease Agreements with some local villagers living close to the Mine sites and along the roads leading to the Mines to use their land for specific periods. The Company has applied for Permanent Land Use Rights at Heiwan, Changhong, and Baolong Mines. "Permanent Land Use Rights" at Caotang Mine were issued in April 2013 by Land Resource and Housing Management Bureau of Fengjie County.

Under international standards, such as the "Equator Principles," any internationally funded project is encouraged to practice Corporate Social Responsibilities (CSR) so it can integrate the local community by providing employment, improving the infrastructures around the mine sites, and maintaining good relationships with the community. If the communities greatly benefit from the mining company, then the communities will have a significant stake in seeing the mine operate successfully and this will help overcome obstacles that could adversely affect a mining company. By contributing to the local communities' well-being and development, Blackgold may benefit in other ways that will include:

- 1) Improved, positive reputation
- 2) Improved access to resources, such as coal that is difficult to explore and would require permission to mine
- 3) Reduced closure costs and liabilities, resulting in better management of social risk
- 4) Improved employee recruitment
- 5) Improved local education and skills, hence acquiring local workforce; thus, enabling the Company to reduce dependence on workers from other provinces

Blackgold management affirmed that a person appointed by the local government to represent the communities is in charge of overseeing good mining practices at each Blackgold mining property. Therefore, the operations have no current opposition from the communities. Blackgold detailed Corporate Social Responsibilities it claims to have fulfilled from 2010 to 2015 at its individual Mines.

Blackgold has reportedly spent RMB150,000 in the reconstruction of an 8 km road for Baishui Village of Fenhe town and RMB20,000 for construction of a country road for Longjing Village of Baidi town located near Caotang Mine, in 2014 the company spent RMB78,000 to improve the country

road in Longjing Village. The Company has donated RMB600,000 to local communities in the Longjing Village of Baidi town for natural disaster relief. Blackgold intends to invest approximately RMB500,000 to build a 100m<sup>3</sup> water tank to store mountain water for the villagers, and plans to install 500m of water pipes and expand the 5 km road for the Baishui Village.

At Heiwan, the Company has reportedly contributed more than RMB200,000 to reconstruct an 8 km road for the Xinfang Village of Caotang town, and invested RMB80,000 to build a 300m<sup>3</sup> water tank to store mountain spring water for the local communities in the Xinfang Village. It has also spent more than RMB300,000 to install more than 4,000m of water pipes and build a 2 km water ditch for the local communities. In 2013, Blackgold reportedly invested approximately RMB600,000 to improve domestic water availability.

The Company has obtained approval to construct a loading dock (Hong Wanzi) in Jijing area of Fengjie County, approvals from the Transportation Safety Bureau for usage of the coast line and approval from Fengjie County Development and Reform Commission for project initiation have all been issued. The total investment for this project is RMB150.0 million.

At Changhong, the Company plans to invest approximately RMB100,000 in charity activities for the local communities. Blackgold has been named an "AAA-level Harmonious Labor Relation Enterprise" in Chongqing Municipality.

# **13.0 OCCUPATIONAL HEALTH AND SAFETY**

Blackgold's mining permits are renewed every three years upon an inspector's approval. If the Mine has violated the government regulations or had high accident frequencies, the mining permit will not be renewed. The Company will have to demonstrate that it has attained government set guidelines before the permits are renewed. As per PRC requirements, every coal mining company must complete "Two Sets of Six Systems for Production and Safety." For production, this includes:

- 1) Coal extraction measures, which include developing underground tunnels, coal transportation, underground ventilation, etc.
- 2) Machinery installations (surface and underground).
- 3) Ventilation for the underground workings.
- 4) Transportation (underground elevating and tunnel transportation).
- 5) Wastewater discharge facilities.
- 6) Proper tools for underground coal mining.

For safety, this includes:

- 1) Systems to monitor underground gas concentration and trigger automatic alarms when concentrations exceed the set limits.
- 2) GPS systems to monitor workers' position underground.
- 3) Water supply and dust proofing systems to help to protect workers' health and prevent dust explosions.
- 4) Underground and surface communication systems to connect surface and underground working areas.
- 5) Air supply accessories, which each miner is required to take with them underground and others which are located at rescue points.
- 6) Underground safe chambers equipped with oxygen supplies and food where miners would gather in case they cannot get to the surface.

For mines deemed to have high potential for gas outbursts, like Changhong, the new regulation requires that in addition to the above "Two Sets of Six Systems," coal mines should install additional sets of methane discharge systems (gas drainage systems). Mining would be permitted only when gas at the working face is drained to a pressure lower than 0.74 MPa, as required in the approval.

Blackgold's three operating Mines hold the following: Mining Permits, Mine Manager's Safety Production License, and Safety Production Permits issued by Chongqing Coal Safety Bureau, as shown. The Baolong property is under construction.

Blackgold provided information indicating production capacities and planned increments in production capacities upon government approvals. The Company stated that, even though production capacities at some Mines are higher than designed capacities, it has obtained approval for such production. This will apply while Blackgold is on the expansion stage until all expansion constructions has been achieved. Permitted and designed capacities will then coincide (Table 13.1).

TABLE 13.1           Blackgold's Operating Mines' Safety Production Permits							
Permit Number	Terms	Permitted Annual Production Capacity (Mtpa)	Remarks	Term of Commitments			
Caotang Mine				·			
Coal Production Permit No. 205002360477 (No longer required) Safe Production Permit	2013/03/27- 2019/10/31 2015/05/15-	0.15	The Company recently increased the production design capacity to	At the end of 2011, the Company contracted Chongqing Design Institute for the design of a 1.5 Mtpa			
MK[2015]1501008	2018/05/14		1.2 Mtpa and	future development plan.			
Business License No. 500236000003237	To be revised every year in March		plans to further increase the production capacity to 1.5 Mtpa.	Application for the increased production is being done in phases. The Company recently received approval for 1.2 Mtpa production plan. Almost all the Mine development and the equipment requirement for further expansion to 1.5 Mtpa have been achieved.			
Heiwan Mine Coal Production Permit No. 205002360401 (No longer required)	2007/06/29- 2015/12/31	0.06	Mining permit capacity is 0.06 Mtpa. The	The Mine is being developed according to the 0.3 Mtpa plan.			
Safe Production Permit	2015/03/13-		Company has just	Developments in the all			
MK(2015)1501006	2018/03/12		completed the	seams (K1, K2, and K3)			
Business License No. 500236000007875	Coal Mining Activities (expired 2011/12/30) (To be revised every year in March)	Sales and Operations	design to increase production capacity to 0.3 Mtpa.	have been completed and the equipment is ready to start. The Company is waiting authority's approval.			
Baolong Mine Business License No. 500237000000717	No limitations on the license (To be revised every year in March)	0.06	Mining permit capacity is 0.06 Mtpa.	Baolong is a government approved construction property. The main tunnel has hit the coal seams sooner than planned (800m instead of 1200m) in the old mine plan; hence the mine plan is being revised and construction is halted until the new mine plan is approved by the local authorities.			

TABLE 13.1				
Permit Number	Terms	Permitted Annual Production Capacity (Mtpa)	Remarks	Term of Commitments
Changhong Mine				
Coal Production Permit No. 205002220852 (No longer required)	2007/06/29- 2015/12/31	0.12	Mining permit capacity is 0.12 Mtpa.	Application for increased production has been done in phases. The Company
Safe Production Permit	2014/11/24-		Production design	submitted application for
MK (2014)1410018	017/11/23		capacity has	0.6 mtpa production in 2013
Business License No. 500222000015896	To be revised every year in March		recently been increased to 0.2 Mtpa. The Company intends increase production to 0.3 Mtpa afterwards.	for approval. This Mine is currently producing and is under expansion development at the same time. Working faces have been developed in coal seams M6 and M8.

Emergency safety plans are implemented in all Blackgold mining properties as a special requirement from the Chongqing Coal Safety Bureau. Safe chambers are being constructed underground as a means for emergency response in case of underground accidents. These chambers will be equipped with oxygen masks, water, and fire extinguishers to support life until outside emergency service is available. Construction of the chamber has been completed at Changhong Mine. The chambers at the Heiwan and Caotang Mines are still under construction.

All the three operating Mines are required by the regulation to send two management personnel once per month to participate in mine rescue awareness training in Chongqing; these personnel will then train their subordinates. To further guarantee emergency responses, every Mine has entered into a "Mine Rescue Agreement" with county mine rescue brigades. The brigades are committed to reach the Mine sites in a specific period of time in case of any accident, and the Company pays fees based on per tonne of coal mined, *i.e.*, RMB0.45/tonne. At Changhong and Caotang Mines, it will take about 30 minutes for the outside rescue brigade to reach the Mines; Heiwan Mine, which is 30 km away from the county, the rescue brigade, will take about 50 minutes, and at the Baolong Mine, it will take 1 hour. Copies of these agreements were presented to Behre Dolbear. Moreover, the individual Mines have their own rescue teams, which could respond while waiting for the outside county rescue brigades.

All mines are subject to site inspections and identification of occupational health and safety problems. Each underground mine has a safety production management team consisting of the mine manager, methane inspectors, blasters, and electricians to oversee the day-to-day occupational health and safety programs. Caotang and Heiwan Mines have been identified as lower gas mines under the reply to *"Identification Conclusion of the Mine Gas Rating of Fengjie County Coal Mine 2009* of Chongqing Economic Commission (YMJG [2009] 10)", and *reply to the "Identification of the Mine Gas Rating of Fengjie County Coal Mine 2010"* by Chongqing Coal Industry Administration (YMJG [2011] 81; therefore, methane draining prior to mining is not done. Ventilation is the only form of methane level control underground.

Since there were gas outburst accidents at nearby (non-company) mines on 22 October 2005 and 07 May 2007, respectively, careful attention must be paid to the gas levels at Caotang Mine. This is

despite the fact that Caotang Mine is officially categorized as a low gas mine. During the site visit, Behre Dolbear observed that methane concentration underground was below 0.01%.

Methane control precautions are in place and methane levels are regularly reported within the shifts at the Heiwan and Caotang Mines. The Company has also employed remote GPS monitoring equipment to trace each miner underground. Currently, the Mines have employed automated underground methane monitoring systems. All miners wear personal protective clothes and safety awareness instructions are imparted before every miner and visitor goes underground.

A safety concern at Caotang Mine included the mining method; in which miners would squeeze in a narrow space (less than 50 cm) opening to mine the thin coal seam. The underground roofs were not stable and they needed good reinforcements to avoid accidents. Even though the two Mines are considered to be of low methane, precautions are recommended since methane could accumulate near the mine roofs (ceiling of the mine openings) after a long period of mining. Contact of this gas (methane) with higher concentration of oxygen might contribute to an explosion.

Changhong Mine is considered to be of high methane concentration; hence, methane drainage facilities are employed to drain the methane before mining. Methane concentration was lower than the permitted limit during Behre Dolbear's underground site visit.

Some issues of concern were noted during Behre Dolbear's site visits, such as poor housekeeping at the working face, unsafe haulage ways underground, and concentrations of hydrogen sulphide at the working face. Irregular waste dumping and material storage on the Mine's surface area were also noted. The Company attributed these deficiencies to poor practices by the previous owners of this Mine and the surface construction work. Blackgold has stated its intent to upgrade the facilities and working conditions to improve the surface environment and attain government standards.

Permanent and temporary land occupations of Blackgold Mines will impact the nature of the land. The Company is required upon the completion of surface construction at each Mine to rehabilitate the temporarily occupied land and try to achieve a vegetation coverage range of approximately 30%, as set in the government Restoration Act. Behre Dolbear was informed that in terms of land rehabilitation, the Company follows what is mandated in the Restoration Deposit Act (RDA) Yucaijian [2007] No.40. The Company is required to pay a certain amount of money to the mining department for future land restoration costs. The maximum amount of restoration bond deposited is set in RDA – Schedule II, which is based on the actual annual production. Mines with annual production capacities between 110,000-300,000 tpa will need to pay a rehabilitation cost of RMB5.0 million [*i.e.*, Heiwan] and other mines with annual production of more than 500,000 tpa will need to pay a rehabilitation cost of RMB10.0 million [*i.e.*, Caotang and Changhong]. In 2013, Caotang Mine paid approximately RMB0.74 million for rehabilitation costs; Heiwan paid about RMB0.56 million; and Changhong Mine paid about RMB0.11 million. These funds were mostly for waste discharging costs; soil and water loss costs; as well as supporting funds for Mine closure. The local authority will only finalize the total cost of rehabilitation incurred when the Mine is to be closed.

# 14.0 RISK ANALYSIS

# 14.1 MINING PROJECT RISKS

When compared with other industrial and commercial operations, mining is a relatively high-risk business. Extractive operations have unique inherent risks because they occur within spheres of influence that cannot be as fully controlled as the risk parameters in most other industries. While mining projects can be engineered to minimize operational risks and hazards, inherent uncontrollable natural and external factors can have significant impacts on the ability of a mining company to meet its forecasted capital expenditure, mine life, production rate, and operating cost targets.

In mining ventures, estimations of project capital expenditures and operating costs are rarely more accurate than  $\pm 10\%$ , and typically, they will be  $\pm 15\%$  for projects in the final planning stages. Unanticipated geological anomalies can impact the costs and timetables associated with mine development and operation.

Mining project revenues are subject to supply and demand variations and other factors that result in higher or lower than anticipated product sales prices. Market uncertainty can be mitigated with long-term coal sales contracts that include predictable tonnage and pricing structures.

Regulatory and social influences play increasingly important roles in the conception, development and ongoing operation of mining projects. The influences of local, regional, and federal entities, including non-governmental groups, are not always consistent or predictable. Changes in permitting conditions, health and safety rules, and other regulatory constraints are increasingly significant risk factors.

Estimations of the tonnages and qualities of a coal deposit are not precise calculations but are based on geological interpretations and on very small increments of the deposit taken from drilling or channel sampling. Even at close spacing, these samples are very small representations of the whole coal seam. There is always a potential for error in the extrapolation of sampling data when estimating the tonnages and physical and chemical characteristics of the surrounding coal, so significant variations from forecasts may occur. In active mining operations, reconciliation of actual production from previously-defined reserves can confirm the reasonableness of past forecasts, but cannot categorically confirm the accuracy of future predictions.

In coal mining, each seam is unique, as is the extraction process at each mine. The nature of the coal seam, its persistence, its physical and chemical characteristics, and its behavior during the development and extraction phases can never be wholly predicted.

# 14.2 RISK ASSESSMENT METHODOLOGY

Risk assessment is a subjective exercise, relying on the experience of the professional undertaking the assessment. Behre Dolbear uses a combination of the likelihood that a specific risk will occur and the level of severity of a specific risk to categorize project risks as low, medium, or high. Typically, Behre Dolbear categorizes the risks according to the definitions footnoted in Table 14.1; however, there are instances where a risk may be categorized differently than shown in the matrix, as a result of the nature of that particular risk.

TABLE 14.1 Overall Risk Assessment Matrix				
Likelihood of Risk	Consequence of Risk			
(within 5 years)	Minor <sup>1</sup>	Moderate <sup>2</sup>	Major <sup>3</sup>	
Likely – will probably occur	Medium	High	High	
Possible – may occur	Low	Medium	High	
Unlikely – unlikely to occur	Low	Low	Medium	
<sup>1</sup> <b>Minor Risk:</b> The factor, if uncorrected, will have little or no effect (<10%) on project cash flow.				
<sup>2</sup> Moderate Risk: The factor, if uncorrected, could have a significant effect (10% to 20%) on the project cash flow				
unless mitigated by some corrective action.				
<sup>3</sup> Major Risk: The factor poses an immediate danger of a failure, which if uncorrected, will have a material effect				
(>20%) on the project cash flow and could potentially lead to project failure				

# 14.3 BLACKGOLD'S RISK ASSESSMENT

Three of Blackgold's Mines in the Chongqing area, reviewed in this IQPR, are already in operation so the risks at those locations are better understood and addressed by virtue of the knowledge and experience gained from the ongoing operations. However, Blackgold is projecting significantly increased production at these three Mines. The Baolong Mine in Wushan County is a new Mine and is still under construction. When compared with steady state operations, these plans introduce a higher degree of uncertainty.

In reviewing Blackgold's 4 coal mining properties, Behre Dolbear considered areas where there is perceived technical risk to the operation, particularly where the risk component could materially influence the projected production and resulting cash flows. Behre Dolbear also considered external influences that will impact the operations but are not be within the Company's direct control.

Behre Dolbear's risk assessment of Blackgold's operations and development projects is presented in Table 14.2. Behre Dolbear did not identify any significant technical or operational risks unknown to Blackgold's management that could not be effectively mitigated. External influences such as market and regulatory risks have the potential to play a more significant role in the Company's long term success. The identified technical and operational risks at the Company's Mines were judged no greater than the risks that might be expected at similar underground coal mining operations. No technical or operational risks at the Blackgold operations were found to be high or of significant materiality. External risks, such as Market Risk are, perhaps, the most significant determinants of ongoing success and profitability.

TABLE 14.2			
BLACKGOLD'S COAL MINES RISK ASSESSMENT			
Risk	Likelihood	Consequence Rating	Risk
Location, Access, and Infrastructure			
<b>Risk:</b> Infrastructure and access are inadequate for the operations. Main roads in Chongqing are in fair to good condition but are sometimes congested. Access roads to the Mines are typically in poor condition but are adequately maintained to support coal transportation. A single-track railroad passes through the Changhong Mine area. Sufficient power and water supplies are available for all mining activities in the area, as well as for other industrial and domestic users.	Unlikely	Minor	Low
Geology Bisks Casharing will affect the mine also and			
First: Geological unknowns will affect the mine plan and production capabilities. Geology of the coal deposits is adequately understood. Minimal risk is associated with the geology or unforeseen geologic anomalies.	Unlikely	Minor	Low
Coal Resources		-	
<b>Kisk:</b> Coal resources have not been properly or accurately estimated. Coal resources allocated to the Blackgold Mines have been estimated using extensive data collected mostly from underground mine workings plus historical drilling and surface geologic data. Production reconciliation with consumed in situ coal resource estimates generally confirms the estimates when mining dilution and mining losses are considered.	Unlikely	Minor	Low
Coal Reserves <b>Bigly:</b> Current and records have not been properly or accurately.			
Risk: Current coal reserves have not been properly of accurately estimated. Reserves delineated at the Company's Mines have been estimated from the Measured and Indicated coal resources using mining design, mining dilution factors, and mining recovery factors derived from production reconciliation for the last several years.	Unlikely	Minor	Low
<b>Risk:</b> Changes in operational or economic factors could reduce the coal reserves. The Company's reported Reserve tonnages are a function of technical and operational mineability. Potentially problematic mine roof and floor conditions noted elsewhere in this IQPR could reduce the total tonnage of "Reserve" coal is ultimately recovered. Such problems could also cause the Company to remove from its Reserve base some tonnages previously thought to be mineabile. Reserves are also a function of economic mineability. If market conditions deteriorate and coal sales prices do not recover from their current lows, the Company might be required to eliminate some non-economic tonnages from its reported Reserve base.	Possible	Moderate	Medium

TABLE 14.2				
BLACKGOLD'S COAL MINES RISK A	BLACKGOLD'S COAL MINES RISK ASSESSMENT			
Risk	Likelihood	Consequence Rating	Risk	
Mining Methodology and Operations				
<b>Risk:</b> Mining method and mine plans are inappropriate for the coal				
deposits.				
The mining methodologies and equipment used at the Company's	XX 111 1		Ŧ	
Mines have been applied in underground coal mining for many	Unlikely	Minor	Low	
years and are well established and appropriate for the thin to medium thickness dipping coal scame throughout South China				
Geotechnical and hydrological conditions are generally good				
<b>Risk:</b> Production ramp-up periods and steady-state targets are				
optimistic.				
The large number of individual mines and multiple portals at each				
mine gives the Company significant production flexibility.				
Scheduled application of new, higher productivity machinery at	Possible	Minor to	Low to	
these Mines might require longer-than-forecasted familiarization	1 0351010	Moderate	Medium	
and ramp up times, resulting in slower-than-forecast production				
growth rates. Typical (non-catastrophic) disruption to production				
an the Company's total coal production				
Coal Transportation				
<b>Risk:</b> Transportation limitations will affect production capacities				
and coal sales.				
Roadway congestion resulting from increased coal-related traffic				
could ultimately limit production at Caotang, Heiwan, and				
Changhong Mines. The steep nature of the terrain could lead to	Possible	Moderate	Medium	
landslides, which could interrupt coal haulage from these individual	1 0351010	Wioderate	Wiedium	
Mines, impeding their ability to get coal to the Company's				
consumers. Baolong, which will constitute 49% of total production				
when all Mines are at full capacity, has more direct access to water transport and is not as relient on read transport				
Environmental and Regulatory				
<b>Risk:</b> Environmental or regulatory issues will affect operations.				
Blackgold's Mines possess the necessary environmental approvals				
from the Municipality of Chongqing. The relevant permits for air				
and water emissions stipulate the environmental protection				
measures to be taken at each site, including the frequency of				
inspections to ensure compliance. The new Mine under construction				
at Baolong County has all the necessary construction permits and				
the Company is working to obtain environmental approvals. The	Dossible	Moderate	Madium	
of wastewater air quality and general site condition is mostly	rossible	Moderate	Medium	
undertaken by individual site managers. Monitoring results and				
regulatory records reviewed by Behre Dolbear indicate compliance				
with individual site permit requirements. Regulatory non-				
compliance and/or violations of air and water quality standards can				
result in suspended permits and can lead to more rigorous standards				
for operations that have been found non-compliant with initial				
permit conditions.				

TABLE 14.2       PL + GROOD PAG CO + L MUNICO PAGE A GODGOD (TENT)			
Risk	Likelihood	Consequence Rating	Risk
Occupational Health and Safety			
<b>Risk:</b> Occupation health and safety issues will affect operations. The Company has demonstrated a proactive occupational health and safety culture and is actively promoting improvements at the Mine sites. Blackgold is installing automated methane monitoring systems for underground mines and has instituted specific emergency response plans. Roof falls can occur during unexpected ground movement. Methane accumulations create explosion potential and are not always predictable. Though some Mines are officially categorized as "low gas," precautions must be taken before and during mining. There are also possibilities of coal outbursts at some Mines, mostly at Caotang and Heiwan Mines. Social and Community	Possible	Moderate	Medium
<b>Risk:</b> Social and community issues will affect operations. Some of the Company's mining and ancillary operations are in close proximity to local villages. Blackgold is aware of the potential conflicts that might arise if mining operations show a deliberate disregard for the wellbeing of these populations and their properties. As described in the IQPR, programs have been instituted to create public benefit. Constant attention must be given to these matters so that non-governmental groups are not encouraged to interrupt the Company's operations with demands for reparation and/or cessation of mining.	Possible	Minor	Low
Manpower         Risk: The availability of both skilled and unskilled labor will affect operations.         There appears to be an adequate regional source of labor. On a local basis, skilled technical and managerial personnel with extensive coal mining experience are not abundant.         Production         Production	Possible	Minor	Low
<b>Risk:</b> Realized production costs will be higher than forecasted. Projected operating costs are based upon the Company's operating experience during the past 6 months. In comparison to historical costs, the Company has made a number of changes in order to reduce costs, especially in the areas of raw material supplies and labor costs. There is some risk that forecasts for these cost reductions could be optimistic.	Possible	Moderate	Medium
<b>Risk:</b> Realized initial capital costs will higher than forecasted. Blackgold's forecasts for remaining capital costs are based are based on actual quotes from equipment vendors and construction contractors as well as the Company's understanding of costs based on its recent operational experiences. For three of the mines, the initial capital expenditures are nearly completed, minimizing the risk for cost overruns. At the Baolong Mine, capital expenditures will be ongoing, increasing the risk for cost overruns. The Sustaining and replacement capital requirements are not specifically delineated; the Company simply applies an unspecified "cost factor" to approximate the impact of those capital components over time. Additional (unquantified and unrecognized) sustaining capital might be required during the lives of the Mines. There is some risk that future capital expenditures will be higher than forecasted by the Company.	Possible	Minor	Low

TABLE 14.2 BLACKGOLD'S COAL MINES RISK A	SSESSMENT		
Risk	Likelihood	Consequence Rating	Risk
<b>Risk:</b> Sustaining capital costs will be incurred over time. The sustaining and replacement capital requirements are not specifically delineated; the Company intends to expense any replacement and repair costs as a component in the cost of sales. Additional (unquantified and unrecognized) sustaining capital might be required during the lives of the Mines. Market and Coal Price Risk	Possible	Minor to Moderate	Low to Medium
<ul> <li>Risk: Realized coal sales prices will be lower than forecasted. Behre Dolbear's sensitivity analyses indicate that coal demand and coal sales prices have high potential to impact the Company's business. Blackgold's projections of steady state coal sales prices are based on historically realized sales prices experienced at the Caotang, Heiwan, and Changhong Mines. Blackgold has not provided evidence of long term contractual arrangements that will assure the purchase of its products on a consistent, reliable and quantifiable basis.</li> <li>Coal prices in the PRC have demonstrated unusual volatility in recent years. There is reasonable expectation that Blackgold might see downward price pressure because:</li> <li>Increasingly stringent environmental and regulatory constraints which are expected to impede coal's use on a global basis. (The PRC has recently begun to acknowledge the reportedly negative impacts associated with the burning of coal.)</li> <li>The formerly rapid growth of China's economy appears to be slowing, so energy and industrial demand for coal can also be expected to slow.</li> <li>Alternative energy sources are gradually taking energy market share away from coal and other fossil fuels.</li> <li>Among Chinese fossil fuels, natural gas is expected to play an increasingly significant role in the generation of electricity, most likely taking future market share from coal in that arena.</li> </ul>	Possible to Likely	Major	High

# 15.0 INTERPRETATION AND CONCLUSIONS

Regional work by geologists from a China Geology Brigade has provided an understanding of the geology and coal deposits of Blackgold's projects. Blackgold and AM&A have sampled and mapped multiple coal seams of Permian to Triassic age on the Company's properties.

Blackgold has provided Behre Dolbear with historical data, current technical information, and business plans. Behre Dolbear's review focused on exploration data, coal resources and reserves, mining operations and planning, costs, business forecasts, environmental management, and permitting. The primary objective was to determine the extent to which AM&A's resource and reserve interpretations might be coalesced and expressed in terms of the JORC Code 2012 Edition (as fully defined in Section 6.0). To bring the resource and reserve tonnages into a framework consistent with JORC categorizations, Behre Dolbear used the knowledge and judgment of experienced coal industrial professionals.

Behre Dolbear has concluded that the coal resource estimate database, data density, procedures, and parameters applied by AM&A to the Blackgold Mines are reasonable and acceptable and the geologic and mining factors were adequately considered in AM&A's resource and reserve estimation of the Blackgold Project. Certain adjustments were necessary to bring AM&A's coal reserve estimates into better compliance with the JORC Code 2012 Edition.

Behre Dolbear is of the opinion that the information presented in this IQPR is in all ways adequate for JORC Code resource and reserve estimation for similar coal deposits.

Blackgold's mining plans, as reviewed by Behre Dolbear, are workable. The operation of three production Mines indicates that mining methodologies that can be expected to result in a productive and successful business. Behre Dolbear also believes that Blackgold's production and cost forecasts presents an "economically viable" mining scenario, as required by the JORC Code 2012 Edition.

As a result of its review, Behre Dolbear has concluded that, as of 30 April 2015, the in situ coal tonnages for Blackgold Mines comprises approximately 89.1 Mt of Measured, 45.9 Mt of Indicated, and 39.0 Mt of Inferred coal resources, conforming to the definitions in the JORC Code 2012 Edition.

Behre Dolbear has also concluded that, as of 30 April 2015, the Blackgold Mines, inclusive of the coal resources, held approximately 62.96 Mt of Proved and 36.64 Mt of Probable coal reserve, conforming to the definitions in the JORC Code 2012 Edition. By definition, it cannot be assumed that, absent further information, all or any part of the Company's Inferred coal resource will ever be upgraded to a higher category.

#### **16.0 RECOMMENDATIONS**

#### **16.1 POTENTIAL TO INCREASE THE RESOURCE AND RESERVE**

According to the AM&A 2015 Report, the exploration targets on Blackgold's 4 coal properties have potential to contain additional resource tonnages ranging from 19.0 Mt to 23.0 Mt. The ranges for quality parameters are anticipated to be from 5,500 kcal/kg to 7,100 kcal/kg; 1.0% to 2.0% AR moisture, 17.0% to 29.0% ash, total sulphur from 1.0% to 3.0%, and phosphorous from 0.005% to 0.010%. There are also 39.0 Mt of Inferred coal resource from Baolong and Changhong Mines. Further exploration in the target areas might define more Inferred Resource tonnages. It might also allow conversion of some Inferred Resource tonnages into the Measured and/or Indicated Resource categories.

#### **16.2 MINING OPERATION**

The Design Institute report states that the roof and the floor mainly consist of mudstone and calcareous mudstone in Caotang Mine and Heiwan Mine. Currently, the main adit of the Caotang Mine is supported by dry packed stone pitching arches. The Preliminary Design reports for Changhong and Baolong Mine, prepared the by Chongqing Institute, state the roof mainly consists of mudstone, silt sandstone, and limestone with good stability. The floor mainly consists of clay stone, mudstone, and silt sandstone. Pre-cast concrete block lining, shotcreting, spot bolting, and stone pitching will be applied for support of the various openings and chambers to be driven under the mine upgrade development program.

In these regards, Behre Dolbear is of the opinion that a detailed geotechnical review might result in modifications to the support systems similar as noted above. These modifications would not affect the estimate of coal resource tonnages, but they might unfavorably impact the capital costs and production costs associated with development and operation of the Mines. If those parts of the Resource became uneconomical to mine, then the corresponding tonnages would no longer be categorized as Reserves.

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INDEPENDENT QUALIFIED PERSON'S REPORT ON FOUR COAL MINING PROPERTIES BLACKGOLD INTERNATIONAL HOLDINGS LIMITED IN CHONGQING MUNICIPALITY, PEOPLE'S REPUBLIC OF CHINA

> APPENDIX 1.0 GLOSSARY

Glossary/Abbreviations	Description
331	Chinese Mineral Resource Classification Category
332	Chinese Mineral Resource Classification Category
333	Chinese Mineral Resource Classification Category
Adit	Horizontal or near-horizontal tunnel driven into a coal seam or an ore
	body
Anticline	Upward arching folds or rock strata (antonym = syncline)
Axial Plane	A plane that joins the hinge lines of successive beds in a fold
Axis	Hinge-line of a fold
BCFM	Base Case Cash Flow Model
Bed	Individual sedimentary layer
Bedding	A rock surface parallel to the surface of deposition
Block	Structural area of the continental landmass
Behre Dolbear	Behre Dolbear Asia, Inc.
Channel Sample	A sample of material taken continuously across a rock or coal face
Clastic	A sedimentary rock composed of broken fragments of pre-existing
	rocks
Coal Resource	A JORC Code 2012 Edition term for a concentration or occurrence of
	coal 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 tonnage or volume of coal of economic
	interest
Coal Reserve	A JORC Code 2012 Edition term for the economically mineable part
	of a Measured and/or Indicated Coal 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, including application of
	Modifying Factors. Such studies demonstrate that, at the time of
	reporting, extraction could reasonably be justified.
Conformable	Beds deposited upon one another in uninterrupted sequence
Conglomerate	Sedimentary rock formed by the cementing together of rounded
C C	water- worn pebbles, distinct from breccia (jagged fragments)
$CO_2$	Carbon dioxide
COD	Chemical oxygen demand
Cross Bedding	Sedimentary beds inclined with respect to the horizontal, formed by
e	the migration of bed forms such as dunes and ripples
DDH	Diamond Drill Holes
Diamond Drill	Rotary drilling apparatus using diamond impregnated bits, to produce
	a solid continuous core sample of the rock
Dip	The angle at which a rock layer, fault of any other planar structure is
	inclined from the horizontal
CSR	Continuing commitment by business owners to behave ethically and
	contribute to economic development in the region they operate, while
	improving the quality of life of the workforce and their families as
	well as of the local community and society at large
Drag Fold	A minor fold formed in the vicinity of strike faulting due to the
-	differentiated movement (dragging) of rocks either side of the fault
Dyke	A tabular intrusive body of igneous rock that cuts across bedding at a
-	high angle
EIA	Environmental Impact Assessment
	-

# TECHNICAL TERMS AND ABBREVIATIONS USED IN REPORT
Fault	A fracture in rocks on which there has been movement on one of the sides relative to the other, parallel to the fracture
Fault Splay	A series of minor faults at the extremities of a major fault (splay zone)
Ferruginous	Containing iron
Fold	A bend in the rock strata or planar structure
Foliation	The laminated structure resulting from the narallel arrangement of
1 onution	different minerals
Footwall	Rocks underlying a mineralization zone or coal seam
Formation	A formation or geological formation is the fundamental unit of
	lithostratigraphy. A formation consists of a certain number of rock
	strata that have a comparable lithology, facies or other similar
	properties. Formations are not defined on the thickness of the rock
	strata they consist of and the thickness of different formations can
	therefore vary widely.
g	Gram
g/t	Grams per Tonne
Geomorphology	Study of the form and origin of natural land surfaces
Geosyncline	A large linear trough on the earth's surface in which sediments or volcanic rocks are deposited
Geothermal	The rate of increase in temperature of the earth with depth
Grassroots	The initial phase of examining an area for the occurrence of
	exploration mineralization
Goaf	That part of a mine from which the mineral has been partially or
~	wholly removed
Group	In stratigraphy, a lithostratigraphic unit, a part of the geologic record
1	or rock column that consists of defined rock strata
na	nectare
HGI Hanging Wall	Realize every line of mineralization zone or cost seem
Hanging wan	A common oxide of iron
HKSE	Hong Kong Stock Exchange
hr	Hour
Inferred Coal Resource	A IORC Code 2012 Edition Coal Resource classification where the
Interfed Coar Resource	coal resource is inferred from geoscientific evidence drill holes
	underground openings or other sampling procedures where continuity
	cannot be predicted with confidence and where geoscientific data is
	not sufficient to create a reasonable level of reliability.
Indicated Coal Resource	A JORC Code 2012 Edition Coal Resource classification where the
	coal resource is sampled by drill holes, underground openings, or
	other sampling procedures at locations where geoscientific data are
	known with a reasonable level of reliability but are too widely spaced
	to ensure continuity.
Intercept	The length of coal seam, rock or mineralization traversed by a drill
-	hole
Ironstone	A concretionary, often pebbly, weathering product composed mainly
	of iron oxides
Isocline	An anticline or syncline so closely folded that the two sides have the
	same dip
IPO	Initial Public Offering
IQPR	Independent Qualified Person's Report
ITR	Independent Technical Review

JORC	Joint Ore Reserves Committee – Australasian Code for Reporting of Identified Resources and Ore Reserves
Jurassic	A time period from approximately 212 to 142 million years ago
km	Kilometer
km <sup>2</sup>	Square Kilometer
kV	Kilovolts
kcal	kilocalorie ( $-1.000$ calories $-4.184$ kiloioules)
ka	kilogram
kg bt	kilotonnes
Kt Laval	In mining, a group of workings at approximately the same elevation
Level	A sadimentary rock composed mainly of calcium carbonate
Liniestone	Life of Mine
	Life of Mille
111 3	
	Cubic meter
Measured Coal Resource	coal resource is intersected by drill holes, underground openings or other sampling procedures at locations that are spaced closely enough to confirm continuity and where geoscientific data are reliably known
Mineralization	In economic geology, the introduction of valuable elements into a rock body
m <sup>3</sup> /hr	cubic meter per hour
M+I	Measured plus Indicated
mm	millimeter
Moz	million ounce
Mt	million tonnes
Mt/x	million tonnes per vear
Mtpa	million tonnes per annum
NDV	Not Present Value
NF V NO	Net Flesent Value
NO <sub>2</sub>	Nitrogen guides formed from huming cost
NUX	The surface expression of a real layer or coal seem (york) to ereal
Outcrop	out)
Oxidation	Near surface decomposition by exposure to the atmosphere and
DOI	ground water
PCI	Pulverized Coal Injection – a system for introducing coal into blast
	furnaces during the manufacture of iron and steel
Plunge (of fold axis)	Angle of the axis of folding with a horizontal plane.
Probable Coal Reserve	A JORC Code 2012 Edition Coal Reserve classification - the
	economically mineable part of an Indicated, and in some
	circumstances, a Measured Mineral Resource as defined and
	quantified by studies at a Pre-Feasibility or Feasibility level.
Proved Coal Reserve	A JORC Code 2012 Edition Coal Reserve classification - the
	economically mineable part of a Measured Mineral Resource as
	defined and quantified by studies at a Pre-Feasibility or Feasibility
	level. A Proved Ore Reserve implies a high degree of confidence in
	the Modifying Factors.
PPE	Personal protective equipment
PRC	People's Republic of China
$P_2O_5$	Phosphorous pentoxide
ppb	parts per billion
ppm	parts per million
QC	Quality Control

Quaternary	The most recent interval of Earth history, extending from 1.8 million years ago through to the present day. The Quaternary is characterized by repeated extreme variations between glacial and inter-glacial alimeter.
PD	Children de Constante de Cons
RD POM	Dup of Mino
	Rull-OI-Mille
RIVID Decomposizione	A general eveningtion of survey of a region with reference to its
Reconnaissance	A general examination of survey of a region with reference to its
C	Sulphur
	Sulphu A global minoral analytical laboratory group
SO2	Stock Exchange Hong Kong
SERIK	Subbur dioxida
SO <sub>2</sub> Sandstona	A computed or otherwise compacted detrited sediment composed
Sandstone	a comparise compacted definition composed
Sediment	Rocks formed by the deposition of solids from water
Shale	A laminated sediment in which the constituent particles are
Share	predominantly clay sized (smaller than 0.0039 mm in diameter)
Shear (zone)	A zone in which shearing has occurred on a large scale so that the
Shear (2010)	rock is crushed and brecciated.
Siltstone	A very fine-grained clastic rock composed predominantly of silt
	sized particles.
Splay Fault	A secondary shear or fault divergent from the principal structure.
Strike	The direction or bearing of the outcrop of an inclined bed or structure
	on a level surface.
Sub Crop	The surface expression of a mostly concealed rock layer.
Syncline	A trough or fold of stratified rock in which the strata slope upward
-	from the axis.
Triassic	A time period from approximately 248 to 212 million years.
tpa	tonnes per annum
Unconformable	Descriptive of rocks on either side of an unconformity
Unconformity	Lack of parallelism between rock and/or coal strata in sequential
	contact, caused by a time break in sedimentation.
U/G Development	Underground Development
VALMIN Code	Code for the Technical Assessment and Valuation of Mineral and
	Petroleum Assets and Securities for Independent Expert Reports
VAT	Value Added Tax
Weathering	A process of change to rocks brought about by their exposure to
	oxygen and water

# APPENDIX 2.0 ASSESSMENT AND REPORTING CRITERIA JORC CODE 2012 EDITION TABLE 1

The following table provides a summary of important criteria related to the assessment and reporting of the Mineral Resources at all four of the Blackgold Mines.

Section 1 – Sampling Techniques and Data	
(Criteria in this section apply to all succeeding sections.)	
Criteria	Commentary
Sampling Techniques	<ul> <li>Most samples used for resource estimation for three operating Mines are channel samples collected from underground workings by trained personnel. Seam limits were determined by a qualified geologist following Chinese Sampling Standard GB/T 482-2008 "National Standards of People's Republic of China Sampling of coal seams." During site visits, the quality of this sampling was confirmed by the Qualified/Competent Person as being reliable and unbiased and suitable for JORC Code 2012 Edition compliant resource modeling.</li> <li>Seam thicknesses were measured perpendicular from the mapped hanging wall to the foot wall of the seams exposed at regular intervals in working mine development drives.</li> <li>Samples were collected from cleaned faces in channels 10cm wide and 5cm deep.</li> <li>Drill sampling was used for resource estimation for Baolong Mine. Samples were collected from diamond drill holes; the core recovery in the seams</li> </ul>
Drilling Techniques	<ul> <li>exceeded 85%.</li> <li>Where drill sampling was used, samples were collected from diamond drill holes.</li> <li>All core is HQ or NQ recovered with standard tube equipment</li> </ul>
Drill Sample	Drill core sample recoveries in the seams sampled exceeded 85% in all holes
Recovery	bin core sumple recoveries in the seams sumpled exceeded 05.6 in an noies.
Logging	<ul> <li>All diamond drill core was logged by qualified geologists with the seam limits accurately marked prior to sampling.</li> <li>All underground samples were collected by trained personnel with the seam limits determined and logged by a qualified geologist.</li> </ul>
Sub-sampling Techniques and Sample Preparation	<ul> <li>All drill core and underground samples were taken of the entire seam, including any partings where they occur, from hanging wall to foot wall.</li> <li>All the drill core was dispatched for laboratory analysis, <i>i.e.</i>, no core splitting or sub-sampling was done.</li> <li>All the samples collected from underground were sent for laboratory analysis without sub-sampling or splitting.</li> <li>All sample splitting done at the laboratory was done after fine crushing.</li> </ul>
Quality of Assay Data and Laboratory Tests	<ul> <li>All laboratory analyses were performed by nationally accredited China laboratories using standard techniques and properly calibrated equipment.</li> </ul>
Verification of Sampling and Assaying	• Verification samples were collected by the Qualified/Competent Person. The verification sample analysis results from all four Mines show better coal quality than that used in the resource modeling.
Location of Data Points	<ul> <li>All drill collars were surveyed by licensed surveyors.</li> <li>All underground samples were accurately located using surveyed station points on the mine development backs.</li> <li>All surveys use the GAUSS-KRUGER Xi'an 1980 grid datum.</li> </ul>
Data Spacing and Distribution	<ul> <li>Almost all the drilling used for resource modeling is spaced on a nominal 500m spaced grid.</li> <li>Most of the underground samples were collected at nominal 50m intervals along the coal face.</li> <li>The spacing of the drilling and underground sampling, after considering the geology of the seams and any structural complexities, is appropriate for the resource categories reported.</li> </ul>

Section 1 – Sampling Techniques and Data (Criteria in this section apply to all succeeding sections.)	
Criteria	Commentary
Orientation of Data in Relation to Geological Structure	<ul> <li>Since the seams are horizontal or only very shallowly dipping and the drilling and underground samples were taken vertically, the sampled seam thicknesses are essentially true seam widths.</li> <li>There is no sample bias due to the orientation of the samples.</li> </ul>
Sample Security	<ul> <li>All samples dispatched for laboratory analysis were sent in sealed, secure plastic bags to prevent drying and oxidation of the samples and spillages and transported in secure transport.</li> </ul>
Audits or Reviews	• The Qualified/Competent Person has thoroughly reviewed the entire sampling stream and found that all sampling work properly followed the Chinese standards, which in turn meets JORC Code (2012) standards.
	• The data used in the resource estimates has been checked for accuracy against primary sources where available. All sample locations were checked against mine development plans to confirm that they are located in the development where they were taken. All errors found were corrected.

Section 2 – Reporting of Exploration Results	
(Criteria listed in the preceding section also apply to this section.)	
Commentary	
• All tenements included in this IQPR are reportedly owned 100% by the	
Company or its 100% owned subsidiaries.	
• All mining tenements are reportedly in good standing with the relevant authorities. One exploration tenement license is in renewal process.	
• All data used in this IQPR was provided by the Company and/or its direct advisors.	
• The coal described in this report is Triassic- and Permian-age	
• Maps showing the locations of all the drill holes and underground samples used in the reported resource estimates are included in the main body of the Original Report, as defined above in this IOPR.	
• Data aggregation was not required in the resource modeling. All measurements and qualities refer to whole seams.	
• Since the seams are horizontal or only very shallowly dipping and the drilling	
and underground samples were taken vertically, the sampled seam thicknesses	
are essentially true seam widths.	
• Maps showing the local geology, mine workings, and typical cross sections for each of the deposits are included in the main body of the Original Report.	
• No exploration results have been released, and thus, this section is not material to this report on Mineral Resources and Ore Reserves.	
• This IQPR addresses all exploration that has been carried out by the Company	
and the Government to date.	
• Since the deposits now support operating underground mines, no further surface drilling is planned. Sampling and measurements of the coal seams will continue	
at regular intervals along the mine development drives as they advance	
Underground drilling in Heiwan Mine has been planned.	

Section 3 – Estimation and Reporting of Mineral Resources (Criteria listed in Section 1, and where relevant in Section 2 also apply to this section.)	
Criteria	Commentary
Database Integrity	• The data used in the resource estimates has been checked for accuracy against primary sources where available. All sample locations were checked against mine development plans to confirm that they are located in the development where they were taken. All errors found were corrected.
Site Visits	• Dr. Yingting Guo, the Qualified/Competent Person reporting on Resources, has made four site visits, most recently in May 2015, and verified sampling and mining along with data compilation, input methods and data integrity.
Geological Interpretation	<ul> <li>The coal seams at all the Mines have very simple geology and continuity of seam qualities and widths with very little folding and faulting offsetting the seams.</li> <li>The density of the coal seam thickness and coal quality data available for each of the seams modeled provides a sound understanding of the geology for the resource categories reported.</li> <li>The resource models are all constrained by the geology.</li> </ul>
Dimensions	• The flat dipping coal seams all appear to extend well beyond the limits of the tenements and resource models described in this IQPR.
Estimation and Modelling Techniques	<ul> <li>All the seams were modeled by extrapolating the coal seam data, including the coal seam thicknesses and coal qualities, using an Inverse Distance Squared (ID<sup>2</sup>) algorithm into gridded cells.</li> <li>Since the seams vary little in thickness and qualities within the modeled areas, this modeling method is appropriate for resource estimation.</li> <li>No check resource models/estimates were considered but actual mine production figures, where available, tally well with the resource models and estimates.</li> <li>No by-products are considered as part of the resource estimates.</li> <li>The coal produced from the mines is readily sold with no penalties paid for deleterious elements, such as sulphur.</li> <li>The cells in the block models are considered by the Qualified/Competent Person as being appropriate for the sample spacing and dimensions of the resources. Full details of model parameters are included in the Original Report.</li> <li>The resource model is confined by the mapped outcrop of the coal seams where appropriate pillars of unmined coal left for mine workings stability.</li> <li>Grade cutoffs are not considered appropriate for the coal seams modeled because variations in the qualities and thicknesses within the individual seams were small and there were no outliers.</li> </ul>
Moisture	<ul> <li>All tonnages are based on air dried bulk densities.</li> <li>Moisture contents were measured in samples using Chinese standard equipment and techniques that also conform to JORC Code (2012) standards.</li> </ul>
Cut-off Parameters	• Cut-off grades/qualities are not considered in the resource estimates for this coal deposit.
Mining Factors or Assumptions	• All mining parameters used for estimating reserves from resources, including mining dilution and recoveries, are based on actual mining experience in the relevant deposits.
Metallurgical Factors or Assumptions	• All the coals included in the resource estimates could be beneficiated by washing however, the Qualified/Competent Person is unaware of any washing tests carried out on the coals. To date all the mined coal has been sold without beneficiation with the customers either washing the coal or blending it to produce an acceptable product for the intended end use.

Section 3 – Estimation and Reporting of Mineral Resources (Criteria listed in Section 1, and where relevant in Section 2 also apply to this section.)	
Criteria	Commentary
Environmental Factors or Assumptions	<ul> <li>All the operating Mines appear to be operating within the current environmental guidelines determined by the relevant government authorities.</li> <li>All waste is being stockpiled in a manner consistent with the government regulations. No contamination of the environment by mine waste or deleterious minerals exceeding government guidelines has been reported.</li> </ul>
Bulk Density	• The bulk densities used in the resource estimates for Baolong are based on measurements taken of representative samples. The bulk densities for all the other seams are based on historical mine measurements and sales data.
Classification	<ul> <li>The coal resource estimates are classified according to the minimum search distance between the resource model blocks and the nearest sample point. If the distance is less than 500m the resource was classified as Measured, between 500m and 1000m as Indicated and between 1000m and 2000m as Inferred. Any resource model blocks where the minimum distance to a sample point exceeded 2000m were classified only as Exploration Targets and NOT included in the resource inventory.</li> <li>The confidence in the geological interpretations and quality of the sampling were all considered when deciding on these search distances.</li> </ul>
Audits or Reviews	• No independent audits or reviews of the resource estimates have been undertaken although the reconciliation between actual mine production and resource and reserve estimates in the seams currently being mined are good.
Discussion of Relative Accuracy/Confidence	<ul> <li>The Qualified/Competent Person believes that the relative accuracy of the resource estimates is properly indicated by the implied accuracy of the JORC Code (2012) categories used. Only small changes to the tonnages and qualities of future resource estimates are expected, after allowances for mined out tonnages are made, as more sampling is carried out from the underground workings as mining progresses.</li> <li>All resource estimates in this report are of the entire area covered by the tenements with allowances for any coal already extracted by mining.</li> <li>Reconciliation between actual mine production and resource and reserve estimates in the seams currently being mined are good.</li> </ul>

Section 4 Estimation and Reporting of Ore Reserves (Criteria listed in Section 1, and where relevant in Sections 2 and 3, also apply to	
this section.)	
Criteria	Commentary
Mineral Resource Estimate for Conversion to Ore Reserves	• After modifying factors, such as mining dilution and mining losses have been applied, the resource estimates quoted in this IQPR have been used to determine reserve estimates. Resources are inclusive of the reserve estimates quoted in this IQPR.
Site Visits	• , Mr. Anthony R. Cameron, the Qualified/Competent Person reporting on Reserves, has made 4 site visits, most recently in May 2015. Mining, loading, and transportation processes were verified along with data compilation, input methods, and data integrity.
Study Status	• Three of the four Mines are operational. The modifying factors, such as mining dilution and mining losses that have been applied to convert the resource estimates to reserve estimates, are based on actual mining experience at the relevant mining operations.
Cut-off Parameters	• No cut-off grades/qualities were applied.
Mining Factors or Assumptions	• The modifying factors, such as mining dilution and mining losses that have been applied to convert the resource estimates to reserve estimates, are based on actual mining experience at the relevant mining operations.

Section 4 Estimation and Reporting of Ore Reserves	
(Criteria listed in Section 1, and where relevant in Sections 2 and 3, also apply to	
this section.)	
Criteria	Commentary
	• All the coal seams modeled exceed the minimum mining width.
Metallurgical Factors or Assumptions	<ul> <li>All the raw coals would produce higher quality products, with lower ash and sulphur contents and higher calorific values, if they were beneficiated by washing; however, no metallurgical test work results have been provided for assessment by the Qualified/Competent Person.</li> <li>No metallurgical recovery factors have been applied to the resource and reserve estimates since all the coal is currently sold direct to customers without beneficiation or washing.</li> <li>The Company routinely blends the coals from its own mines with coal purchased from third parties in order to manage quality of product prior to delivery to clients. None of the modeled coals has deleterious elements that have, to date, prevented the sale of the mined coal or waste disposal. Some coals contain arsenic and other deleterious elements that do limit their utilization.</li> </ul>
Environmental	<ul> <li>All the operating Mines are reportedly functioning within the current environmental guidelines determined by the relevant government authorities.</li> <li>All waste is being stockpiled in a manner consistent with the government regulations. No prohibitive contamination of the environment by mine waste or deleterious minerals exceeding government guidelines has been reported.</li> <li>The current tenements include sufficient sites with capacity for future safe disposal of all planned mine waste.</li> </ul>
Infrastructure	<ul> <li>All the mines and exploration projects are well serviced by existing infrastructure, such as roads, railways, river ports, electric power, water, and access to labor, sufficient for any current or planned future mining.</li> <li>The current tenements include sufficient sites to meet any future requirements for mining infrastructure, including offices, workshops, accommodation for staff, processing plants, and for waste disposal.</li> </ul>
Costs	• All cost assumptions are based on historical and budgeted costs from the current mining operations, which are currently profitable.
Revenue Factors	• All revenue assumptions are based on current mined coal sale contracts.
Market Assessment	• The coal currently being mined and sold is in demand as thermal coal and no sale problems are expected in the near future. There is some potential for negative price pressure related to environmental restrictions on coal burning. A slowdown in Chinese economic growth also has potential to negatively impact coal sales volumes and prices.
Economic	• Economic analyses are not provided in this IQPR although it is noted that the operating mines at Heiwan, Changhong, and Caotang are currently profitable.
Social	<ul> <li>No social problems have been experienced with the local communities to date at the operating Mines.</li> <li>No social problems are expected at the sites where mining is yet to commence since all the projects are located in existing mining districts with a long history of coal mining and the local communities rely heavily on coal mining for employment and business revenues.</li> </ul>

Section 4 Estimation and Reporting of Ore Reserves		
(Criteria listed in Section 1, and where relevant in Sections 2 and 3, also apply to		
	this section.)	
Criteria	Commentary	
Other	<ul> <li>The operating mines maintain good safety records with no serious injuries or fatalities occurring since the Company took over the mining operations. The coal seams are subject to the risk of dust explosions, spontaneous combustion, and roof collapse like all coal mines; however, they are not considered a reason for extreme concern.</li> <li>Modern surveillance equipment and trained safety personnel are monitoring all the risks and appropriate remedial action is reportedly taken to ensure accidents will be kept to a minimum.</li> </ul>	
	• All operating Mines meet or exceed the minimum safety and environmental requirements set by the relevant government authorities.	
Classification	<ul> <li>The coal reserve estimates are classified according to the minimum search distance between the resource model blocks and the nearest sample point. If the distance is less than 500m, the reserve was classified as Proved, between 500m and 1,000m as Probable, <i>i.e.</i>, after modifying factors applied Measured Resource &gt; Proved Reserve and Indicated Resource &gt; Probable Reserve.</li> <li>No Measured resources were converted to Probable reserves.</li> <li>Confidence levels in the geological interpretations and quality of the sampling were considered when deciding on these search distances.</li> </ul>	
Audits or Reviews	• No independent audits or reviews of the reserve estimates have been undertaken although the reconciliation between actual mine production and reserve estimates in the seams currently being mined are good.	
Discussion of Relative Accuracy/ Confidence	<ul> <li>The Qualified/Competent Person believes that the relative accuracy of the resource estimates is properly indicated by the implied accuracy of the JORC Code (2012) categories used. After allowances for mined out tonnages are made, only small changes to the tonnages and qualities of future reserve estimates are expected as more sampling is carried out in underground workings as mining progresses.</li> <li>All the modifying factors used to convert the resource estimates to reserve estimates are based on historical and current mining experience. At Caotang, Heiwan, and Changhong, the mining activities are currently in the main seams modelled.</li> <li>Reconciliation between actual mine production and resource and reserve estimates in the seams currently being mined are good.</li> </ul>	

APPENDIX 3.0 DECLARATION OF QUALIFIED PERSON – YINGTING (TONY) GUO

#### APPENDIX 3.0 Declaration of Qualified Person – Yingting (Tony) Guo

With respect to the attached Independent Qualified Person's Report (IQPR), I, Yingting (Tony) Guo, certify that, to the best of my knowledge and belief:

- 1) I am an Independent Qualified Person in accordance with the requirements of the ASX Listing Rules for Mineral, Oil and Gas Companies as issued by the Australian Securities Exchange and I am a "Competent Person," as defined in the JORC Code 2012 Edition.
- 2) I have more than 27 years of international experience in the coal industry including coal mines, properties and facilities that are substantially similar to the coal mines, properties and facilities described in the IQPR. That experience includes estimation, assessment, and evaluation of coal-bearing properties, coal mine operations, coal preparation plants, and feasibility studies related to such matters.
- 3) I am a registered Professional Geoscientist from the Association of Professional Engineers and Geoscientists of the Province of British Columbia, Canada with License Number 31257. The organization is self-regulatory association of mining industry professionals that:
  - a) admits members on the basis of academic qualifications and experience
  - b) requires compliance with the organization's professional standards of competence
  - c) requires compliance with a code of professional ethics
  - d) has disciplinary powers to suspend or expel a member
- 4) I supervised the independent technical review team described in Section 2.2 of the IQPR and I am responsible for the overall content of the IQPR. I visited and made physical inspections of the properties, facilities, and operations described in the IQPR.
- 5) I am a Senior Associate of Behre Dolbear Asia, Inc. and I am not a sole practitioner.
- 6) I am personally independent of Blackgold International Holdings Limited, its affiliates, its shareholders, and its directors.
- 7) The sole remuneration for my professional services and the services of my team is in the form of hourly fees. My compensation is not dependent upon the attainment of any stipulated result, the occurrence of any subsequent event, or the reporting of any predetermined technical, operational, or financial information that favors Behre Dolbear's client.
- 8) I have no direct or indirect, present or prospective, pecuniary interest in the companies, mines, or properties that are the subject of the IQPR or in any of the Company's affiliates and subsidiaries, and I will receive no financial benefits other than the above hourly fees for professional services.
- 9) I have not been found in breach of any relevant rule or law and I am not the subject of any disciplinary proceeding. I am not the subject of any investigation that might lead to a disciplinary proceeding by any regulatory authority or any professional association.

- 10) Information in the IQPR has been obtained from sources believed to be reliable. The IQPR team and I considered all reasonably available information, which has a bearing on development of the IQPR and no facts have been intentionally disregarded.
- 11) The analysis, opinions, and conclusions presented in the IQPR were developed in accordance with the JORC Code 2012 Edition and with internationally-accepted coal industry standards for such reporting. The IQPR presents an independent, unbiased professional study of the data presented by Blackgold to me and to the Behre Dolbear team.

Further, I consent to the release of the IQPR and this Declaration by the Board of Directors of Blackgold International Holdings Limited.

Faithfully,

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Yingting (Tony) Guo, Ph.D., PGeo Professional Geoscientist from the Association of Professional Engineers and Geoscientists of the Province of British Columbia, Canada – License Number 31257

Senior Associate and Project Manager Behre Dolbear Asia, Inc.

# APPENDIX 4.0 DECLARATION OF QUALIFIED PERSON AND CORPORATE DIRECTOR – DONALD K. COOPER

### APPENDIX 4.0

### DECLARATIONS OF QUALIFIED PERSON AND CORPORATE DIRECTOR – DONALD K. COOPER

With respect to the attached Independent Qualified Person's Report (IQPR), I, Donald K. Cooper, certify that, to the best of my knowledge and belief:

- 1) I am an Independent Qualified Person in accordance with the requirements of the ASX Listing Rules for Mineral, Oil and Gas Companies as issued by the Australian Securities Exchange and I am a "Competent Person," as defined in the JORC Code 2012 Edition.
- 2) I have more than 35 years of international experience in the coal industry including coal mines, properties, and facilities that are substantially similar to the coal mines, properties, and facilities described in the IQPR. That experience includes estimation, assessment, and evaluation of coal-bearing properties, coal mine operations, coal preparation plants, and feasibility studies related to such matters.
- 3) I am a Qualified Professional Member of the Mining and Metallurgical Society of America (MMSA) and I hold Member Number 01373QP. MMSA is a self-regulatory organization of mining industry professionals that:
  - a) admits members on the basis of academic qualifications and experience
  - b) requires compliance with the organization's professional standards of competence
  - c) requires compliance with a code of professional ethics
  - d) has disciplinary powers to suspend or expel a member
- 4) I was the Senior Advisor to the independent technical review manager and the Behre Dolbear team described in Section 2.2 of the IQPR. I reviewed and approved the content of the IQPR.
- 5) I am not a sole practitioner. I am Chairman of the Board of Directors of Behre Dolbear Asia, Inc. and Global Director of Coal Services for that company's parent, the Behre Dolbear Group, Inc.
- 6) Behre Dolbear Asia, Inc. and I are corporately and personally independent of Blackgold International Holdings Limited, their affiliates, their shareholders, and their directors.
- 7) The sole remuneration for my professional services and the services of Behre Dolbear Asia, Inc. is in the form of hourly fees. Neither my compensation nor the compensation of Behre Dolbear Asia, Inc. is dependent upon the attainment of any stipulated result, the occurrence of any subsequent event, or the reporting of any predetermined technical, operational, or financial information that favors Behre Dolbear's client.
- 8) Neither I, nor Behre Dolbear Asia, Inc., have any direct or indirect, present, or prospective, pecuniary interest in the companies that are the subject of the IQPR or in any of their affiliates and subsidiaries. Neither I, nor Behre Dolbear Asia, Inc., will receive financial benefits other than the above hourly fees for professional services.
- 9) Neither, I nor Behre Dolbear Asia, Inc., has not been found in breach of any relevant rule or law and we are not the subject of any disciplinary proceeding. Neither I, nor

Behre Dolbear Asia, Inc., is the subject of any investigation that might lead to a disciplinary proceeding by any regulatory authority or any professional association.

- 10) Information in this IQPR has been obtained from sources believed to be reliable. The IQPR team and I considered all reasonably available information, which has a bearing on the IQPR and no facts have been intentionally disregarded.
- 11) The analysis, opinions, and conclusions presented in the IQPR were developed in accordance with the JORC Code 2012 Edition and with internationally-accepted coal industry standards for such reporting. The IQPR presents an independent, unbiased professional study of the data presented by Blackgold to the independent technical review manager and the Behre Dolbear team.

Further, I consent to the release of the IQPR and this Declaration by the Board of Directors of Blackgold International Holdings Limited.

Faithfully,

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Donald K. Cooper, MMSA QP Member 01373QP Chairman, Board of Directors Behre Dolbear Asia, Inc.

# APPENDIX 5.0 DECLARATION OF QUALIFIED PERSON – ANTHONY R. CAMERON

### APPENDIX 5.0 Declaration of Qualified Person – Anthony R. (Tony) Cameron

With respect to the attached Independent Qualified Person's Report (IQPR), I, Anthony R. (Tony) Cameron, certify that, to the best of my knowledge and belief:

- 1) I am an Independent Qualified Person in accordance with the requirements of the ASX Listing Rules for Mineral, Oil and Gas Companies as issued by the Australian Securities Exchange and I am a "Competent Person," as defined in the JORC Code 2012 Edition.
- 2) I have 18 years of international experience in the coal industry including coal mines, properties and facilities that are substantially similar to the coal mines, properties and facilities described in the IQPR. That experience includes estimation, assessment, and evaluation of coal-bearing properties, coal mine operations, coal preparation plants, and feasibility studies related to such matters.
- 3) I am a registered member and a Fellow of the Australasian Institute of Mining and Metallurgy. That organization is self-regulatory association of mining industry professionals that:
  - a) admits members on the basis of academic qualifications and experience
  - b) requires compliance with the organization's professional standards of competence
  - c) requires compliance with a code of professional ethics
  - d) has disciplinary powers to suspend or expel a member
- 4) I was a member of the independent technical review team described in Section 2.2 of the IQPR and, among other information, I am responsible for the discussion of coal reserves the IQPR. I visited and made physical inspections of the properties, facilities, and operations described in the IQPR.
- 5) I am a Senior Associate of Behre Dolbear Asia, Inc. and I am not a sole practitioner.
- 6) I am personally independent of Blackgold International Holdings Limited, its affiliates, its shareholders and its directors.
- 7) The sole remuneration for my professional services is in the form of hourly fees. My compensation is not dependent upon the attainment of any stipulated result, the occurrence of any subsequent event, or the reporting of any predetermined technical, operational, or financial information that favors Behre Dolbear's client.
- 8) I have no direct or indirect, present or prospective, pecuniary interest in the companies, mines, or properties that are the subject of the IQPR or in any of the Company's affiliates and subsidiaries, and I will receive no financial benefits other than the above hourly fees for professional services.
- 9) I have not been found in breach of any relevant rule or law and I am not the subject of any disciplinary proceeding. I am not the subject of any investigation that might lead to a disciplinary proceeding by any regulatory authority or any professional association.

- 10) Information in the IQPR has been obtained from sources believed to be reliable. The IQPR team and I considered all reasonably available information, which has a bearing on development of the IQPR and no facts have been intentionally disregarded.
- 11) The analysis, opinions, and conclusions presented in the IQPR were developed in accordance with the JORC Code 2012 Edition and with internationally-accepted coal industry standards for such reporting. The IQPR presents an independent, unbiased professional study of the data presented by to me by Blackgold.

Further, I consent to the release of the IQPR and this Declaration by the Board of Directors of Blackgold International Holdings Limited.

Faithfully,

Anthony R. (Tony) Cameron Registered Fellow of the Australasian Institute of Mining and Metallurgy

Senior Associate Behre Dolbear Asia, Inc.